


Analysis of the Boston 2024 Proposed Summer Olympic Plans

PREPARED FOR

Commonwealth of Massachusetts Office of the Governor, President of the Senate, and Speaker of the House

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August 17, 2015



This Report was prepared for the Commonwealth of Massachusetts Office of the Governor, President of the Senate, and Speaker of the House. All results and any errors are the responsibility of the authors and do not represent the opinions of The Brattle Group, Floyd Advisory LLC, or its clients.

Acknowledgements: We acknowledge the valuable contributions of many individuals to this Report and to the underlying analysis. Specifically, we are indebted to members of The Brattle Group, including Lynda Borucki, Kevin Neels, Mark Sarro, Yingzhen Li, Victor Zimmermann, James Wieler, Zidi Chen, Paul Organ, and Barry Rothschild for their contributions. We also acknowledge the valuable contributions of Susan Hoag, Igor Karagodsky of Boston College, and Anson Smuts of Floyd Advisory LLC to this Report.

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I. Introduction

We were asked by the Commonwealth of Massachusetts Office of the Governor, President of the Senate, and Speaker of the House to evaluate Boston’s bid to host the 2024 Summer Olympic and Paralympic Games (collectively “Olympic Games”). Specifically, we were asked to evaluate the financial details contained in the Boston 2024 Partnership’s (“Boston 2024”) June 29, 2015 bid (“Bid 2.0”), as well as the potential risks to the Commonwealth of Massachusetts (“Commonwealth”), including to taxpayers, from hosting the Olympic Games in 2024. In our analysis detailed in this Report, we describe the components of Bid 2.0, test its assumptions to examine potential risks, evaluate who would have borne the responsibility if any adverse risks had been realized, and estimate the potential economic impacts of the Olympic Games on the Commonwealth.

Our assignment was not to provide an opinion or recommendation as to whether or not Boston should host the 2024 Olympic Games, but rather to provide objective analyses for evaluators to consider. We recognize that Boston 2024’s ultimate bid to host the 2024 Summer Olympic Games would have evolved and that it would likely have continued to attempt to reduce the risks inherent in hosting an Olympic Games.

In carrying out our assignment, we reviewed documents related to Bid 2.0. Representatives from Boston 2024 were very responsive and met with us to answer any questions we had, including providing us with additional information detailing their financial projections. In addition, Boston 2024 facilitated discussions with its consultants on a range of topics that we analyzed.

We spoke with representatives from the following organizations: No Boston Olympics; Metropolitan Area Planning Council; Massachusetts Smart Growth Alliance; Transportation for Massachusetts; and the Massachusetts Department of Transportation and Massachusetts Bay Transportation Authority (“MBTA”). Our research has been informed by our own prior research as well as academic literature on the potential economic benefits and costs associated with hosting Olympic Games and other mega-sporting events.¹ Finally, our work has benefited from discussions with Professor Edward Glaeser at Harvard University.

¹ Researchers on these topics include Robert Baade, Dennis Coates, Stefan Kesenne, Wolfgang Maennig, Victor Matheson, Philip Porter, Holger Preuss, Stefan Szymanski, and Andrew Zimbalist.

On July 27, 2015, Boston withdrew from consideration as the U.S. host city for the 2024 Olympic Games. Nevertheless, we have completed the Report as originally conceptualized. A number of issues we address and projects that are included in our evaluation of Bid 2.0 may be of interest to various parties independent of Bid 2.0. Some of the ideas generated in Bid 2.0—such as those regarding housing, transportations, and additional park land—are concepts that are worthy of future discussion, independent of Bid 2.0. An evaluation of those, or other legacy projects is beyond the scope of this Report.

II. Executive Summary

On January 8, 2015, the United States Olympic Committee (“USOC”) announced Boston was selected as the U.S. candidate city to host the 2024 Summer Olympic and Paralympic Games (collectively “Olympic Games”) based on the bid that was submitted in December 2014 by Boston 2024. Between January and June 2015, Boston 2024 developed specific details of its plan, and on June 29, 2015, issued what it described as “Bid 2.0.” On July 27, 2015, however, Boston 2024 and the USOC jointly agreed to pull Boston’s bid from consideration. Nevertheless, we have completed our study.

This Report focuses on Boston 2024’s proposal to become a Host City for the Olympic Games, the dynamics of the International Olympic Committee (“IOC”) bidding process, and the risks to Local and State government if Boston had hosted the 2024 Olympic Games. It is organized as follows: In Section III, we present an overview of Boston 2024’s Bid 2.0, detailing Boston 2024’s vision of how Boston would have hosted the 2024 Summer Olympic Games. In Section IV, we review the budget contained in Bid 2.0 and test the sensitivity of the overall budget to potential increases or decreases in the revenues and costs. In Section V, we explain and analyze the risks to the Commonwealth and its taxpayers from hosting the Olympic Games. We describe the parties involved in the bidding process and the financial and other guarantees that a host city is required to sign. Financial guarantees require a host city to ensure that the venues and other necessary infrastructure will be built, in the event that costs exceed projections. We then describe how Boston 2024 expected to mitigate taxpayer risk through a comprehensive insurance plan that it would purchase and require contractors to purchase. In Section VI, we detail and evaluate the infrastructure investments that would have been needed to host the Olympic Games. Lastly, in Section VII, we estimate the economic impacts of hosting the Olympic Games, as described in Bid 2.0. All amounts in the Report are in 2016 U.S. dollars, unless otherwise specified.

