GRAND CANYON INSTITUTE

Policy Analysis

April 17, 2023

Tempe Subsidy of Proposed Coyotes Arena Not Covered by Economic Returns

Key Findings

This economic impact analysis examines the Arizona Coyotes arena and music venue components of the proposed Tempe Entertainment District (TED). The arena and music venue represent the project's primary economic driver and the most critical for evaluating the subsidy arrangement agreed to with the City of Tempe.

The report also looks at other potential uses of the property and how those alternative uses compare on an overall gross (not new) revenue basis.

The Grand Canyon Institute's (GCI) key findings follow.

Arizona Coyotes arena/music venue economic impact

- The arena events will squeeze the concert/show event market in the Phoenix Metropolitan Statistical Area (MSA) as touring shows are relatively fixed but the area will have three large arenas instead of two.
  - The assumption of 45 events plus hockey games for the arena may be optimistic and the arena will negatively impact the Footprint Center owned by the city of Phoenix and/or Gila River Arena owned by the city of Glendale to the degree it hosts a large number of events.
- For every $2.70 diverted from the city to the community facilities district (CFD), the city only receives $1 in new revenue as a consequence of new spending drawn by the arena and music venue and its recirculation within Tempe.
  - While the revenue gained does not match diverted taxes to the CFD, this shortfall will not create a general fund obligation.
  - Since the city effectively spends $2.70 to make $1, the shortfall will impact the growth of the general fund.
- The study paid for by the city and the study the developer's consultant provided which show net gains for the city rely on highly speculative, fairly arbitrary numbers

to evaluate the entire project, rather than focusing on new spending drawn to Tempe as a consequence of events at the arena and music venue.
    - Both failed to subtract the cost of any Tempe business that was lost to the CFD.
- Because the Coyotes have been in the Phoenix MSA for more than 30 years, and most entertainment spending is simply redistributed, the impact on the greater Phoenix MSA economy is negligible.

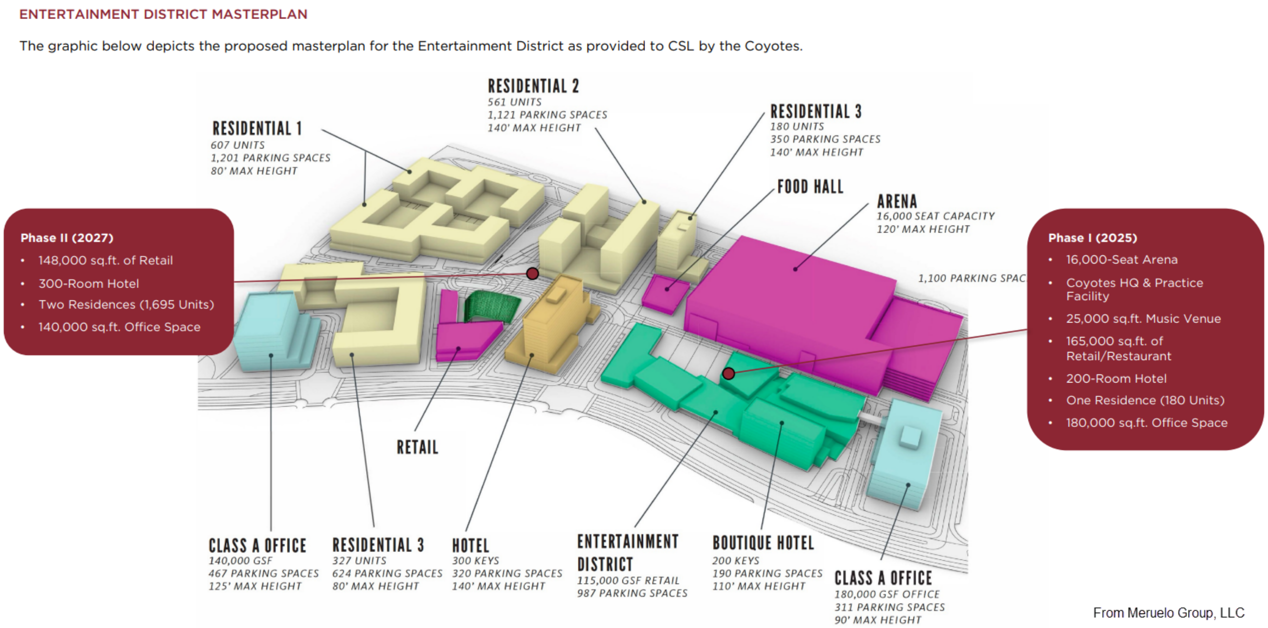
Evaluating alternative uses of the site

- Measured on an overall gross tax revenue impact (not just new), tax revenue to the city from the project is not likely to exceed alternative uses of the site that do not require a CFD.
    - Added cash and noncash benefits of significance equal a net present value (NPV) of $6 million—other benefits are generally self-serving for the project or significantly overvalued such as "naming rights."
    - Overall revenue is speculative. Full build out is unlikely, e.g. one hotel instead of two.
    - Overall revenue estimates do not include commerce transferred to the area away from other Tempe businesses, the substitution effect. Estimates of the substitution effect vary widely and are not reliable. So comparisons should be taken with some caution.

Overview

The proposed Tempe Entertainment District (TED) has been a source of questions regarding its fiscal impact. The TED includes an arena, practice facilities, and office space for the Arizona Coyotes professional ice hockey team as well as a music venue, retail, office, hotel, and residential space. Figure 1 shows the proposed layout as presented in the development agreement as developed by the Meruelo Group, LLC.

Figure 1: Tempe Entertainment District Master Plan



The project would sit on the northeast parcel of about 46 acres at Priest Road and Rio Salado Parkway, just west of the Tempe Town Lake dam. It includes two phases. The first phase includes a 16,000 seat arena, a 3,000 seat music venue, Coyotes headquarters and practice facility, 165,000 sq. ft. of retail/restaurant space, 180,000 sq. ft. of class A Office space, a 200 room boutique hotel, 180 residential units and a parking garage with 1,100 spaces.

Phase II adds 140,000 sq. ft. of class A office space, 1,495 residential units, 148,000 sq. ft. of restaurant/retail space, and a 300 room convention hotel.

