



Fiscal and Land Use Analysis of the North Riverfront Stadium Site

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INTRODUCTION

St Louis' North Riverfront District (Exhibit 1) is mere blocks from the heart of downtown, but over 90 percent of its buildings and lots sit vacant. The current state of the North Riverfront is a blemish on the city's image - and a major impediment to realizing St. Louis's full potential as a city by the water. A recent proposal by civic leaders proposes to build a state-of-the-art NFL stadium as part of a larger redevelopment of the area's vacant land. . Railroad lines would be rerouted, parkland created, and direct pedestrian links would be built to downtown to create a seamless connection to St. Louis's greatest natural asset.

In this paper, we conduct a review of this proposal. We spoke with development experts and reviewed primary data to better understand the present context and future potential of developing the North Riverfront as outlined in the stadium proposal.

We identify 4 important structural points:

1) Developing the North Riverfront carries substantial cultural and strategic importance. 2) The North Riverfront presents several challenges that make it very challenging to develop. 3) The North Riverfront Stadium Plan adequately addresses these challenges, serving as an anchor catalyst that unlocks development potential. 4) There are tangible fiscal benefits for the City of St. Louis, which we describe and estimate in an orders-of-magnitude fashion.

DEVELOPING THE NORTH RIVERFRONT IS CULTURALLY AND STRATEGICALLY IMPORTANT TO ST. LOUIS

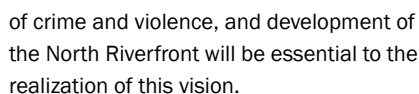
The Mississippi River has been the lifeblood of St. Louis since the city's founding. From the days of water-powered mills, Mark Twain, and steamboats into today, the river has been and remains the single consistent truth of the city. All plans, all ideas, all goals must

account for and respect the Mississippi and its tremendous power. And the city's greatest triumphs in design have all done so, from the Gateway Arch to the historic Eads Bridge.

Yet the last hundred years have not been kind to the city's waterfront heritage, and this is most evident in the North Riverfront area. Here, a once St. Louis's strong industrial base of warehouses and factories by the river have, one by one, shut their doors and closed for good, sucking away jobs and urban vitality. Large chunks of the site the riverfront have been cut off by highways and speeding cars. Furthermore, with the recent completion of the Stan Musial Veterans Memorial Bridge, the North Riverfront is now an unsightly front door that greets all visitors entering the city from the east. In the absence of industry or attractions to draw people to this area, St. Louis has lost a connection with a large portion of its riverfront heart.

Development of the North Riverfront has also taken on increased strategic importance in

EXHIBIT 1: MAP OF THE NORTH RIVERFRONT SITE



THE NORTH RIVERFRONT IS CHALLENGING TO DEVELOP

better understand why this has been the case, we studied the North Riverfront site closely, and consulted with development experts from around the St. Louis area. Typically, development of a large site like the North Riverfront happens in a piecemeal fashion, with multiple developers sharing responsibility for preparing the site and developing it over time. We found consensus among experts that this piecemeal development of the site had a high likelihood of failure due to several major challenges, which we discuss below.

The urban stretch of Interstate 44/70 was originally constructed around the same time as the Gateway Arch in the 1960s, effectively cutting the riverfront from the rest of downtown. Urban planners surfaced the idea of removing the elevated stretch of Interstate 44 in 2009, calling out the successful efforts to bury urban interstates in Boston and Milwaukee. Unfortunately these plans were shelved in 2013 due to cost issues.

Pedestrians have no reasonable way today to access the North Riverfront area. Cass Ave and North Broadway are vehicle-only thoroughfares. To reach the site, pedestrians, must cross through large traffic intersections and then under a dark, aging overpass on Carr and Biddle Streets to access the site from further south. For vehicles, access is equally, if not more challenging. There are only four streets that cross over or under I-70, and each of these is a one-way street (either east-west or west-east).

Problem 2: The North Riverfront street grid is difficult to navigate for pedestrians and vehicles.

railroad line runs through the area, preventing both vehicles and pedestrians from flowing freely through the site. This rail line, which is operated by Terminal Railroad Association (TRRA), is one of the busiest in America. Most other development plans do not propose to alter this rail line due to significant cost and complexity issues. For these alternate plans, TRRA estimates that traffic would be waiting at rail crossings 20 minutes of every hour on average.