A. Overview of Boston 2024’s Bid 2.0

Boston 2024’s Bid 2.0 envisioned a plan for a largely privately-funded Olympic Games, which was projected to run a surplus and be a catalyst for long-lasting commercial and residential development and infrastructure improvements. Boston 2024 believed it could have leveraged many existing facilities instead of constructing new venues, consistent with the IOC’s recent

adoption of its Agenda 2020—a series of 40 reforms to the Olympic movement designed to reduce the cost of the bidding process, improve the sustainability of the Olympic Games, reduce the cost of Olympic Games management, and foster gender equality, among others. Boston 2024 also believed it could have created partnerships with private real estate developers for the construction of the Olympic Stadium and Athletes’ Village, historically two of the most expensive Olympic projects.

Bid 2.0 proposed a temporary Olympic Stadium to be located on an elevated platform in Widett Circle, an area Boston 2024 called “Midtown.” Midtown would have been privately developed by an entity that would have been responsible for the project (except the Olympic Stadium itself) at an expected cost of \$1.2 billion (or \$1.0 billion in 2016 dollars); in return, the private developer would have received real estate tax incentives, rights to develop the land for permanent uses, and option agreements to acquire the land from current private owners, the City of Boston, and the Commonwealth.

Bid 2.0 proposed an Athletes’ Village in the Columbia Point/UMass Precinct. Like Midtown, a private developer was expected to finance and develop the \$2.9 billion project (or \$2.4 billion in 2016 dollars) in exchange for similar real estate tax incentives and development rights. Following the Olympic Games, the Athletes’ Village would have been converted into rental apartments, student housing, senior housing, and other retail and restaurant space. Further, Bid 2.0 proposed certain public infrastructure investments as part of the Midtown and Athletes’ Village development projects.

To mitigate certain risks associated with hosting the Olympic Games, Bid 2.0 proposed a comprehensive insurance plan similar to policies used for typical mega-infrastructure projects and mega-events. This insurance plan would have added a layer of protection for Massachusetts taxpayers against potential revenue shortfalls or cost overruns. Although insurance would not have been able to eliminate all risks, Boston 2024 proposed a detailed plan to mitigate some of the risks outside of its control.

B. Financial Evaluation

At a high level, hosting the Olympic Games would have created four broad categories of risk: risks associated with revenue shortfalls; with increased operating costs; with relying on private developers; and with infrastructure investments needed to host the Olympic Games. As discussed below, the risk associated with revenue shortfalls was relatively low and, in fact, Bid

2.0 identified sources for additional revenue. Bid 2.0 did contain risks associated with operating costs being higher than those projected. The biggest sources of risk, however, were related to securing commitments from private developers to construct the Midtown area and the Athletes' Village, and those related to the necessary infrastructure investments. In particular, uncertainties related to using the land under the platform needed to be resolved in order for the Midtown project to have been feasible.

In Bid 2.0, Boston 2024 expected revenues from hosting the Olympic Games to more than offset its estimated \$4.6 billion local organizing committee cost, generating a \$210 million budget surplus. If expectations were realized, neither the City of Boston nor the Commonwealth of Massachusetts, as *de-facto* financial guarantors of the Olympic Games, would have borne any of the costs for venues or operating the Olympic Games (although the Commonwealth and the City of Boston would have borne most of the costs of public infrastructure projects as well as opportunity costs from tax incentives).

We evaluate the projections and underlying assumptions contained in the Bid 2.0 budget, and, where appropriate, test the sensitivity of the budget projections to deviations in projected revenues and costs. It is important to note that Bid 2.0 projected financial information through the year 2024; as a result, it was necessarily subject to uncertainties associated with forecasting over such a long time horizon.

1. Assessment of Organizing Committee Revenues

According to Bid 2.0, the Organizing Committee for the Olympic Games' ("OCOG") projected revenues to have come from four major sources: ticket sales; IOC contributed broadcast rights and global sponsorship revenues; domestic sponsorship; and licensing and similar sources. Boston 2024 derived its \$1.25 billion ticket revenue estimate from the experience of the 2012 London Summer Olympic Games, which had the highest percentage of ticket sales of recent Olympic Games. Boston 2024 envisioned using a regional model for early rounds of certain sports and dynamic ticketing, which could have generated revenue beyond its projection.

Bid 2.0 projected that the IOC would have contributed \$1.5 billion to the Boston OCOG from broadcast rights and global Olympic sponsors such as Coca-Cola, McDonald's, and Visa. This figure was subject to both upside and downside risks. Experience of past Olympic Games suggests that a host city has typically received approximately 12 percent more than its original estimated IOC contributions. If Boston experienced a similar outcome, it would have collected

approximately \$180 million in additional revenue. However, the IOC contributed \$1.05 billion to the London Olympic Games (after adjusting for inflation), suggesting that Boston 2024 might have already anticipated the additional revenue.

Boston 2024 projected that it would have generated \$1.52 billion from domestic sponsors, with the potential for additional revenue. In addition, projections suggest that Rio de Janeiro (“Rio”) and Tokyo will exceed their original sponsorship projections. To generate \$1.52 billion in revenue would have required OCOG to secure \$100 million in commitments per sponsor from about ten domestic sponsors, plus smaller commitments from additional sponsors. The experience of the 2012 London Olympic Games suggests it is possible that the Boston Olympic Games would have been at risk of generating over \$300 million less than projected.