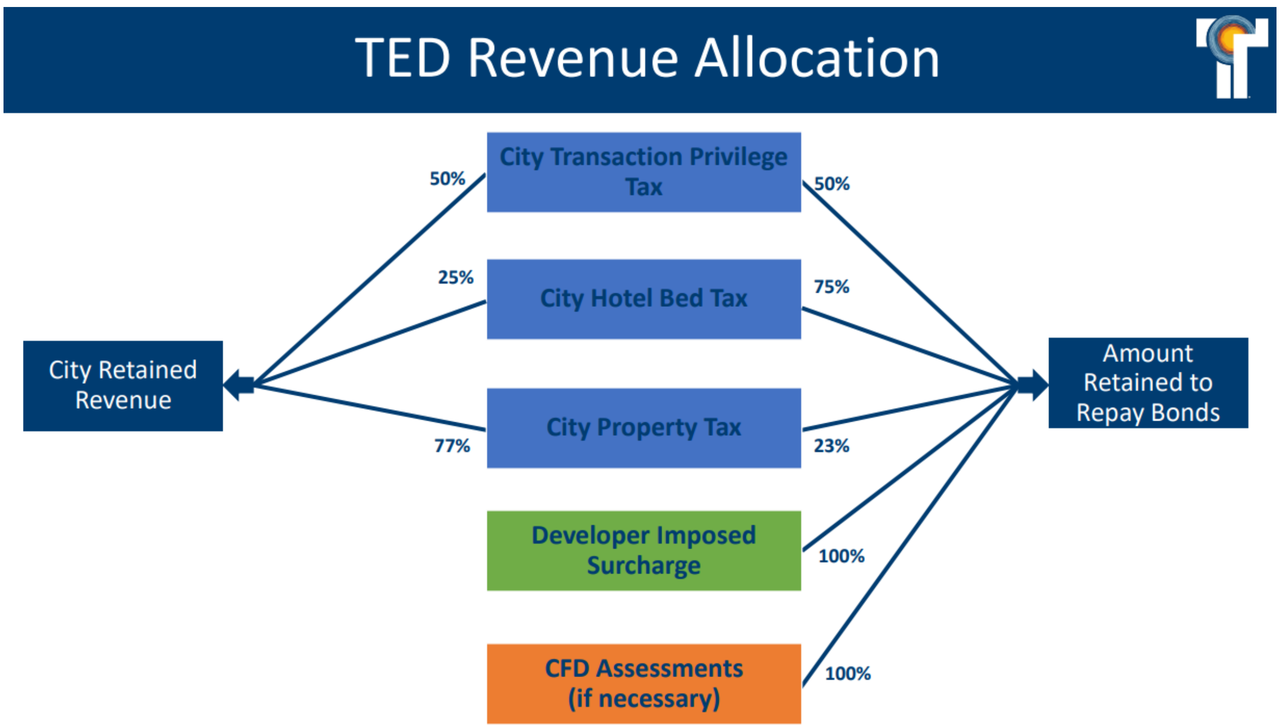
Under the development agreement, a $208 million bond is anticipated to cover significant site remediation costs of $73 million as it is a former landfill as well as numerous other infrastructure and site readiness and improvements. The city is proposing a CFD debt service expense fund that would direct portions of city taxes generated by the project's users for 30 years to help pay for the bond. The developer will also impose a 2.3% surcharge on retail activity at the site along with added amounts to cover bond payments, if needed.

The CFD would receive revenue from the following sources over 30 years:

- Half of the city transaction privilege (sales) tax and commercial lease tax (0.9 percentage points of the 1.8% tax)
- Three-quarters of the city lodging tax (3.75 percentage points of the 5% tax)

- 19.6% of the city's primary property tax after an 8-year government property lease excise tax[1] (GPLET) on retail, hotel, residential and office buildings within the development. The arena, music venue, and Coyotes facilities have a 30-year GPLET which represents the duration of the CFD. The CFD does not receive any property-related tax from the project while either GPLET is in effect.

Figure 2: TED Revenue Allocation



Prior Economic Analyses

An economic impact report provided by the Meruelo Group's consultant (Convention, Sports and Leisure, LLC) made numerous errors in concluding the nominal net return to Tempe would be $154.3 million over 30 years, including leaving out the word "nominal." Nominal means the figures include inflationary effects over 30 years, making them appear larger than they really are. When GCI adjusts for errors in their calculations but keeps most of their assumptions, this gain entirely disappears (see Technical Appendix).

The City of Tempe contracted with real estate development consulting firm Hunden Strategic Partners (HSP) to conduct an independent economic impact analysis of the TED

[1] The HSG spreadsheets say 19.6%, though the development agreement says 22.7%. A government property lease excise tax (GPLET) is a local excise tax that is based on the square footage of a building rather than on its value. GPLET is levied on entities that lease the property of a city, town, county or county stadium district for commercial or industrial purposes for at least 30 days.

HSP did a thorough market analysis but it provides a highly speculative total economic impact rather than focusing on the returns to the arena and music venue which are the the motivating purpose behind the CFD. HSP estimates a nearly $200 million net nominal return to the city after paying off the bond through the CFD over 30 years—again without noting it is "nominal." Using the assumptions of HSP, GCI notes that HSP omitted foregone revenue that Tempe loses to the CFD which reduces their net revenue gain by 25% or $47 million in nominal dollars over 30 years (see Technical Appendix).

The Squeeze on Arena Events

The City of Tempe contracted Hunden Strategic Partners (HSP), a real estate development consulting firm, to conduct an analysis of the entire project. Three tables from HSP's analysis of the arena market are presented below in Figure 3. The information looks at eleven years of data across numerous cities and while the number of events varies, generally the number of touring shows accessing Phoenix has been limited. Given the underuse of Gila River Arena compared to the Footprint Center, the likely cause is not a capacity constraint but the logistical feasibility of including Phoenix for touring operations due to its location within the United States. Adding a third arena is likely to have a minimal impact on the number of events coming to Phoenix, rather it will impinge on the other two arenas. HSP presumes that the new arena will host 45 ticketed events plus 43 Coyotes games annually, while that is similar to the Footprint Center and greater than Gila River (to the degree that estimate is accurate) it will primarily result from the relocation of other events. Promoters will be in a stronger position to play arenas off against each other to drive up their margins and drive down the margins for the arenas. While GCI uses the HSP assumption in its analysis, after any initial halo effect, it is probably an overly optimistic assumption. To the degree the projection is accurate, Tempe will be posing costs on to the city of Phoenix who owns the Footprint Center and/or the city of Glendale who owns Gila River casino.[2]

[2] Professor Mark Rosentraub of the University of Michigan who has consulted with cities related to arena use and capacity issues provided important insights for this section.

Figure 3: Phoenix MSA Arena Analysis

Phoenix MSA| Market Share for Events

Year	# of Events in Market	Footprint Center	Gila River Arena
2019	67	76%	24%
2018	72	75%	25%
2017	75	79%	21%
2016	77	86%	14%
2015	91	79%	21%
2014	70	77%	23%
2013	66	86%	14%
2012	74	81%	19%
2011	72	85%	15%
2010	58	47%	53%
2009	55	47%	53%
Average	**71**	**74%**	**26%**

Source: Hunden Strategic Partners, Polstar

Number of Events Held in Arenas by Market

Year	Minneapolis-St Paul, Minnesota	Seattle, Washington	Phoenix, Arizona	Denver, Colorado	Miami, Florida	Atlanta, Georgia
2019	69	103	67	86	143	112
2018	98	92	72	116	138	95
2017	81	57	75	113	120	102
2016	106	60	77	102	141	113
2015	79	71	91	83	129	97
2014	94	60	70	87	116	86
2013	75	41	66	89	122	82
2012	85	63	74	114	103	87
2011	76	70	72	100	126	113
2010	82	62	58	79	99	83
2009	106	60	55	48	110	94

Seattle market does not include events from Climate Pledge Arena
Source: Hunden Strategic Partners, Polstar

HSP assumes 45 ticketed events per year plus Coyotes games at the arena.