Second, the streets in the North Riverfront are discontinuous with the main avenues of downtown, making navigation confusing to visitors. Each of the three thoroughfares that connect to the rest of downtown – Cole Street, Biddle Street and Cass Avenue – make confusing turns or are interrupted completely in some cases. The issues with street grid are compounded by the presence of the highway, as mentioned above.

Over the last decade, St. Louis has seen successful redevelopment efforts take place in other parts of the downtown, with Washington Avenue and Ballpark Village being two recent examples. Laclede's Landing, which immediately adjoins the North Riverfront site, was conceived as an entertainment district that would draw people to the riverfront. Unfortunately, this site has recently lost business to these other emerging areas of Downtown. Locals and visitors perceive little incentive to enter the confusing, difficult to access North Riverfront when there are other alternatives that are easier to access and navigate.

Problem 4: The St. Louis downtown possesses challenging real estate characteristics.

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release center, both of which undermine a sense of safety on the site. Finally St. Louis as a Metropolitan Area suffers from slow population growth, ranking 42nd in the US in this category. Taking these factors together with the other challenges mentioned in this section leads most experts to project that a traditional piecemeal approach to development of the North Riverfront may take 20 or 30 years without a catalyst project to anchor the area.

Problem 5: The North Riverfront presents substantial infrastructure and remediation challenges.

Any development of the North Riverfront must confront several major infrastructure challenges in order to proceed. The first involves flood prevention, a process that requires working with the US Army Corps of Engineers. Second, because many of the buildings on the site are quite old, much of the site requires complex cleanup to remove contaminants like asbestos and re-engineering to bring sewer systems up to modern standards. Third, there are two power substations in the North Riverfront site, one owned by Trigen, and the other owned by Ameren. Any development entails relocating the Trigen station and moving power transmission lines. Finally, there is also a major railway line, operated by Terminal Railroad, which must be rerouted to enable adequate traffic flow, as mentioned above. This process will also be challenging and expensive. Under a traditional development approach, which usually involves multiple developers, engaging all of these stakeholders, securing necessary financing, and sharing responsibility is extremely challenging.

THE NORTH RIVERFRONT STADIUM PLAN CAN SERVE AS AN ANCHOR CATALYST FOR DEVELOPMENT

Given the development challenges with the North Riverfront site mentioned above, we then sought to understand to what extent the North Riverfront stadium project can address these problems. Overall, we find the stadium plan can serve as an anchor that draws visitors to the riverfront through its unique attractions, as well as a catalyst for future developments by addressing important issues related to infrastructure and remediation, detailed below.

Problem 1: The North Riverfront is difficult to access.

Stadium Solution: Access to the site from the south is improved for both pedestrians and mass transit. Collins Ave is rerouted to enable pedestrians to walk a straight path along 2nd Street into the site from the Lumiere Place MetroLink station. From the west, a broad pedestrian thoroughfare welcomes pedestrians, inviting them to cross Broadway into the stadium site. Finally, the stadium plan includes ample room for loading/unloading of buses and shuttles, which are quite popular among area bars/restaurants to boost patronage on event days.

However, though entrance from the west will be more alluring for pedestrians, the process of actually entering the site from the west remains challenging overall. Pedestrians must still cross past a traffic signal at a 4-lane divided road and then under the I-44 overpass to reach the site.

Fair Solution

Problem 2: The North Riverfront is confusing and difficult to navigate for pedestrians and vehicles.

Stadium Solution: The North Riverfront Stadium Plan regrades the site to minimize rail crossings for pedestrians and vehicles. This enables free movement throughout the site, without the need to wait at rail crossings. Meanwhile, the heavy rail traffic on this rail line can flow without interruption. Additionally, Collins Avenue is rerouted to connect directly with 2nd Street, creating a more logical point of entry from Lumiere Place. It remains to be seen how easy the actual street grid will be to navigate for cars, but the plans do call for ample pedestrian avenues and plazas that will make the site readily navigable for pedestrians.

Very Good Solution

Problem 3: The St. Louis downtown possesses challenging real estate characteristics.