Bid 2.0 projected \$535 million in revenue from other sources, such as a torch relay, coin and stamp revenue, licensing, hospitality packages, and other sources. Bid 2.0 did not provide sufficient detail on these estimates to allow us to evaluate the risks associated with them.

2. Assessment of Organizing Committee Costs

Bid 2.0 estimated that the Olympic venues would cost \$918 million to construct and prepare for development post-Olympic Games. As a whole, Boston 2024 estimated significantly lower costs for these venues than other past Olympic Games. For example, Bid 2.0 proposed building a temporary 69,000-seat stadium for \$175.5 million, an Aquatics Center for \$69.5 million, a Velodrome for \$64.1 million, and an international broadcast and main press center (“IBC/MPC”) for \$50.5 million. These figures are significantly lower than the costs incurred by London for the 2012 Olympic Games. For example, the \$50.5 million proposed media center is 90 percent lower than London’s actual cost for its media center.

It is our understanding that the Olympic Stadium would have been the largest such temporary stadium, making it difficult to evaluate the cost estimate that was in Bid 2.0. Similarly, Bid 2.0 had not fully developed its proposals for the Aquatics Center, the Velodrome, or the media center to allow a proper evaluation of the cost. However, past experience suggests that Boston 2024 would have been unlikely to meet those cost estimates, and a more reasonable cost estimate would have been over \$970 million higher than reported in Bid 2.0. In addition, the contingencies included in Bid 2.0 are considerably lower than those typically used in the construction industry for projects at such an early stage of development. If Boston 2024 had used a more typical contingency, its projected cost would have been at least \$100 million higher.

Boston 2024 estimated lower Games-related operating costs than those experienced by past Olympic Games. Bid 2.0 projected that it would have been able to achieve 25 percent cost savings over London's estimated costs. If Boston 2024 would not have been able to achieve those cost savings, its actual cost would have been nearly \$750 million higher than projected in Bid 2.0.

Bid 2.0 anticipated that more than 60 percent of the full cost of hosting the Olympic Games would have been funded by outside sources, including private developers for the Midtown and Athletes' Village developments, the Commonwealth for public infrastructure projects, and the Federal government for security.

Bid 2.0 relied on private developers to fund over \$4 billion (\$3.4 billion in 2016 dollars) for the projects at Midtown and Columbia Point in return for the development rights to those areas. This feature of the Bid was contingent on Boston 2024 securing tax agreements with the City of Boston, entitlements, and option agreements with property owners prior to garnering developer interest. As such, the Midtown and Columbia Point projects were subject to significant risks as to whether private developers would have committed to providing the funding. The financial returns to the private developers projected in Bid 2.0 might have been lower than necessary to cause developers to take on the risks.

Even if Boston 2024 could have found developers for those projects, the contingencies it applied to those projects were significantly lower than those typically applied to developments at such a preliminary stage. This was particularly true for the Midtown development, considering the cost and technical risks associated with building the platform, particularly given the platform would have had to be completed in time for other pre-Olympic development and, therefore, subject to an "Olympic Premium."

Boston 2024 assumed that the Federal government would have funded expenses related to providing security and expenses related to the Paralympic Games. It was reasonable to assume that the Federal government would have covered the security costs. However, if the Federal government would not have covered the costs associated with the Paralympics, the costs to the OCOG of those Olympics would have been significantly higher.

In summary, the budget surplus that Boston 2024 projected was sensitive to the revenue and cost assumptions that had been built into it. Whereas the revenue projections did not appear to contain significant risk and had upside potential, reasonable deviations from those assumptions could have caused that surplus to become a deficit. However, it is important to note that Boston

2024 had estimated cash flows over a nine-year period, which were necessarily subject to uncertainty.

C. Risk to Taxpayers and Potential for Mitigation

1. The Parties Involved

The parties involved in hosting an Olympic Games—the IOC, the National Olympic Committees (“NOCs”), the local organizing committee, and State and Local government—have different incentives and different abilities to bear and shift risk.

The IOC’s principal objective is to promote the Olympic Movement. The IOC does not need to, and does not, bear any financial risk, given potential hosts compete to win the right to host the Games based on promised spending for high quality venues and infrastructure and financial guarantees.

The NOCs are responsible for sending participants to the Games and endorsing potential future Olympic host cities within their countries. The USOC oversees the process by which U.S. cities bid to host the Olympic Games and operates specialized facilities for athletes, among other responsibilities.

A local organizing committee, such as Boston 2024, represents the city in bidding for the Olympic Games. The local organizing committee must secure sufficient funding to support an attractive bid while garnering support from Local and State government, local residents, and other stakeholders. Once a city is chosen to host the Olympic Games, the local organizing committee forms a joint venture with the NOC to form the official OCOG.

Local and State governments play a crucial role in any Olympic Games to be held in their city and state in that the IOC requires Letters of Guarantee from government authorities that all cost overruns and revenue shortfalls will be paid.