Very few will be new to Phoenix.

National Arena Market Comparison (10K - 23K Seats)

City	Metropolitan Statistical Area	# Competitive Arenas in Market	Total Competitive Arena Seats in Market	MSA Population per Seat
Phoenix with TED	**4,845,832**	**3**	**54,500**	**89**
Minneapolis - St Paul	3,690,261	2	39,855	**93**
Seattle	4,018,762	2	42,125	**95**
Phoenix	**4,845,832**	**2**	**38,500**	**126**
Denver	2,963,821	1	21,000	**141**
Miami	6,138,333	2	42,457	**145**
Atlanta	6,089,815	2	34,000	**179**
Detroit - Ann Arbor	4,392,041	1	21,000	**209**
Dallas - Fort Worth	7,637,387	2	34,000	**225**
Average		***2***	***33,297***	***160***

Source: Hunden Strategic Partners, US Census, Polstar

GCI's Economic Analysis

GCI relied on a combination of assumptions from the developer's consultant and HSP in developing its estimates for this analysis.[3] Whereas HSP stated an intent to make conservative estimates in reference to the arena and music venue, GCI has chosen to err on the high side. GCI increased HSP's arena/music venue initial estimates by 3% and did not assume any drop off in attendance, such that by the end of 30 years GCI's estimates are 5% greater than HSP's. The intent was to approximate about 1,000 more people per hockey game than the 14,250 amount used by HSP, since no other event was assumed to have higher attendance (concerts and other events), The adjustment is approximate.

[3] GCI sought feedback related to the methodology pursued in this report from 7 well-known economists with a strong background in this field, some of whom have consulted for cities or professional sports teams related to venues. Others are known critics. GCI appreciates their input.

GCI engages in what most economists look at as injections to the Tempe economy, through people spending money in Tempe who would not otherwise have done so. Sport and music events tend to redistribute spending. GCI's analysis focuses on where Tempe residents might spend those dollars in Tempe instead of outside Tempe or other people who might choose to spend their entertainment dollars in Tempe rather than elsewhere.

GCI's approach differs from the approach used by HSP and Convention, Sports and Leisure who tried to come up with an economic impact for the entire project. The returns on the other parts of the project are far more speculative in terms of what might be new to Tempe, would not require the formation of a CFD to go forward if there was no arena[4], and is the type of activity one should be wary of including in an economic impact analysis. Unlike the Taiwan Semiconductor Manufacturing Company's manufacturing facility being built in North Phoenix that will inject new income streams from sales outside the area, general residence, retail, hotel and office space are passive that require an external economic force to create the demand to fill them up.

Arena and Music Venue Economic Impact Analysis

GCI uses high-end assumptions on the economic impact. GCI used Convention, Sports and Leisure's distribution of visitor spending combined with data from HSP related to the residential proximity of attendees at ASU's nearby basketball arena and football stadium. GCI enhanced the number of visitors expected by Convention, Sports and Leisure by 10% to better match HSP's expectations of total attendance to 1.2 million instead of 1.1 million annually–even though it's quite possible these figures are overly optimistic.

GCI also adjusted for re-allocated spending that occurred within Tempe. For instance, "casual" visitors are in town for other reasons. If they happen to choose a Coyotes game or an arena or music venue concert instead of going out to dinner and seeing a movie in Tempe, then they have re-allocated spending within Tempe and do not represent new spending. Or take someone who lives in Gilbert and frequently goes to Mill Avenue, but one night chooses to attend a concert at the music venue instead, then that spending is also re-allocated. On the other hand, some Tempe residents who used to travel to Glendale to watch hockey can now do so in Tempe. Entertainment budgets are limited, so any added spending for Coyotes games or concerts can also impact the amount of entertainment spending done later. GCI estimates 89% of the arena event expenditures are new to Tempe and 71% of the music venue expenditures are new to Tempe. This lower number is derived from HSP estimating that 20% of the music venue's concerts will

[4] For instance with Victory Park in Dallas, one of the projects examined by HSP, two studies have concluded either the development would have occurred anyway or that the arena was not necessary for the development. See Pyrrhic Victory: Tax Increment Financing, "But For," and Developer Capture in the Dallas Arena District (marquette.edu) and Does the arena matter? Comparing redevelopment outcomes in central Dallas tax increment financing districts - ScienceDirect.

be pulled from the Marquee Theater which is also in Tempe (see Technical Appendix for details).

Visitors also spend money outside the arena and music venue, so Convention, Sports and Leisure's expectations were applied here in terms of spending per person, including those spending the night in hotels, as well as visiting personnel, such as visiting teams and their staff personnel.

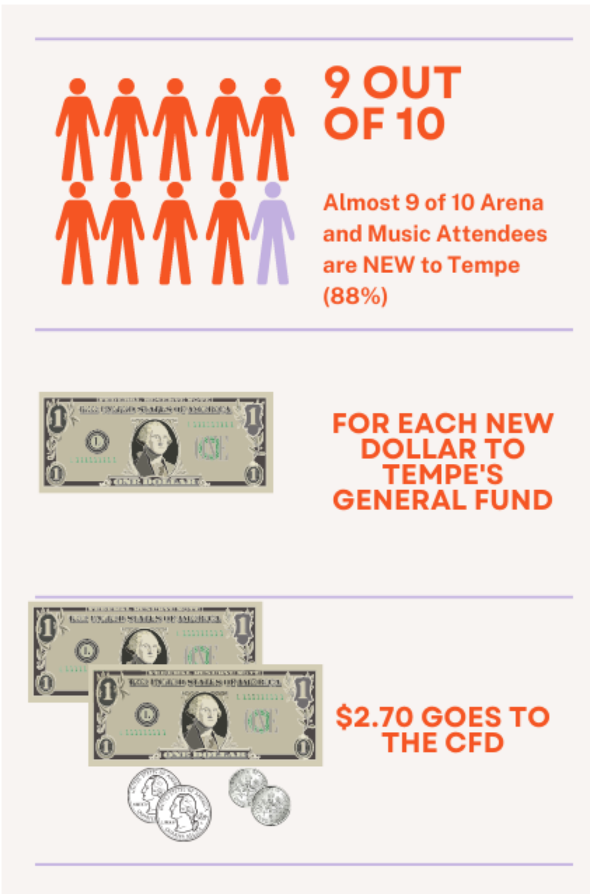


Table 1 shows the results of GCI's economic impact analysis. Nominal refers to dollars that are not adjusted for inflation–so these amounts end up looking inflated. Both HSP and Convention, Sports and Leisure almost always use nominal numbers without clarification. HSP assumed an annual inflation rate of 2%, so GCI mirrored that. GCI also presumes that the interest rate on the bond will be 4.5% so GCI chose to use 4.5% to adjust figures for net present value (NPV).