Stadium Solution: The North Riverfront plan includes several “guaranteed” development elements that will be built regardless of real estate market characteristics. The most substantial of these is a state-of-the-art 62,000-seat stadium that will house professional football and soccer teams, as well as play host to unique events such as concerts, dirt shows and tractor pulls. The

plan also includes daily attractions, including a brew pub, restaurants and NFL team store, as well as ample park land with riverside trails and overlooks. These developments can provide a clear reason for broad-based pedestrian traffic, with sports matches and special events delivering pedestrian density and group security. These elements can make the site much more attractive and can jump-start future development. There may also be positive effects on districts nearby to the North Riverfront. For example, the North Riverfront Stadium Plan could also recharge and perhaps reinvent Laclede’s Landing as a destination for entertainment, retail and business alike

However, while these guaranteed development elements lower the barriers to additional development, they do not eliminate them completely. The realities of St. Louis’ demographics remain, and perceptions about the nature of downtown may make it difficult to attract tenants initially, even with the stadium project. Aggressive marketing and outreach will be essential to successful development of the site. Finally, it should be noted that the NFL team owner who occupies the stadium would have the final say on what specific developments are built.

Fair Solution

Problem 4: The North Riverfront has been left behind in St. Louis’s redevelopment success.

Stadium Solution: The North Riverfront Stadium plan offers a clear development alternative that does not compete directly with other sections of downtown. As mentioned, the plan calls for an outdoor stadium, which will draw large crowds for football games, concerts, soccer matches, and other events that would not take place elsewhere. Importantly, the plan also includes 38.5 acres of new parks, 1.5 miles of new trails and 8 acres of restored natural habitat—which create unique spaces in downtown that are highly desirable for both visitors and locals.

Over the long term, the stadium plan could help to solidify downtown St. Louis as a premier tourism and entertainment destination for the entire region. With the North Riverfront Plan, the major entertainment anchors of downtown St. Louis—The Gateway Arch, Convention Center, Lumiere Place Casino, Washington Avenue, Laclede’s Landing, and the North Riverfront—can seamlessly connect and combine to become a



EXHIBIT 2: NORTH RIVERFRONT STADIUM PLAN SOLUTIONS TO DEVELOPMENT CHALLENGES

magnet that draws people from all across the region. This notion is supported by the “cluster theory” of development, formulated by leading business experts, including Michael Porter of Harvard Business School.² This theory holds that it is better to concentrate destinations of particular type in a single part of a city, rather than spread them evenly throughout. In this way, the North Riverfront Stadium plan could bring a “rising tide that lifts all boats” in the city.

However, the realization of these long-term benefits depends on cooperation and coordination amongst the various stakeholders involved in development in these different parts of downtown. Unfortunately, recent history has shown that some stakeholders may take a narrower view and perceive the North Riverfront as a threat to business in their own district. Civic leaders must parlay positive momentum from the stadium campaign to build a united front in the business community.

Very Good Solution

Problem 5: The North Riverfront presents substantial infrastructure and remediation challenges.

Stadium Solution: The North Riverfront Stadium Plan presently involves a single developer: the Regional Convention and Sports Complex Authority (RSA). Having a single

developer involved has greatly streamlined the process of addressing the major logistical challenges of the site. Already, deals have been struck with Trigen and the TRRA to address the power substation/transmission line and rail line issues, and flood prevention plans are in place that meet the standards of the US Army Corps of Engineers. The RSA has navigated these challenging issues with certainty and speed that would be very difficult to achieve in a traditional development approach. Importantly, the plan calls for \$500 million in private investment from the NFL and an NFL team, which adds to financial feasibility of addressing these issues. Finally, this initial work done by the RSA also makes it much easier for additional developers to join the project, including an NFL team owner.

Excellent Solution

THE NORTH RIVERFRONT STADIUM PLAN DELIVERS TANGIBLE FISCAL BENEFITS TO THE CITY OF ST. LOUIS

Given the potential the North Riverfront Stadium project has to redevelop the North Riverfront, we sought to describe and estimate the potential fiscal benefits the project could have for the city of St. Louis.

² <http://www.economist.com/node/14292202>

Why did the Edward Jones Dome fail to spur development?

In the early 1990s, the State of Missouri and the St. Louis region made a substantial investment to construct the TWA (now Edward Jones) Dome, which is located about six blocks from the North Riverfront. Why has the North Riverfront remained blighted and vacant despite the construction of this nearby sports facility? We believe there are two reasons. First, we believe that the Edward Jones Dome project did not adequately address the five development challenges of the North Riverfront listed above. Second, and perhaps more importantly, the Edward Jones Dome project was focused on the facility itself, without much consideration for direct redevelopment of the surrounding area. Proponents expected benefits to “diffuse” out over time, which did not play out. By contrast, the North Riverfront plan targets a large swath of blighted land, and makes direct investments in remediation and infrastructure to remove barriers to development of the site. However, this only creates an opportunity for success—the ultimate result will depend on the plans of the NFL team owner and other developers that join the project.