2. The Bid Process

Until recently, bidding to host the Olympic Games was a three-phase process. In the *Invitation Phase*, interested NOCs and their selected Host Cities were invited to formally commit to the bid process; this phase would have ended on September 15, 2015. In the *Applicant Phase*, cities developed their vision and concept for the Olympic Games. During the *Candidate Phase*, a shortlist of selected cities provided a blueprint for the Olympic Games, including required *Letters*

of Guarantee from government authorities and others. Under the new procedures adopted in August 2015, the IOC announced that all cities that declare intent to bid for the 2024 Olympic Games by September 15, 2015 will become Candidate Cities and remain in the race until September 2017, when a host city is selected. This change will leave the IOC with more Candidate Cities to consider in 2017, avoiding situations such as the recent competition to host the 2022 Winter Olympic Games, where only two Candidate Cities remained in the race at the end.

3. Financial Guarantees

Only one host city—Los Angeles in 1984—has ever been awarded the Olympic Games without providing Letters of Guarantee, and that occurred when no other city was competing to host the Olympic Games that year. This does not appear to be the case for the 2024 Summer Olympic Games.

Financial Guarantees cover all aspects of the Olympic Games, including construction of venues, accommodations for the IOC and its affiliated organizations, local transportation infrastructure, and media coverage. Certain Letters of Guarantee, such as the general guarantee for support and commitment, must come from national, state, and local government authorities. Others may be required from local business owners where their involvement is considered pertinent. On the one hand, *Economic Shortfall Guarantees* apply to potential economic shortfalls, cost overruns, or other unexpected expenses, and are generally signed by a combination of national, regional, and local government authorities. For example, London’s bid for the 2012 Olympic Games guaranteed national government support for any shortfall, in addition to the promised \$5.5 billion in public funding, and Chicago’s 2016 bid contained a \$500 million guarantee and indemnity by the City of Chicago, as well as private insurance coverage. On the other hand, *Endeavor-Specific Guarantees* refer to tasks or activities, such as financing venue construction or infrastructure improvements. They require a commitment from a competent body or authority and can be full commitments to ensure performance, regardless of cost.

4. Potential Risks

a. Revenue Shortfall

The primary sources of proposed operating revenues to fund the OCOG portion of the Boston 2024 bid are ticketing, The Olympic Partner (“TOP”) Programme sponsors, domestic sponsors, and broadcasting.

Ticket sale revenues in prior Summer Olympic Games since 1996 have all generated more revenue than initially estimated. However, ticket sales can be negatively impacted by safety and security concerns or by politically-motivated boycotts of the Olympic Games. *Broadcasting revenue* is set through 2032, so there is only limited risk surrounding this component of the IOC contribution. *Sponsorship revenue* shortfalls may arise if an OCOG is unable to secure sponsors and/or if the sponsors do not fulfill their obligations. Boston 2024 proposed mitigating the risk or sponsorship revenue shortfalls through insurance policies and careful selection of sponsors.

b. Cost Overruns

Cost overruns refer to outcomes where the actual cost of constructing Olympic Games venues or other capital projects and Olympic Games operations exceeds the spending specified in the bid. Some cost overruns may be attributed to the difficulty of accurately forecasting costs and revenues nearly a decade in the future. Other overruns may be anticipated, such as increases in local demand for construction workers leading to higher construction industry wages. Overruns can also occur because of changes in scope. As the Olympic Games approach, organizers may realize that some proposed venues may be too small, or may not contain adequate features for either the Olympic Games or for their intended use after the Olympic Games. Pressures from special-interest groups can also lead to scope creep because OCOGs must maintain broad-based support.

Research indicates that between 1960 and 2012, the Olympic Games experienced average cost overruns of 179 percent. We examined the experiences of select Host Cities:

- London’s 2004 bid for the 2012 Summer Games estimated the total cost at \$18.3 billion, of which \$5.5 billion was to be funded by the U.K. government. As of December 2012, the U.K. Government had spent approximately \$14 billion. These cost overruns were due to underestimates of the construction costs, the loss of private developer funding, and poor planning for security needs.

- Vancouver’s 2002 bid for the 2010 Winter Games was \$1.8 billion. Total public funding was set at approximately \$470 million, but actually turned out to be \$1.5 billion. As in the case of London, cost overruns were largely due to higher than expected construction costs, loss of private financing, and higher-than-expected security costs.

While final costs are not yet available for the 2016 Rio and 2020 Tokyo Games, construction cost overruns are already significant. For the Rio Games, costs are currently estimated to be almost 40 percent higher than the initial bid of \$14.4 billion. And Tokyo has experienced such extreme cost overruns on the Olympic Stadium that the current design has been abandoned completely.

c. Security Risks

Security for Olympic Games is both costly and a source of great uncertainty. Previous incidents at prior Games (1972 Munich and 1996 Atlanta Games) as well as 9/11 and the 2013 Boston Marathon bombing have continued to ratchet up security concerns. The Summer Olympic Games in London had total security costs of \$1.4 billion.

Bid 2.0 expected the Olympic Games to be designated as a National Special Security Event, meaning the Federal government would have provided security funding and support. Nevertheless, significant participation by state and local public safety agencies would also have been necessary. Boston 2024 proposed \$1 billion in security costs, most of which would have been spent for preparatory and preventative efforts.

5. Analysis of Risk Bearing

The *IOC* does not bear *any* of the financial risks associated with the Olympic Games.

The *USOC* has limited ability to bear risk, and does not provide any financial guarantees.

The *local organizing committee* can nominally take on risk, but has limited ability to bear risk. It does not provide the required financial guarantees. It can, however, partially mitigate risks borne by others by exerting control over some costs and revenue streams, as well as through insurance, as suggested by Boston 2024 in Bid 2.0.