NPV is how returns should normally be stated. To understand NPV consider if you were offered $100,000 now or $100,000 in five years. You surely would rather have the money now because in five years due to inflation it would be worth less. But even if you were offered $110,408, its equivalent in five years adjusted for 2% annual inflation, you would still rather have it now as you know if you invested the $100,000 you would have more than $110,000 due to a likely higher rate of return on your investment. NPV does that in reverse by thinking about how much money in the future is worth now. With a discount rate of 4.5%, the same interest rate GCI anticipates as the interest rate on the CFD bond, the value of $124,618 five years from now is $100,000 today. That would be a trade that would be seen as equivalent. So the NPV of $124,618 five years from now is $100,000.

Table 1 shows the NPV of the visitor proceeds over 30 years to Tempe is $39 million, the NPV of tax revenue lost to the CFD over 30 years is $104 million, so Tempe ends up losing $65 million. That means for every $2.70 in revenue diverted to the CFD, Tempe only receives $1 in added revenue in return, meaning the CFD will be a net drain, not a net gain, on the city's general fund.

This result is consistent with a myriad of other economic studies which have found that professional sport team stadium or arena subsidies have low pay-off rates.[5]

Table 1: GCI's Economic Impact Analysis of Arena and Music Venue to the City of Tempe

	(thousands of dollars)	
TED Visitor Analysis	Net to Tempe (Nominal)	Net to Tempe (NPV)
Arena/Music Venue Operations	$ 56,313	$ 29,401
Out of Arena Spending	$ 16,577	$ 8,820
Visiting Personnel Spending	$ 844	$ 449
Total Gain from CFD	**$ 73,734**	**$ 38,669**
	To CFD (nominal)	**To CFD (NPV)**
Total Cost of CFD	**$ 202,140**	**$ 104,373**
Net Gain (Loss) in Tax Revenue	**$ (128,406)**	**$ (65,703)**

GCI's analysis includes an estimated multiplier impact. The multiplier used is between 0.25 and 0.27, meaning that for every dollar in expenditures that are new to Tempe as a result of the arena/music venue, an additional 25 to 27 cents accrues within Tempe (see Technical Appendix for more details on multiplier derivation). However, the taxes collected on what are termed indirect and induced effects is significantly less because much of the revenue is generated by services (i.e., financial or business) and wholesale sales, none of which pay Tempe's transaction privilege tax, generally known as a sales tax. Convention, Sports and Leisure noted this well by only seeing 37% of the multiplier effect as taxable for the city. However, Convention, Sports and Leisure used a multiplier for new spending if it occurred anywhere in the Phoenix MSA and assumed that all occurred only in Tempe, making their impact about four times larger than appropriate. HSP uses a more appropriate multiplier, but their overall model of economic impacts appears excessively reliant on assuming new spending outside the CFD, which leads to inflated new tax revenue expectations.[6]

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[5] Bradbury, John Charles, Dennis Coates, and Brad R. Humpheys (2022),"The impact of professional sports franchises and venues on local economies: A comprehensive survey," Journal of Economic Surveys, https://doi.org/10.1111/joes.12533.

[6] Because off-site gains are not subject to the CFD, overstating them would make tax revenue appear larger. A deconstructive analysis of the gains in tax revenue to Tempe relative to revenue for the CFD (Table

Economic Impact Analyses Gone Wrong

Both Convention, Sports and Leisure, LLC and HSP do broader economic impact analyses of all the proposed structures that go well beyond focusing on new expenditures generated from the proposed arena and music venue.

Both consulting firms develop what they call "net new" estimates. This was in line with Tempe's [request for proposals] (RFP) that designated identifying "cannibalization" effects—where the project takes commercial activity away from other Tempe businesses.

> *People do not travel to the Phoenix Metropolitan Area because a new hotel was built, nor do they move here because a new apartment complex was built, nor does a new business get created because an office space is built. These spaces are filled due to other activity in the economy and rely on other activity in the economy to succeed.*

Unfortunately, while both technically met the requirement in the RFP, GCI found two issues. One, both failed to subtract the portion of cannibalization, forgone revenue, since Tempe would receive all of the sales tax revenue outside the CFD, but only half of it inside it. That was one of many corrections that removed a net gain to Tempe found by Convention, Sports and Leisure. For HSP it dropped their overall net to Tempe revenue by 25% (full details in Technical Appendix). Second, the "net new" revenue estimates developed are highly speculative, fairly arbitrary and largely inconsistent with each other as noted in Table 2 below.

So while GCI assumes 95% of hotel guests are non-casual visitors that will stay in Tempe hotels (a high-end assumption), it is only applied to the 5% of attendees at the arena and music venue that are predicted to be out-of-town overnight hotel visitors. By contrast the other analyses look at all prospective hotel guests. While GCI informed its calculations from available research and survey data from somewhat similar attractions (see Technical Appendix), little is known about how HSP or Convention, Sports and Leisure, LLC reached their "net new" estimates. HSP uses 65% across all hotel guests as new to Tempe and Convention, Sports and Leisure uses 40% for the hotel by the arena and 27% for the conference hotel planned for the second phase. These numbers may sound precise, but are fairly arbitrary and vary considerably. The music venue calculation was HSP's only clear calculation. They estimate 20% of the music venue concerts will be relocated from The Marquee Theater also in Tempe. However, even then the substitution

10-5 in HSP's report) found much more than half of the new retail sales came from off-site and 72% of hotel stays came from off-site. Growth in lease taxes and property taxes were also heavily reliant on assumptions of increased property values off-site (in Technical Appendix link to spreadsheet to deconstruct worksheet).

effect of say ASU students going to a concert instead of karaoke night at a Tempe nightclub was omitted. Table 2 shows the distribution of net new estimates.

Table 2: Net New Estimates

	Hunden Strategic Partners		Convention, Sports and Leisure		Grand Canyon Institute	
Use Type	% Net New	% Substitution	% Net New	% Substitution	% Net New	% Substitution
Multi-family	70%	30%	27%	73%	not appropriate	
Office	70%	30%	27%	73%	not appropriate	
Retail	75%	25%	59%	42%	93%*	5%
Hotel (Stabilized)	65%	35%	40%/27%	60%/73%	95%**	5%
Music Venue	80%	20%	46%	54%	71%	29
Arena	98.10%	1.90%	46%	54%	89%	11%

*93% is for arena/music venue visitors only.
**95% is for arena/music venue overnight visitors only in Tempe.

To examine it more closely, HSP finds that the Tempe high-end hotel market has grown substantially (ch. 7, p. 13) with 22% growth in rooms from 2020 to 2021 and hundreds more in the pipeline, well-above its historic growth rate since 2013. Despite that, a case for the economic feasibility of one high-end hotel close to the venue sounds compelling. However, HSP then presumes a high occupancy rate of 75% (year round average) in a few years and that 65% of occupants would not have otherwise stayed in Tempe while adding 500 rooms from two hotels. This seems overly optimistic on occupancy rate and questionable that only 35% of guests are taken from other high-end hotels in Tempe. Likewise, while residential housing is needed, they found far higher vacancy rates for Class A office space yet presume both will serve 70% of people who would not have otherwise been in Tempe.