There are fiscal benefits that the city presently receives that would disappear in the absence of the stadium project. In particular, the present St. Louis City amusement/ticket tax collections of approximately \$1.85M annually would largely disappear. This city's loss could be as high as \$3.5M if potential tax collections from higher-priced tickets from a new stadium are taken into consideration.

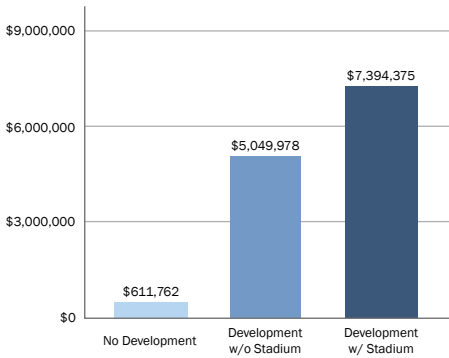
The stadium plan may also result in increases in other tax collections as a result of increased development. These other taxes include restaurant, earnings, sales and property taxes. The potential link between the stadium plan and increases in sales/restaurant taxes is clear; sports and other site attractions can boost patronage. Earnings taxes may be increased as a result of new job creation—specifically jobs related to stadium construction and operations. Finally, property taxes may be increased as a result of higher property values tied to increased development on a prime riverfront site. Property taxes may also be increased as a result of the presence of the stadium itself, as indicated by some academic studies.³ One proposed rationale is that sports facilities generate positive spillover effects on the local economy, which are then capitalized into the value of property.

In producing our estimates of fiscal impacts, we focused only on real property taxes and sales taxes generated by the stadium and surrounding development area, as these were the taxes we had sufficient data to estimate. We compared property and sales tax collections generated in three different development scenarios: development of the North Riverfront site with a stadium, development of the site without a stadium, and no development at all. To make these projections, we used data from sections of St. Louis, as well as sections of other cities, that resemble what development of the site could look like under these different scenarios. As our quantitative analysis is intended as an orders-of-magnitude estimate, we do not attempt to determine net fiscal benefit.

St. Louis City Property Tax

As mentioned previously, the North Riverfront neighborhood has a 90 percent vacancy rate, and is riddled with abandoned buildings and empty lots. Accordingly, the area currently nets the city only about \$446,000 per year in property tax revenues. To estimate the impact of the stadium proposal on the property taxes, we modeled three specific development scenarios, mentioned above. To better understand potential property values in the “Development With Stadium” scenario, we looked at property values in the adjacent sports and entertainment district surrounding Busch Stadium, as well as property values in developments around NFL stadiums in

PROJECTED ANNUAL PROPERTY TAX COLLECTIONS



Pittsburgh and Cincinnati. Both of the cities are demographically comparable to St. Louis, and both built NFL stadiums as part of riverfront revitalization projects.

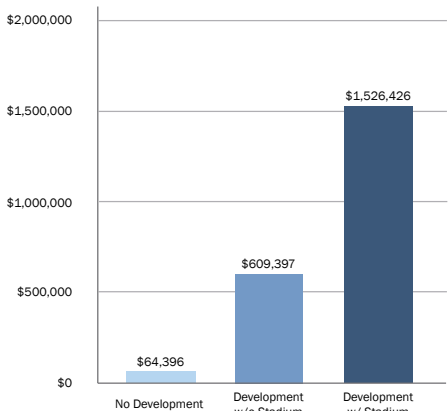
Even assuming that the land containing the stadium and parking footprint generates no property tax, we find that the North Riverfront Stadium proposal could lead to substantially higher property tax collections for the city. Our best estimate finds that the city can collect **\$7.4 million per year in property taxes under this proposal as compared to today**. This is also \$2 million per year more than the city would collect in a development without a stadium. To estimate property tax

collections for development without a stadium, we referred to property values in Laclede's Landing. Laclede's Landing is directly south of the North Riverfront, and suffers from similar development challenges (see above) as the North Riverfront. For these reasons, experts agreed that in the absence of a large catalyst like a stadium, property values in a developed North Riverfront would resemble those of Laclede's Landing.