The *Federal government* would be responsible for security costs and Paralympics.

The *State and Local governments*, while having only limited ability to influence and shape the bid, would bear significant financial risks as the ultimate guarantors under the financial Letters

of Guarantee. All of the risks associated with public infrastructure spending would fall completely on the Commonwealth. *The taxpayers of the Commonwealth of Massachusetts would be the ultimate risk bearers.*

D. Additional Key Responsibilities, Risks, and Costs to the Commonwealth

In addition to the financial guarantees, discussed above, other aspects of hosting the Olympic Games would have involved additional responsibilities, risks, and costs to the Commonwealth. These include IOC requirements beyond strictly financial guarantees and issues such as lost property tax revenues, and increased overtime for Commonwealth personnel.

1. Additional IOC Requirements

In addition to letters of financial guarantees, the IOC imposes other requirements for hosting the Olympic Games. These include, among others: (1) advertising space which must be devoted to the Olympic Games; (2) lost tax revenues due to required exemptions on Olympics-related earnings; (3) special treatment for the “Olympic Family;” and (4) dedicated Olympic Lanes on local roadways.

Few, if any, Olympic host cities have been able to obtain the degree of control over *advertising space* required by the IOC. Most have been able to ensure that a majority of the advertising space is available to the Olympic Games organizers and corporate sponsors. Moreover, Host Cities may actually benefit from increased spending on advertising during the Games; London witnessed 30 percent higher spending during the period of the 2012 Games.

Required tax exemptions on a wide range of Olympic Games-related payments could have been substantial. Lost taxes due to tax concessions during the London Olympic Games were estimated to be tens of millions of pounds. This required tax treatment would have also required amendments to existing tax laws. If this economic activity were generated from some other mega-sporting event, such as the NFL Super Bowl or NCAA Final Four, taxes would be collected.

Historically, special treatment of the “*Olympic Family*” has created some concerns for Candidate and Host Cities. Dedicated *Olympic Lanes*, for instance, could have generated significant non-monetary costs for local residents and commuters and increased travel time throughout the Boston area.

2. Additional Risks to Taxpayers and the Commonwealth

Additional risks include lost property tax revenues and increased overtime costs. As mentioned above, to attract private developers, the City of Boston would have had to provide *tax incentives*. Based on Boston 2024's projections, increased future tax revenues would have more than offset the cost of these incentives and the loss of existing property taxes.

Local and state government agencies would have experienced *increased overtime costs* related to planning and organizing the Games. Short-term increased demand for certain employees, such as first responders, would also have increased overtime costs.

E. Evaluation of Infrastructure Investments

Bid 2.0 identified infrastructure investments related to Olympic Games venues and public infrastructure that would be needed to host the Olympic Games. We have evaluated the potential costs and identified benefits and risks associated with these investments.

1. Venues

The cost of the 69,000-seat temporary *Olympic Stadium* was estimated at \$175.5 million. This estimate is much lower than the costs of other Olympic Stadiums, in part because past stadiums were built as permanent structures. Moreover, construction of the temporary stadium would have also entailed operational risks, related to the construction of the underlying platform and relocation of existing facilities, increasing the risk of cost overruns.

Estimates for the *Aquatic Center* and *Velodrome* totaled \$133.6 million. These estimates were also low relative to other Olympic Games, and were complicated by uncertainty as to location and whether the venues would be permanent or temporary.

The cost of the *IBC/MPC* was estimated to be \$50.5 million, including post-Olympic legacy conversion costs. These construction costs are 90 percent lower than those of the IBC/MPC for the London Olympic Games, and the contingency provision appears low by industry standards.

Boston 2024 also envisioned using 31 other venues to host the Olympic events, some permanent, some temporary, and some of which would have been pre-existing facilities, requiring upgrades. The cost for these facilities was estimated to be \$558.4 million, although the contingency provisions in the estimates for all venues were low by industry standards. This number was

derived from estimates of direct construction costs plus 10 to 15 percent more for indirect costs and an additional five percent contingency provision for unforeseen circumstances.

Newly constructed facilities that become permanent venues may generate *operating deficits* beyond their legacy benefits, for which taxpayers would be ultimately responsible, if they are underutilized after the Olympic Games. For example, many of the venues in Athens have fallen into disrepair since the 2004 Olympic Games. It is also possible for a host city to turn newly-built Olympic facilities into profitable venues, as Barcelona was able to do with its Palau Sant Jordi.

2. Public Infrastructure Investments

The largest category of public infrastructure investments was related to transportation projects; Bid 2.0 identified 17 such projects: 11 that would have needed to be completed by 2023 to support the Olympic Games and an additional six to support post-Olympic development.

We consulted with the Massachusetts Department of Transportation and the MBTA (collectively, “MassDOT”) to evaluate the estimated costs and benefits of the Bid 2.0 projects. MassDOT’s review, however, is necessarily preliminary because each project was still at a conceptual, or even pre-conceptual, stage and lacked the level of detail needed for a full assessment.

Several of the transportation projects identified by Boston 2024 have previously been identified by MassDOT as priorities; some are even currently underway. Others, however, are not viewed as high priorities. If undertaken to support the Olympic Games, these projects could have displaced other projects that might otherwise have been a higher priority to the Commonwealth.