These analyses tend to be quite speculative. GCI, for instance, is dubious that if approved by voters, that both hotels proposed come to fruition. According to HSP, the top year for nearby upscale hotels was 2019 when on a typical night 1,476 room nights were sold and the nightly capacity was 1,926 for or an average capacity of 76%, which is strong. However, between what is built and what is opening soon and excluding some other hotels also in the planning stage, the available room nights will increase by a whopping 40%, twice the growth rate from 2013-2019. If 5% of 15,000 fans at a hockey game are overnight visitors staying at hotels with 1.5 visitors per room that is a demand for 500 rooms. While it is true that most of these are during Tempe's high-season, keep in mind that there are actually 13,000 hotel rooms within a five-mile radius according to HSP (see their hotel market analysis) and if all were at 90% capacity that would still leave 270 rooms among the upscale hotels and 1,300 rooms within five miles.

The Barclays Center in Brooklyn, home to the Brooklyn Nets and for a time the NHL Islanders, illustrates that not everything planned necessarily gets built. Table 3 below, taken from an analysis by Geoffrey Propheter, shows how projects can be substantially oversold.[7] In this case, five years after the Barclays Center opened the hotel had not materialized and very little of the retail, office and residential space had been developed, meaning any overall economic impact analysis would have vastly overstated actual returns.

Table 3: Barclays Center — Projected and actual land uses in square feet

	Promised Before Opening in 2012	**Completed by end of 2017**
Total Square Feet	8,354,000	1,919,800
Arena (completed)	850,000	675,000
Hotel	165,000	0
Retail	247,000	4,700
Residential	6,363,000	1,192,000
Office/Commercial	336,000	48,100
Private open space	44,000	0
Public open space	349,000	0
Parking spaces	3,670	370

Sources: Propheter (2019) who gathered data from Final Environmental Impact Statement, New York Empire State Development Corporation (2006), Tables I–III; New York City Department of Buildings, Building Information System.

[7] Propheter, Geoffrey (2019), "Do professional sport franchise owners overpromise and underdeliver the public? Lessons from Brooklyn's Barclays Center," The International Journal of Public Sector Management, Vol.32 (1), p.80-101, DOI:10.1108/IJPSM-01-2018-0002.

Besides their speculative nature, the impact of these other elements from residential, office, hotel or retail are best left out of economic impact analyses as these are not truly injections into the economy. People do not travel to the Phoenix MSA because a new hotel was built, nor do they move here because a new apartment complex was built, nor does a new business get created because an office space is built. These spaces are filled due to other activity in the economy and rely on other activity in the economy to succeed. Retail tends to be secondary requiring a market first. It cannot create a market by itself.

Consequently, GCI only focused on the economic impact of activities that draw people to a location for which substitutes are less common, in this case events at the proposed arena and music venue. Note what makes the arena even possibly viable–and why no other developer bid on the RFP that required an arena for a sports team–was that the arena brings with it an anchor tenant, the Arizona Coyotes hockey team. So the Meruelo Group, which owns the Coyotes, became the only game in town with the Tempe RFP.

Opportunity Cost Analyses

The prior section considered the economic impact of the arena and music venue. Opportunity Cost 1 is comparing the potential overall gross tax revenue returns for different uses of the land. Opportunity Cost 2 uses HSP's "net new" estimates.

Proponents of the TED argue it is the best possible use for the land. If the TED does not go forward, the land would not stay vacant. It would eventually be developed. GCI completed two opportunity cost analyses; both found no significant revenue difference between the TED and alternative uses.

Opportunity Cost 1 focuses on "gross" rather than "net new" economic impacts, which means it does not adjust for how spending within the proposed TED or an alternative would replace spending that would have occurred elsewhere in Tempe. Therefore, one should be careful in reading too much into them. The "net new" estimates have already been noted as speculative and fairly arbitrary, but Opportunity Cost 2 builds off an example HSP provided. Both also assume a full build out and utilization rate that, as noted in the previous section, may not come to fruition.

Opportunity Cost 1

For its opportunity cost illustration, GCI used the proposed project but removed the arena and music venue, the reason for the CFD. GCI also removed half of the hotel space. GCI kept only the second portion of the retail/restaurant space, which is slightly less than half. GCI replaced this with added housing and office space, increasing both by 50%. As with the areas outside the arena and music venue, GCI applied an 8-year GPLET, removing property taxes in lieu of a much less expensive excise tax. Because this opportunity is not currently on the table, GCI assumes a 4-to 6-year delay for it to be built (2030 and 2032 instead of 2026 and 2028). Consequently, the returns are for less than 30 years. GCI also assumed all values were 10% less than the current proposal's figures in case the omission of the arena and music venue made the area somewhat less lucrative. This opportunity cost like the proposal would also require changing the general plan and rezoning.

The opportunity cost was applied to each of the components of the project: multi-family, office, retail/restaurant, hotel and arena/music venue. In addition, GCI also estimates that the $25 per sq. ft selling price of the land, post remediation, to be at least half of what Tempe could negotiate in a more competitive bidding process that did not require the inclusion of an arena.

The findings are summarized in Table 4 below:

Table 4: Analysis—Opportunity Cost 1

	(thousands of dollars)			
Opportunity Cost Analysis	**TED**	**Alternative**	**Net to Tempe (Nominal)**	**Net to Tempe (NPV)**
Multi-Family Component	$ 36,055	$ 69,867	$ (33,811)	$ (13,689)
Office Component	$ 13,498	$ 24,100	$ (10,603)	$ (4,198)
Retail/Restaurant Component	$ 62,607	$ 49,293	$ 13,314	$ 8,892
Hotel Component	$ 28,347	$ 31,117	$ (2,769)	$ 31
Arena/Music Venue Component	$ 61,191	$ -	$ 61,191	$ 32,556
Price/Remediation Adjustment	$ -	$ 27,128	$ (27,128)	$ (27,128)
TOTAL	**$ 201,698**	**$ 201,505**	**$ 193**	$ (3,536)

As can be seen in Table 4, the overall impact is fairly similar. Based on NPV, Tempe loses about $4 million, but given assumptions and the 30-year timeframe, they are essentially equivalent.

One additional line is the price/remediation adjustment. Tempe is set to sell the land to the developer at $25 per square foot. The net proceeds, about $50 million, are less than the projected $73 million cost of remediation, a loss which is already built into the CFD. GCI's evaluation of comparable land sales indicates that a $50 per square foot post-remediation sale price is closer to the actual market value of the land, which means as noted in Table

4, that the alternative scenario gains $27 million over the sale price negotiated with The Meruelo Group, after the cost of remediation. Table 5 provides some rough comparable properties that support a $50 per square foot post-remediation sale price.