St. Louis City Sales Tax

In addition to increasing property tax impact, redevelopment of the North Riverfront neighborhood can increase sales tax collections. Currently, the neighborhood yields an estimated \$64,000 per year in city sales taxes. To calculate the incremental impact on city sales tax receipts, we again conduct a scenario analysis. To estimate impacts in the stadium scenario, we again used parts of downtown that had sports facilities as a reference. Applying the current

PROJECTED ANNUAL SALES TAX COLLECTIONS



St. Louis city sales tax of 3.78 percent, we estimate that **the city can collect \$1.4 million in sales taxes annually** due directly to a stadium-led redevelopment. This compares to just \$600,000 in expected sales taxes in development without a stadium. This is likely because stadium-led redevelopments can attract greater amounts of taxable sales revenue from the merchandise and food/beverage sales associated with stadium events, as well as the sales tax-intensive businesses that spring up to serve patrons of these events. As in the property tax analysis, we used Laclede's Landing as a basis for

	Total Assessed Value Per Square Foot, \$
North Riverfront Development Site (Current)	\$1.69
Laclede's Landing	

³ Feng X and Humphreys B. The impact of professional sports facilities on housing values: Evidence from census block group data.

Does being an NFL city alone increase property values?

The presence of professional sports can be considered a civic amenity that makes an area more desirable. The NFL is the most popular professional sports league in the United States. Several academic studies find that the presence of a professional sports team leads to an increase in property values, including one study that finds the presence of an NFL team leads to an 8 percent increase in rents (and hence property values) across the central city. Using this figure, we can estimate the value of being an NFL city to the city of St. Louis, independent of any direct redevelopment impacts, which are estimated above. To be conservative, we used a 6 percent increase rather than 8 percent increase.

35-YEAR PROPERTY TAX IMPACT OF ST. LOUIS REMAINING AN NFL CITY

2015 Projected Property Tax Collections	\$47,400,000
35 Year Property Tax Value (NFL remains in STL)	\$1,403,858,706
35 Year Value Property Tax Value (NFL leaves STL)	\$1,339,450,228
Tax Impact of STL Remaining an NFL City	\$64,408,478

It should be noted that this impact is different from the property tax impact calculated above in several important ways. First, this impact relates to the presence of an NFL team, and is independent of a new stadium and redevelopment. Second, the calculated impact above is city-wide and not limited to the North Riverfront site. Third, the 8 percent figure that is cited in the study relates to appreciation of existing occupied property, and not construction of new property, as would be the case for much of the North Riverfront site itself.

estimating tax collections in a development without a stadium.

Long-Term Fiscal Impacts

Given the development challenges identified in the previous sections, the time it takes to realize increased sales and property taxes is important, as is the total value of these benefits realized over time. We assumed that it would take 10 years (until 2026) for the property values in the Development with Stadium” scenario to ramp-up from their present values to their projected values. This duration is based on the projected completion of the stadium by 2019. Based on our conversations with multiple experts, the revenue ramp-up period without a stadium is likely on the order of 20-30 years. We assumed that it would take 20 years (until 2036) for the property tax values in the “Development Without Stadium” scenario to reach projected values.

This longer ramp-up period is based on the fact that without a stadium, investment and development will occur much more slowly, largely due to unaddressed development challenges identified above. Specifically, the

responsibility for handling the infrastructure and technical challenges of site would now be spread across multiple developers, significantly complicating and lengthening the time frame. Additionally, there would be no immediate infusion of \$500 million+ of private capital as with the stadium plan.

Considerations and Limitations

In this report, we find that the North Riverfront is a highly important but significantly challenging site to develop. However, we find that the North Riverfront Stadium Plan adequately addresses the challenges of the site and creates a unique opportunity for success. We also find that the plan can unlock tangible economic benefits in the form of increased tax collections, including property and sales taxes, for which we provide estimates.

There are several reasons to believe that our projections underestimate total benefits to the city of St. Louis. First, our estimates do not include several other forms of tax, including personal property, franchise and earnings, as we did not have a reliable means of estimating these. Earnings tax is the largest

source of tax revenue for the city of St. Louis, which suggests that the total tax benefits from development may be higher in reality. Second, our tax revenue estimates only include those coming directly out of the North Riverfront site. Any increase in tax revenues in other parts of downtown from an increase in total visitors is not calculated. In particular, the adjoining Laclede’s Landing and Lumiere Place districts are likely to experience a significant boost from successful development of the North Riverfront. Third, our estimates of sales tax collections in the “Development With Stadium” scenario use zip code level data, resulting in a taxable sales/ square foot that is diluted and likely driving estimates down (see Appendix for details).