Moreover, Bid 2.0 appeared to assume that the projects could have been completed in time for the Olympic Games; an accelerated timetable may have driven the costs higher than estimated because of such factors as increased overtime and prices for materials. Even if cost were not an issue, the projects would still have required attention from MassDOT, which could have displaced other priorities.

a. MBTA Investment Projects

Boston 2024 identified 11 MBTA-specific projects necessary for the Olympic Games or to support post-Olympic legacy development with an estimated total cost of \$2.76 billion, \$167 million of which would have been funded by private developers. Three of these projects that Boston 2024 estimated would have cost nearly \$1.66 billion have already been funded and are underway. To

complete these projects in time for the Olympic Games, the Commonwealth would have had to fund the MBTA at a higher level and at an earlier time than is currently projected.

The projects that were identified as required to support the Olympic Games (as well as to provide long-term benefits) primarily related to (1) vehicle procurement, (2) power and signal upgrades to rail lines, and (3) relocation of the Cabot Bus Facility.

- *Vehicle Procurement:* The MBTA has already funded three of the projects identified in the bid, and they are already underway. The cost of those projects was over \$220 million less than estimated in Bid 2.0. However, MassDOT has stated that these vehicle procurements would not have achieved the capacity that Boston 2024 envisioned, and to do so could have increased costs by \$60 to \$100 million. Overall, however, these projects are estimated to cost between \$50 and \$90 million less than Boston 2024's estimate.
- *Power and Signal Upgrades:* The MBTA believes that Boston 2024 had not taken account of various considerations, which could have increased the costs by approximately \$1.1 to \$1.3 billion, if they were able to be completed at all prior to 2023.
- *Cabot Yards Relocation:* Boston 2024 estimated the incremental cost for fitting out the new location of the bus facility to be \$61 million. The MBTA believed that significant factors not considered could have increased the cost by \$140 to \$240 million. *Indeed, if potential problems with relocating the facility could not have been resolved, the entire Midtown development project could have become infeasible.*

Boston 2024 identified three additional MBTA projects with an estimated total cost of \$256 million that would have provided legacy benefits for post-Olympic development, but that were not necessary for hosting the Olympic Games. The MBTA believed that those projects would have cost an additional \$40 million to \$50 million beyond the Boston 2024 estimate, not including increased operation and maintenance costs.

b. Road Investment Projects

Bid 2.0 identified six road investment projects that either would have been necessary for the Olympic Games or that would have supported post-Olympic legacy development for a total cost of \$220 million to \$320 million: \$120 million to \$220 million from the Commonwealth of Massachusetts and \$100 million from the private developers. Based on its preliminary assessments, MassDOT estimated at least \$70 million more in additional costs for these projects. MassDOT also expressed concern as to whether the projects could be completed prior to the

Olympic Games, and noted the inconvenience to residents and local businesses during construction. A number of the projects had too little information to even make a conceptual cost estimate.

F. The Economic Impacts of Bid 2.0

We also performed an analysis of the potential economic impacts of hosting the 2024 Olympic Games. It is important to note that measuring the economic impacts associated hosting the Olympic Games is not necessarily the same as measuring the net benefits. We did not endeavor to estimate the net benefits.

Based on estimates of Olympic Games-related expenditures, adjusted to account for spending source and the proportion of services provided locally, we estimate that Pre-Olympic Games expenditures would have generated approximately 29,250 job-years and \$5.67 billion of output over the six years leading up to the Olympic Games; and during-Olympic Games expenditures would have generated approximately 30,300 job-years and \$4.63 billion of output during the year of the Olympic Games. To put these figures into perspective, the number of jobs would have been less than one percent of Massachusetts residents employed as of June 2015, and the contribution of the Olympic Games to Commonwealth GDP would also have been less than one percent.

Our estimates measured only *incremental* Olympics and infrastructure projects; thus, our estimates do not reflect the impact of projects currently part of any long-term development plan.

Our results are necessarily sensitive to key input assumptions, such as the share of jobs filled by local firms and the local labor pool, and local versus non-local funding. The model provides estimates for 50 to 75 percent of new dollars being paid to Massachusetts firms. To the extent a lower share would have been paid to in-state firms, the total job-years created would have been less. Alternative assumptions as to output and employment multipliers would also affect the estimate of economic impact.

III. Background

In this section of the Report we describe the most recent version of the bid, “Bid 2.0,” as planned by Boston 2024. In addition, we discuss briefly some historical Olympic Games and both successful and unsuccessful bids to better understand the plans suggested by Boston 2024.

A. Boston 2024’s Bid 2.0

On January 8, 2015, the United States Olympic Committee (“USOC”) announced that it had chosen Boston as the U.S. candidate for the 2024 Summer Olympic Games based on the bid that was submitted in December 2014.² Between January and June 2015, Boston 2024³ continued drafting the specific details of its plan for the Games and consulted with local real estate contractors, USOC and International Olympic Committee (“IOC”) officials, consultants to previous Olympic Games including the 2012 Summer Olympic Games in London, and insurance experts.⁴ On June 29, 2015, Boston 2024 released its revised plan to the public known as Bid 2.0.⁵ With Bid 2.0’s release, Boston 2024 Chairman, Steve Pagliuca, acknowledged that bidding for the Olympic Games carried risks, as well as rewards.⁶

² Jere Longman. “U.S.O.C. Chooses Boston as Candidate for 2024 Summer Olympics,” NYT, available at http://www.nytimes.com/2015/01/09/sports/olympics/boston-to-be-us-bid-city-for-2024-olympics.html?_r=1 (last accessed August 1, 2015); “Bid 1.0: As Presented to USOC,” available at <https://2024boston.org/our-story/bid-plan/> (last accessed July 31, 2015) (“Bid 1.0”); See also “USOC Selects Boston as Applicant City for 2024 Olympic Games,” TeamUSA, available at <http://www.teamusa.org/Media/News/USOC/USOC-selects-Boston-as-applicant-city-for-2024-Olympic-and-Paralympic-Games> (last accessed August 1, 2015).