Table 5: Price Comps

Property	Sale	Price	Acres	Sq ft	Price per Sq Ft	Rough equivalent adjustment to TED site	Notes
Los Arcos/SkySong (former proposed site for Coyotes)	2004	$41,500,000	42	1,680,000	$25	$49	not current (Green Street National Commercial Index used)
Tempe/Scottsdale	currently listed	not public	multi		$45-$50	$68	half height allowed as TED
South Pier at Tempe Town Lake	2022	$33,750,000	12.3	493,085	$74.02	$49	higher density allowed
Tempe Town Lake Parcel 132-32-017	2021	$11,200,000	2.4	96,957	$116	$77	higher density allowed

Proponents of the project would rightly point out that noncash and cash amenities excluded from this analysis such as “free” office space, city’s right to use space, and naming rights would likely be enough to tip the balance the other way. GCI examined noncash and cash amenities and considered the public relations value of “Tempe” being included in the name of the district and arena (along with a third party–such as The Grand Canyon Institute Arena in Tempe). While naming rights can be valued if they must be paid for, the better question is would Tempe pay for it, if the city had the option? GCI’s estimate is that Tempe would not pursue such a deal, even at a massive discount, so it is of far less value than implied. The naming rights are the vast majority of noncash value attributed to the project.

Charging a 30 cent fee to help Valley Metro provide subsidized travel to games is a marketing effort–and it is paid by patrons. The contribution toward shuttles is to assist event planning and is primarily self-serving. Free rent for a police substation ($100,000 value) will pale in comparison to the cost to the city of providing security around events. Even the developer paying $185,000 annually for 8 years while property taxes are abated is unlikely to cover the public safety expense. Public art again is something that is designed to beautify the space–something in the developer’s interest.

So the only three pieces that GCI found worth counting were the city's access rights for certain spaces including the arena. GCI values that at $1 million on an NPV basis. The $25,000 annual donation to ASU along with free office space to ASU over 30 years had an NPV of $3 million. In addition, the developer has promised $2 million toward affordable housing–which is not part of the project otherwise. Collectively, this adds up to $6 million to the value of the proposal, considerably less than how it is presented by HSP and the developer.

Overall, the NPV calculation of Opportunity Cost 1 suggests a loss of about $4 million, which is a negligible difference given the size of the project and the numerous assumptions made. If $6 million were added to the proposal as part of the cash and noncash additions then that gap is closed making the opportunity cost essentially similar.

Opportunity Cost 2

HSP also provided an illustration of gain using the IDEA campus that is adjacent to the area to be developed for purposes of comparison. HSP simply expanded the 18 acres to 46 acres to develop the comparison and noted that the TED offered a $50 million (nominal) advantage over the expanded IDEA campus. The IDEA campus is consistent with existing zoning, though its economic viability may not be as strong as a project with a strong residential component, so in that sense it may be less attractive than Opportunity Cost 1.

Table 6: Analysis—Opportunity Cost 2

Opportunity Cost Analysis 2	TED	IDEA	IDEA (density equal)
Acres	46	18	18
SF (built)	3,400,000	1,000,000	1330434.783
SF/Acre	73,913	55,556	73,913
Buildable GFA	3,400,000	2,555,556	3,400,000
On-site Property Tax	$ 32,681,953	$ 73,292,153	$ 97,510,430
On-site TPT	$ 123,059,215	$ -	$ -
On-site Commercial Lease Tax	$ 30,298,426	$ 76,115,777	$ 101,267,077
On-site Hotel Tax	$ 12,581,020	$ -	$ -
Total	**$ 198,620,614**	**$ 149,407,930**	**$ 198,777,507**

HSP appears to imply a simultaneous construction timeline and no GPLET, as opposed to the delay and 8-year GPLET assumed with Opportunity Cost 1. Adding these adjustments to the IDEA Campus opportunity cost would reduce its returns relative to TED.

However, GCI notes that to be a true opportunity cost the IDEA campus ought to have similar density to the TED and if that is done (again with no GPLET apparently and simultaneous build schedules), then the two projects are equivalent as noted in Table 6.

Conclusion

The TED is an expansive, multi-phased development that requires a significant investment to cover remediation and infrastructure costs. An added 16,000 seat arena is likely to create a significant business model challenge as the region will have three large arenas that need to book a relatively fixed number of available concerts and other large events to be economically viable. GCI's analysis finds that the project will not generate nearly sufficient additional municipal tax revenue to offset revenue the city has allocated to the CFD to assist in paying off the project's $208 million bond. For every $2.70 of tax dollars redirected to the CFD, Tempe will only gain $1 in new revenue.

Further, overall gross tax revenue to the city from the project is not likely to exceed alternative uses of the site that do not require a CFD. Because the Coyotes have been in the Phoenix MSA for more than 30 years and most entertainment spending is simply redistributed, the impact on the greater Phoenix metropolitan economy is negligible.

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Technical Appendix

All calculations in the GCI analysis can be found in [this spreadsheet]. The initial worksheets focus on the GCI analysis and the HSP report and the latter worksheets focus on the Meruelo Group's Exhibit B from Convention Sports and Leisure.

Visitor Detail and Economic Displacement/Substitution

Economic studies after construction consistently find that sporting events appear to be substitutes for other economic activity–so local spending should be excluded and only "non-casual" visitors who would have otherwise not come to the area are who should be considered in an economic impact analysis. Their primary reason to come was the event. "Casual" visitors and "time-switchers" (people who had planned to come but switched the time to attend the event) are not considered new spending since they would have spent the money somehow in the local economy.[8]

In this case, the context is slightly different because the local economy is much more fine-tuned to the city of Tempe which is only a small part of the Phoenix-Scottsdale-Chandler-Mesa metropolitan area. Consequently, the number of new visitors is much higher as visitors might be moving their spending from one part of the Phoenix MSA to Tempe–and even some Tempe residents might move spending from outside to inside the city. The flip side of that is businesses that receive these expenditures are far more likely to be purchasing from locations outside Tempe, meaning leakages from the economy are going to be much larger–so the multiplier impact will be much smaller (see next section).

Convention, Sports and Leisure presumably had access to data on fan attendance at Coyotes games as well as projections for the location of prospective attendees with a move to Tempe. The consultant assumed 95% of attendees were day trippers–with 60% residing in Maricopa County, 35% coming from outside the county, and 5% being overnight visitors staying in a hotel.