There are factors that may contribute to overestimates of tax revenue as well. First, it is possible that some taxes may be abated by the city to further promote development. Nonetheless, these tax abatements are generally temporary, and the positive effects of increased development are long-lasting. Second, although our assumptions reflect our empirical findings that higher sales and property tax densities occur near sports

St. Louis City Earnings Tax

We do not include projections of tax revenues derived from the 1.5 percent St. Louis city earnings tax, primarily because we did not have sufficiently reliable methods of projecting personal and business incomes in the various development scenarios. However, collections from the earnings tax represent the largest source of city revenue, which means that total fiscal benefits may be higher than our projections

*To provide a sense of potential earnings tax revenue that could emerge from the stadium project, we estimated annual earnings tax collections resulting from stadium operations alone. **Note that this only includes taxes on the earnings of stadium workers and staff.** This does not include taxes on earnings from NFL players/staff, or from businesses, workers and residents in the development surrounding the stadium (which likely would amount to a larger figure).*

Stadium Event Days	123
Average Payroll per Event Day (Estimate)	\$800,000
Total Annual Payroll	\$98,400,000
Annual Earnings Tax From Stadium Operations	\$1,476,000

TABLE 2: 35 YEAR PROPERTY AND SALES TAX IMPACT

	Development With Stadium	Development Without Stadium	No Development
St. Louis City Sales Tax	\$40,817,234	\$8,311,331	\$2,318,256
St. Louis City Property Tax	\$157,853,180	\$70,297,396	\$21,381,963
City + Property Total	\$198,670,414	\$78,608,728	\$23,700,219

facilities in downtown St. Louis, there may be other factors that contribute to these higher values that may not apply to the North Riverfront site. The estimated increase in property tax collections of \$7.4 million is large relative to the existing total property tax collections of \$47.4 million. However, this figure seems more reasonable in

view of the fact that much of St. Louis city suffers from depressed property values, and that the North Riverfront, with its prime riverfront location and proximity to the city center could conceivably become the most valuable real estate in the city in a successful redevelopment.

To be clear, our report does not assert that the stadium project alone will create the fiscal benefits described. Rather, the stadium project unlocks an opportunity for development of the North Riverfront site at a level and speed that would not be possible otherwise. The specific development plan that is executed (ie, specific numbers of hotels, restaurants, bars, etc.) will determine the actual tax figures. However, our analysis provides an orders-of-magnitude benchmark of what to expect based on data from downtown St. Louis and comparable markets.

CONCLUSION

Taken all together, it is clear that the North Riverfront Stadium Plan offers the best opportunity for St. Louis to redevelop a vital part of its Mississippi River heritage. The plan leverages nearly \$500 million in private investment without raising new taxes. It addresses major development issues of the North Riverfront site and can serve as an

anchor catalyst for future development. And, of course, it maintains St. Louis in the ranks of major league sports cities, with all the accompanying benefits, both tangible and intangible.

Furthermore, by strengthening downtown's connection with the Mississippi, St. Louis has the opportunity to create a world-class tourism and entertainment destination, with a state-of-the-art stadium acting as a marquee driver of foot traffic and visitor interest. Live music concerts and festivals; NFL football games; NCAA conference championships and bowl games, professional and international soccer matches, community events and much more—all downtown, all in open air overlooking the world-famous Mississippi River, all centered in a new community with ample public open spaces. Importantly, all of this activity can boost tax revenues and help the city deliver a better experience to both residents and visitors alike.

APPENDIX A

Methodology for Quantitative Estimates

Probability Weighting

For the stadium development scenario, we included three sub-scenarios: an upside case which reflects optimistic projections, a base case that reflects expected projections, and a downside case which reflects pessimistic projections. For the purposes of this analysis, we weighted the upside case at 25 percent, the base case at 50 percent, and the downside case at 25 percent. In practical terms, this suggests a view that the base case has a 50% chance of happening, while the downside and upside cases each have a 25 percent chance of happening.

35-Year Impact

To calculate the total impact of the different scenarios over 35 years (the time period for city bond payments on the stadium project) we calculated the net present value for each scenario, using a discount rate of 3 percent (current 30-year US Treasury yield).

Property Tax Analysis - Methods

For each scenario, we calculated total assessed value (TAV) per square foot, using different comparable sites to forecast post-development land values. We then applied the current St. Louis city property tax of 7.58 percent to forecast expected property tax collections directly attributable to new development in the North Riverfront site. We assumed that land area occupied by the stadium itself would generate no property tax. We reduced the total site square footage in each scenario by 20 percent to make allowances for the street grid.

No Development

Based on records available via the St. Louis City Assessor's Office, the NRF site holds a TAV of approximately \$1.69/sq. ft.