³ The Boston 2024 Partnership in coordination with the USOC was a private organization that was responsible for proposing Boston’s bid for the 2024 Summer Olympic Games. See “Bid 1.0,” Overall Games Concept, available at http://2024boston.s3.amazonaws.com/app/uploads/2015/07/09125211/USOC_Submission_1.pdf (last accessed August 4, 2015).

⁴ “Bid 2.0: Detailed Analysis,” Planning Process, Benefits, Risk, Opportunities, Boston 2024, at pp. 5, 18, and 25, available at <https://2024boston.org/our-story/bid-plan/> (last accessed July 31, 2015) (“Bid 2.0”).

⁵ Steve Pagliuca. “Olympic Bid 2.0 is a winning plan for the city,” The Boston Globe, June 29, 2015, available at <https://www.bostonglobe.com/opinion/2015/06/29/boston-chairman-steve-pagliuca-olympic-bid-winning-plan-for-city/jjQEAZTpeg9EFFv0PJS0I/story.html> (last accessed August 1, 2015).

⁶ Steve Pagliuca. “Olympic Bid 2.0 is a winning plan for the city,” The Boston Globe, June 29, 2015, available at <https://www.bostonglobe.com/opinion/2015/06/29/boston-chairman-steve-pagliuca->

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The remainder of this section provides an overview of Bid 2.0, concentrating on the overall concept of the Boston 2024 Summer Olympic Games and detailing its budget.

1. Overview of Bid 2.0

As described in Bid 2.0, Boston 2024 hoped to implement a plan that was largely privately-funded, ran a surplus, and managed security risk. Boston 2024 also hoped that the plan would have served as a catalyst for major commercial and residential development and infrastructure improvements that would have had a lasting impact in the community following the games.⁷ Boston 2024 believed it could have achieved those goals because Bid 2.0 would have leveraged existing facilities at local major universities and the facilities of local professional sports teams, proposed a comprehensive insurance plan to mitigate risks, took advantage of federal security operations, created partnerships with large private real estate developers, and worked with the Commonwealth to plan public infrastructure projects that were expected to provide great legacy value to the area.

One way that Boston 2024 believed it could have contained costs when compared with prior Olympic Games was by hosting events at pre-existing or temporary facilities. The majority of the athletic events were expected to occur at pre-existing or temporary facilities. As shown in Table 1 below, Bid 2.0 called for 34 athletic venues:

- Twenty-four existing venues would have required modifications to host Olympic events
- Five venues were to be constructed: two as temporary facilities, three as permanent
- Details of the five other athletic venues had yet to be determined.⁸

Continued from previous page

olympic-bid-winning-plan-for-city/jJQEAZTpeg9EFfv0PJSo0I/story.html (last accessed August 1, 2015).

⁷ Bid 2.0 focused on answering four key questions: (1) “Can we run a privately-funded Games with a surplus?” (2) “Can we create a venue plan that is cost-effective and beneficial to our communities?” (3) “Can the city and state infrastructure handle the Games?” and (4) “Can we manage the security risk?” See “Bid 2.0,” Planning Process, Benefits, Risk, Opportunities, at p. 17.

⁸ “Bid 2.0,” Planning Process, Benefits, Risk, Opportunities, at p. 32. The two main non-competition venues were the Athletes’ Village and the International Broadcast and Main Press Center. The Athletes’ Village would have been a permanent development. The location of the temporary International Broadcast and Main Press Center had yet to be determined.

Table 1: Details of Athletic Venues (millions 2016 USD)