HSP did not do a visitor analysis but did provide some estimates of visitor geographical attendance for many multi-use areas that include arenas with shopping, so it was very hard to pull out an arena impact. However, one illustration was just for Sun Devil Stadium and Desert Financial Arena, the football and basketball homes of ASU teams. Which activity data was included was not clear–and obviously this would also include many

[8] Rascher, Daniel (2008), SportsEcnomics, "Market Assessment and Economic Impact Analysis for Proposed Soccer Stadium in the City of San Jose," www3.sanjoseca.gov/clerk/CommitteeAgenda/CED/022508/CEDC022508_4datt2.pdf

students. But students are only a minority of attendees. Their breakdown was visitors from within 10 miles, 10 to 30 miles away, and more than 30 miles away. The last category roughly corresponds to outside Maricopa County. HSP reports with data from Placer.ai that 32.2% of visits are from people who live within 10 miles, 39.5% are 10 to 30 miles away, and 28.2% are from farther away. This has some similarity to the 60% within county, 35% out of county, and 5% overnight visitors.

Placer.ai uses anonymous cell phone data and artificial intelligence machine learning algorithms to estimate foot traffic with a visit defined as staying at least 2 minutes at a location. They have 30 million cell phone user data points which they are able to use and interact with other data sets.These include evaluation of stadium and arena attendees.

GCI reconciles these data points by assuming 30% instead of 32.2% are within 10 miles, 30% instead of 39.5% are from 10 to 30 miles away and 35% are from farther away, and 5% are out of town overnight visitors. It should be noted that these assumptions INCREASE the estimated visitor spending and DECREASE the amount of assumed substitution effect occurring, so move impact estimates upward.

GCI then estimates what portion is displaced spending that should not be counted. The details are below.

First, economist John Charles Bradbury found that Cobb County, Georgia, collected an additional $4.6 million in sales tax revenue from The Battery, which includes Truist Park, home of the Atlanta Braves, from 2017 to 2019.[9] However, Bradbury estimates the county's total sales tax revenue only increased $3 million, suggesting that at minimum one dollar out of three displaced business from other Cobb County establishments.

Because Bradbury's estimate is based on just a three-year period and involved cross-county expenditures, it may not accurately represent this situation and probably represents a higher-end estimate. The San Jose study estimated a 23% portion of "casual" visitors from outside San Jose visiting the soccer stadium. They analyzed who would have spent money in San Jose regardless but substituted the soccer game for another San Jose expenditure either contemporaneously or at another time (time-shifting). That was presumably based on over a dozen survey estimates they had done in the area for other events. GCI considers the under 10 mile zone around the arena as most consistent with this geographical comparison, so uses 20% for the under 10 mile radius substitution effect, meaning 4 in 5 attendees from this area attending a hockey game would not have otherwise spent the money contemporaneously or at another time in Tempe.

[9] Bradbury, John Charles (2022), "Sports stadiums and local economic activity: Evidence from sales tax collections," Journal of Urban Affairs, https://doi.org/10.1080/07352166.2022.2044837.

GCI then expects the substitution effect to diminish as the distance traveled increases. Survey data, something not cited by HSP or Convention, Sports and Leisure, is normally how one estimates visitors.

Of particular interest are "non-casual" visitors who come specifically for the event and would not have otherwise spent money in the local economy. "Casual" visitors by contrast are already in the area and happen to spend money at the event, but are assumed to have otherwise spent money somewhere else locally. So they are not a new economic impact. Events have a wide range of "non-casual" to "casual" visitors. The survey analysis of "Chihuly in the Garden" at Desert Botanical Garden showed that outside of locals, 95% of visitors were "casual" and only 5% "non-casual."

At the high-end, a survey in York of the Tour de France when three stages of the race were actually in England in 2014 found that about 88% of nonlocal visitors were "non-casual," they came specifically to see the Tour, not surprisingly.

GCI's visitor estimate for Tempe is 93% are non-casual among attendees living more than 10 miles away, since Tempe is a narrower geographic location, with 90% of those living 10-30 miles considered non-casual, and 95% of those out of county as well as overnight visitors are considered non-casual.

These assumptions may be high. John Crompton citing a number of visitor surveys found the portion of casual visitors out of total visitors from outside the city location of an event was between 25% and 50%, well higher than the assumptions made here.[10]

The net result is that 89% of arena attendees are assumed to be new expenditures in Tempe. Because the music venue is assumed to pull 20% of its events from The Marquee in Tempe, its new expenditures are 80% of 88% or 71%. See Table A1.

Of the expenditures by visitors outside the arena, GCI assumes 40% of it occurs in the CFD, which is in line with the number used by Convention, Sports and Leisure and appears consistent with HSP's analysis as well from GCI's forensic derivation of their hotel tax revenue estimates.

[10] Crompton, John L. (2010), "Measuring the Impact of Park and Recreation Services," National Recreation and Park Association, https://www.nrpa.org/globalassets/research/crompton-research-paper.pdf, see Table 6-2.

Table A1: New Visitor Estimation

	From Developer	Portion of NEW Arena Attendees	Not Displaced or substituted
% Visitors Maricopa County	60%		
% from within 10 miles	30%	24%	0.8
% beyond 10 miles within County	30%	27%	0.9
Outside Maricopa County day trippres	35%	33%	0.95
Out of Town Visitors	5%	5%	0.95
Net New Arena related spending		**89%**	
	From Developer	Portion of NEW Music Venue Attendees	Not Displaced or substituted
Percent New to Market		80%	HSP assumes 20% is taken from Marquee Theater
% Visitors Maricopa County	60%		
% from within 10 miles	30%	24%	0.8
% beyond 10 miles within County	30%	27%	0.9
Outside Maricopa County day trippers	35%	33%	0.95
Overnight Visitors	5%	5%	0.95
Net New Music Venue related spending		**71%**	

Multiplier Impacts

The flip side of a narrower geographic location is that leakages into the broader MSA are going to be far more common. GCI looked at a number of studies including one by HSP of renovations to Margaret Hance Park in Phoenix that was visitor-focused to determine probable multiplier effects. Below are a collection of studies in urban areas that show multiplier effects. Tempe is by far the smallest urban geographic area of those listed below. Since GCI does not have direct access to Input-Output (I-O) software, GCI developed an estimate from existing sources. RIMS II is from the Bureau of Economic Analysis, the source of all I-O software's main information. The RIMS II user guide noted that for two identified areas, computer manufacturing and professional services, how the multiplier derived for Odessa TX was about one-half of that for Austin TX, when focusing on the portion above one. Based on that, GCI used the Austin multiplier's portion above 1 multiplied by 75% as the best estimate of the multiplier. In addition, the RIMS II user guide noted that one needs to apply the multiplier to the margin for retail purchases and the typical margin was 38%. So GCI also only applied the multiplier to 38% of retail expenditures to measure the indirect and induced multiplier effect.[11]

From the listing below it is evident that Convention, Sports and Leisure incorrectly used the Phoenix MSA multiplier and applied it as if it only multiplied within Tempe. HSP did the Margaret Hance Park estimates and found lower visitor multipliers than for TED's overall "net new" impact. Most likely this discrepancy is because they were focused on a much broader set of spending patterns beyond the arena/music venue that GCI questions the reliability of in the main paper. With the Margaret Hance Park multipliers and impacts, one can see how the park renovations are captured by Phoenix with a large amount of switching from other parts of Maricopa County as Phoenix's gain exceeds Maricopa County. This is very similar to the situation with the Coyotes who have already existed in the Phoenix metro area and moved to Tempe. But to the degree there is new spending in Maricopa County the multiplier is larger because of the larger populated area,