Development With Stadium

For a large-scale redevelopment without a stadium, we apply to the TAV of Laclede's Landing (roughly \$17.38/ sq. ft) to the stadium development site. We believe this is a reasonable assumption for development without a stadium, as Laclede's Landing has similar development characteristics to the NRF site. (eg, both are waterfront properties that

are cut off from the rest of downtown).

Development Without Stadium

In forecasting property values for the "Development with Stadium" scenario, we include a baseline case as well as upside and downside cases. As noted above, land area occupied by the stadium itself was assumed to generate no property tax, so the total development area for this scenario was smaller (1.8m sq. ft as compared to 3.8m sq. ft without a stadium).

For the baseline case, we use a TAV of \$60.00/sq. ft, which correlates with the property value for the entertainment district surrounding Busch Stadium. The rationale behind using this value was that we would expect the construction of a stadium to catalyze the development of a "sports infrastructure district," comprised of bars/dining similar to those immediately surrounding Busch Stadium.

For the upside case, we used a TAV of \$74.79/sq. ft which corresponds with the lower end of the range of property values found in newer NFL stadium development projects in other markets comparable to St. Louis. Specifically, we examined Cincinnati's Banks Development project, and Pittsburgh's Riverlife Development project. We believe these are each relevant comparables to the NRF project for the following reasons:

- Cincinnati's Banks Development project involves a mixed-use entertainment complex in between MLB and NFL stadiums on the city's riverfront. TAV in phase I of the development ranges from \$70-120/sq. ft. Like the NRF site, the Banks development site is also cut off from the rest of downtown by an interstate highway. Despite this, the site has achieved robust property values with adjacent stadium catalysts.
- Pittsburgh's Riverlife development project involved using new sports venues and new parks/green spaces to redevelop significantly blighted areas of Pittsburgh's riverfront districts. The mixed-use developments surrounding the sports venues have a TAV around \$200/sq. ft. This development program strongly mirrors the development program of the NRF Stadium plan, which similarly involves redeveloping blighted riverfront property with a new NFL stadium and 29+ acres of new park land.

For the downside case, we use the TAV of Laclede's Landing (\$17.38/sq. ft), which

assumes that the site sees no incremental benefits as a sports infrastructure district.

Growth Rates

We assumed that it would take 10 years (until 2026) for the property values in the "Development with Stadium" scenario to ramp-up from their present values to their projected values. We assumed that it would take 20 years (until 2036) for the property tax values in the "Development Without Stadium" scenario to reach projected values. Once the projected values were reached, we projected property values to grow at inflation. For the "No Development" scenario, we simply grew property values at inflation for the entire period.

Property Tax Impact of Remaining an NFL City

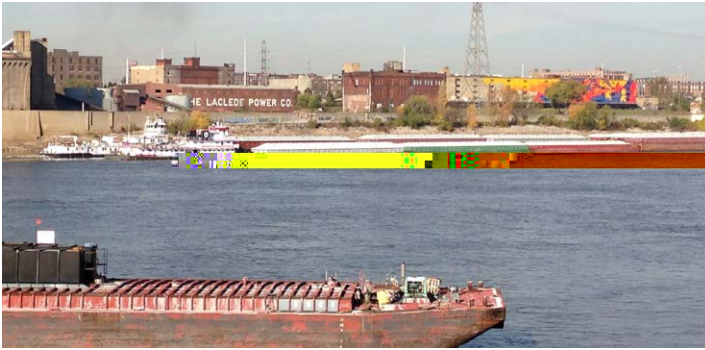
As mentioned above, several academic studies show a positive effect of professional sports on property values in a city, including one that shows an 8 percent increase related to the presence of an NFL team. To be conservative, we used a 6 percent effect to estimate the total property tax impact related to St. Louis remaining an NFL city. We took the projected total 2015 property tax collections for the city of St. Louis, grew them at 2% inflation, and then calculated the net present value with a discount rate of 3%. This figure represented the total property tax value collected if St. Louis remained an NFL city. We then reduced the 2015 projected value by 6%, gradually over 10 years, until 2026 (-0.6% annually), and then grew the value at inflation over the remaining period. We then calculated the net present value at a 3% discount rate. We then subtracted the second figure from the first figure to estimate the long-term property tax impact of St. Louis remaining an NFL city.

Sales Tax Analysis - Methods

For each scenario, we calculated taxable sales per square foot, using different comparable sites to forecast post-development sales tax levels. We then applied the current St. Louis city sales tax of 3.78% to forecast expected sales tax collections directly attributable to the new development in the North Riverfront site. We reduced the total site square footage in each scenario by 20 percent to make allowances for the street grid.

No Development

We assume that the NRF site will continue to generate a base level of \$0.01/sq. ft. of taxable sales in the absence of future



development. This figured is based on data made available to us through the RCGA.

Development Without Stadium

For development without a stadium we assumed the NRF site would generate taxable sales with a density similar to Laclede’s Landing (\$4.20/sq. ft). This was also based on RCGA data on gross revenues for businesses located We assume here that new development without a stadium will include dining and entertainment that generates taxable sales at levels similar to establishments in Laclede’s Landing. The NRF site will be equally challenging to access as Laclede’s Landing for potential customers and patrons and hence we believe this assumption to be reasonable.

Development With Stadium

For development with a stadium, we break out taxable sales into those related to the stadium itself, and those related to the surrounding development. To avoid double counting, we subtracted the total square footage of the stadium/parking footprint itself in making our estimates for the surrounding development.

For sales generated by the stadium itself, we used figures for event days, attendance, and food/beverage/merchandise sales provided to

us by SMG, the company that will help operate the stadium. We also included an allotment for events related to a Major League Soccer franchise that likely would take up residence in the stadium.

For sales generated by the development surrounding the stadium, we intended to use the RCGA dataset to obtain taxable sales data for establishments surrounding Busch Stadium and use this as comparable. However, most of the data from these establishments was missing. We thus used zip-code level data on taxable sales, obtained from the Missouri Department of Revenue. We divided the total sales tax collected for a given zip code by the total land area of the zip code to arrive at a figure for sales tax/sq ft. We believe this approach was very conservative, as much of this land area includes large swaths of land that generate no sales tax.

The relevant zip codes for the stadium site are 63102 and 63103, as both include sports infrastructure districts with surrounding entertainment/dining that benefit from sports and event-related crowds. 63102 generates \$13.59 in taxable sales per square foot, and includes Busch Stadium/Ballpark Village and the surrounding dining/entertainment

complex. 63103 generates \$6.12 in taxable sales per square foot, and includes a sports infrastructure district in Scottrade Center with adjacent Union Station, as well as the newer Washington Avenue entertainment district.

As before, we include upside, downside, and baseline cases. We use the 63103 figure of \$6.12/sq. ft. of taxable sales as the baseline case, and the 63102 figure of \$13.59/sq. ft. of taxable sales as the upside case. For the downside case, we use the Laclede’s Landing density of \$2.17/sq. ft., which assumes that establishments surrounding the stadium experience no benefit from being adjacent to a major sports/event facility.

Growth Rates

As in the property tax analysis, we used a 10-year ramp-up in property values in the Stadium “Development with Stadium” scenario and a 20-year ramp-up in property values in the “Development Without Stadium” scenario. Taxable sales attributable to stadium operations did not start until 2019, when the stadium is projected to be completed. For the “No Development” scenario, we simply grew taxable sales from the NRF site at inflation for the entire period.

Event Type	Event Days	Attend. Per Event	Total Attendance	Assumed Spending Per Person		Total Spending	
				Food & Beverage	Merchandise	Food & Bev.	Merchandise
Concerts	2	47,500	95,000	\$16.77	\$5.00	\$1,593,000	\$475,000
Motor Sports	2	47,500	71,250	\$10.29	\$3.00	\$733,500	\$213,750
NCAA Football	1	37,500	37,500	\$13.41	\$2.00	\$503,000	\$75,000
Int'l Soccer	1	40,000	40,000	\$12.35	\$2.00	\$494,000	\$80,000
HS Kickoff Classic	1	15,000	15,000	\$4.50	\$0.00	\$67,500	\$0
HS Sporting Events	10	3,000	30,000	\$4.00	\$0.00	\$120,000	\$0
Catered Events	62	400	24,800	\$45.00	\$0.00	\$1,116,000	\$0
Ethnic Festival	3	15,000	45,000	\$6.00	\$0.00	\$270,000	\$0
Plaza Events	10	3,000	30,000	\$5.00	\$0.00	\$150,000	\$0
St. Louis Rams	10	57,000	570,000	\$19.25	\$4.00	\$10,972,500	\$2,280,000
Major League Soccer	21	25,000	525,000	\$12.00	\$2.00	\$6,300,000	\$1,050,000
Total	123		1,483,550	\$15.04	\$2.81	\$22,319,500	\$4,173,750