Table A2: Urban Economic Impact Studies

Geographic Location	I-O Software	Direct Effect (millions)	Total Output (millions)	Measure-ment	Multi-plier	Visitor Estimate
Austin TX	RIMS II	$280.6	$384.4	NPV 20 yrs	1.37	New MLS Soccer Stadium
Travis CO TX	RIMS II	$296.4	$474.3	NPV 20 yrs	1.60	New MLS Soccer Stadium
Phoenix AZ	IMPLAN	$4,869	$6,601	Nominal 30 yrs	1.36	Margaret Hance Park Renovation
Maricopa CO AZ	IMPLAN	$1,540	$2,705	Nominal 30 yrs	1.76	Margaret Hance Park Renovation
San Jose CA	IMPLAN	$789.9	$1,271	NPV 30 yrs	1.61	New MLS Soccer Stadium

[11] Bureau of Economic Analysis (2013), "RIMS II: An Essential Tool for Regional Developers and Planners, December, https://www.bea.gov/sites/default/files/methodologies/RIMSII_User_Guide.pdf. The Austin Study: B&D Venues (2018), "Economic and Fiscal Impact Analysis of Proposed Multi-Purpose MLS Stadium Project," Microsoft Word - Austin Deliverable 053018 (austintexas.gov).

Geographic Location	I-O Software	Direct Effect (millions)	Total Output (millions)	Measure-ment	Multi-plier	Visitor Estimate
San Diego CA	RIMS II	$199.5	$272.3	annual	1.36	New NFL Football Stadium
Cleveland Regional OH	IMPLAN	$225.7	$359.1	annual	1.59	Playhouse Square
Tempe AZ (Developer)	RIMS II	$5,900	$12,500	NPV 30 yrs (inc const)	2.12	"Net new" entire TED
Tempe AZ (HSP)	IMPLAN	$7,925	$12,305	Nominal 30 yrs	1.55	"Net new" entire TED
Tempe AZ (GCI)	**RIMS II (est)**	**$1,824**	**$2,260**	**NPV 30 yrs**	**1.24**	**Arena/Music Venue**

$47 million forgone revenue left out

Ironically, while the RFP asked for cannibalization, neither HSP nor Convention, Sports and Leisure measure it, the forgone revenue. Forgone revenue is revenue that Tempe loses out on because of the CFD. Visitors to the arena and music venue that would have spent their entertainment dollars in Tempe anyway and not had half of their city tax dollars diverted to the CFD.

If one takes the “net new” percentages that GCI finds to be speculative and fairly arbitrary, then the part that is not “net new” is replacing activity that would otherwise occur in Tempe. GCI uses HSP’s numbers except where GCI calculated an alternative figure for the estimates in Table A3.

Table A3: Cannibalization Omitted from Hunden Strategic Partners

Tax	CFD Revenue (nominal)	Not Net New	Forgone Revenue (nominal)
Transaction Privilege	$123,059,215	20%*	$24,611,843
Commercial Lease Tax	$30,298,426	25%	$9,089,528
Hotel Bed	$37,743,061	35%	$13,210,071
TOTAL			$46,911,442

* Approximate weighted average of across categories. Not Net New for Arena and Music Venue from GCI, others taken from HSP.

Correcting Errors in Estimates from Convention, Sports and Leisure

This calculation corrects a few errors in the analysis by Convention, Sports and Leisure but uses assumptions by Convention, Sports and Leisure from their "net new" calculated assumptions, even though they are speculative and fairly arbitrary and in nominal terms.

The corrections included the following:

- Reducing the multiplier of about 2 used for the Phoenix MSA to 1.25, a multiplier more appropriate for Tempe.
- Only applying the "net new" on the arena spending to the multiplier–instead of gross spending.
- Removed double counting of multiplier effects from hotel revenue calculations (both the TPT and bed tax applies to hotels–but hotel revenue had multiplier applied in both cases).
- Used the correct tax rate on the hotel multiplier (not 5%, but 1.8%) for estimating revenue.
- Property values and taxes did not exactly match, so GCI's comes out somewhat higher.

When these changes are made the project instead of having a gain in nominal dollars of $136 million comes out as a negative $7 million.

Table A4: Comparing Developer's Consultant estimates to corrected GCI calculations

	Developer (using Greater Phoenix Metro Multiplier of 2 but attributing it to Tempe)				
Component	30-Year Tax Revenues	Amount to Tempe (net new)	Amount to CFD	Amount forgone	Net to Tempe
Construction	$17,985,474	$17,985,474	$0	$0	$17,985,474
Sales Tax Arena	**$129,414,462**	**$96,777,552**	**$71,779,884**	**$39,142,974**	**$57,634,577**
Sales Tax Ent Dist	$110,921,641	$71,482,084	$77,873,110	$38,433,553	$33,048,531
Hotel Tax Arena	$13,091,770	$8,030,518	$11,282,510	$6,221,259	$1,809,260
Hotel Tax Ent Dist	$40,347,027	$24,748,950	$57,770,658	$42,172,580	-$17,423,630
Commercial Lease Tax Ent Dist	$13,721,254	$6,860,627	$25,409,730	$18,549,103	-$11,688,476

	Developer (using Greater Phoenix Metro Multiplier of 2 but attributing it to Tempe)				
Component	30-Year Tax Revenues	Amount to Tempe (net new)	Amount to CFD	Amount forgone	Net to Tempe
Property Tax Ent Dist	$70,531,000	$54,446,970	$16,084,030	0	$54,446,970
TOTAL	**$396,012,628**	**$280,332,175**	**$260,199,922**	**$144,519,468**	**$135,812,706**
	Grand Canyon Institute (with developer's assumptions, 1.25 multiplier)				
Component	30-Year Tax Revenues	Amount to Tempe (net new)	Amount to CFD	Amount forgone	Net to Tempe
Construction	$22,654,780	$22,654,780	$0	$13,263,750	$9,391,030
Sales Tax Arena	$71,311,648	$38,674,738	$71,779,884	$39,142,974	-$468,236
Sales Tax Ent Dist	$87,145,289	$47,705,732	$77,873,110	$38,433,553	$9,272,180
Hotel Tax Arena	$6,748,335	$1,687,084	$11,282,510	$6,221,259	-$4,534,175
Hotel Tax Ent Dist	$20,797,437	$5,199,359	$57,770,658	$42,172,580	-$36,973,221
Commercial Lease Tax Ent Dist	$13,721,254	$6,860,627	$25,409,730	$18,549,103	-$11,688,476
Property Tax Ent Dist	$92,893,337	$71,709,755	$21,183,582	$44,460,805	$27,248,950
TOTAL	**$315,272,080**	**$194,492,075**	**$265,299,474**	**$202,244,024**	**-$7,751,949**