| Sport | Venue Status/Proposal | Estimated Cost |
|---|------------------------------|-----------------------|
| [1] Archery | Pre-Existing | \$9.2 |
| [2] Badminton | Pre-Existing | \$5.2 |
| [3] Basketball - Regionals | Pre-Existing | \$32.4 |
| [4] Basketball - Finals | Pre-Existing | \$6.4 |
| [5] Boxing | Pre-Existing | \$12.2 |
| [6] Cycling - Road/Marathon | Pre-Existing | \$10.2 |
| [7] Fencing/Taekwondo | Pre-Existing | \$7.5 |
| [8] Soccer - Finals/Rugby | Pre-Existing | \$13.9 |
| [9] Gymnastics - Artistic & Trampoline | Pre-Existing | \$6.1 |
| [10] Gymnastics - Rhythmic | Pre-Existing | \$1.1 |
| [11] Handball | Pre-Existing | \$5.1 |
| [12] Weightlifting | Pre-Existing | \$7.9 |
| [13] Judo/Wrestling | Pre-Existing | \$6.3 |
| [14] Sailing | Pre-Existing | \$26.8 |
| [15] Shooting | Pre-Existing | \$26.5 |
| [16] Table Tennis | Pre-Existing | \$15.1 |
| [17] Volleyball - Indoor | Pre-Existing | \$21.8 |
| [18] Hockey | Pre-Existing | \$13.5 |
| [19] Cycling - Mountain Biking | Pre-Existing | \$15.7 |
| [20] Equestrian - Jumping & Dressage | Pre-Existing | \$37.8 |
| [21] Equestrian - Cross Country | Pre-Existing | \$26.1 |
| [22] Modern Pentathlon | Pre-Existing | \$6.7 |
| [23] Aquatics - Diving | Pre-Existing | \$11.7 |
| [24] Triathlon/Aquatics - Marathon | Pre-Existing | \$11.9 |
| [25] Olympic Stadium | Temporary | \$175.5 |
| [26] Volleyball - Beach | Temporary | \$28.3 |
| [27] Tennis | Permanent | \$37.5 |
| [28] Canoe - Slalom | Permanent | \$30.8 |
| [29] Canoe - Sprint/Rowing | Permanent | \$44.6 |
| [30] Aquatics Center - Swimming & Synchro | TBD | \$69.5 |
| [31] Water Polo | TBD | \$37.1 |
| [32] Golf | TBD | \$24.5 |
| [33] Cycling - BMX | TBD | \$18.5 |
| [34] Cycling - Track (Velodrome) | TBD | \$64.1 |
| [35] Total | | \$867.5 |

Sources & Notes:

“Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 30-32. Categorization of venue status/proposal was based on the proposed venue site and legacy use. See Table 22. Costs were reported in 2016 dollars. Although the proposed venues for the basketball regionals had not been determined, we understand that they planned on using pre-existing facilities. Venues listed here do not include venues for preliminary soccer regionals. Projected expenses related to athletic venues did not include \$50 million in construction costs for non-competition venues and \$12 million for the Emerald Necklace legacy plan.

Bid 2.0 suggested that 23 venues would have been located within a 10 km radius of one another and that the average distance between venues would have been 8.3 km, the smallest for any Olympic Games since 1980.⁹ Figure 1 below presents the locations of the 24 athletic events that were being contemplated to be in the immediate Boston area.¹⁰

Figure 1: Waterfront and University Clusters



Sources & Notes:

“Bid 2.0,” Venue Planning, at p. 4.

Several universities, including Harvard University, Boston College, Boston University, and Northeastern University would have hosted various athletic events including archery, badminton, weightlifting, and wrestling, amongst others.¹¹ Boston 2024 also believed that local colleges and universities would provide a potential benefit as a significant source of the volunteers needed to run the games.

Bid 2.0 contemplated that three major venues—the Olympic Stadium, Athletes’ Village, and the combined International Broadcast Centre and the Main Press Centre (“IBC/MPC”)—would have

⁹ “Bid 2.0,” Venue Planning, at p. 83.
¹⁰ “Bid 2.0,” Venue Planning, at pp. 4 and 83. Figure 1 indicates that 24 athletic events would have taken place within a 10 km radius of each other in the immediate Boston area. Bid 2.0’s venue plan indicated 23 venues would have been located within a 10 km radius of each other.
¹¹ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 30.

been located just south of downtown Boston.¹² Historically, these three venues have been the most expensive projects for host cities of Olympic Games.¹³ However, Boston 2024 believed that recent implementation of Olympic Agenda 2020¹⁴ demonstrated the IOC’s willingness to be more flexible with its requirements including substantially reducing the required size of and thus the cost of the IBC and MPC.¹⁵ In the sections below, we describe the development of the area around the Olympic Stadium and Athletes’ Village in further detail and also describe how private developers would have born the majority of costs for each development, as suggested by Bid 2.0.

a. Midtown—Olympic Stadium

Bid 2.0 proposed that the Olympic Stadium would have been located in Widett Circle. Widett Circle is an 83-acre (7.9 million square foot) industrial district located along I-93 approximately one mile south of South Station, between the South End and South Boston neighborhoods.¹⁶ This area, which was being referred to as Midtown in Bid 2.0, is currently home to the New Boston Food Market, a cold storage facility, public facilities for Amtrak and the MBTA, and a City of Boston tow lot.¹⁷ Midtown is considered “an underdeveloped and little known area of the city.”¹⁸ Boston 2024 believed that hosting the Olympic Games would have served as a catalyst to transform the area and would have represented “one of the most interesting real estate

¹² “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 32. The exact location of the IBC/MPC was not determined in Bid 2.0. In Bid 1.0, it was positioned towards the waterfront adjacent to the Boston Convention and Exhibition Center. See “Bid 1.0,” Key Venue Plan, at pp. 36-37.

¹³ See Section V for discussion of historical games and associated cost overruns.

¹⁴ The 2020 Olympic Agenda is the set of recommendations that the IOC has adopted to improve the Olympic Movement. These recommendations include reducing the cost of the bidding process, improving the sustainability of the Olympic Games, reducing the cost of Olympic Games management, and fostering gender equality, among others. As an example, under Agenda 2020, the IOC may allow events to take place outside the host city for geographical and sustainability reasons. See “Olympic Agenda 2020: 20 + 20 Recommendations,” IOC, available at http://www.olympic.org/Documents/Olympic_Agenda_2020/Olympic_Agenda_2020-20-20_Recommendations-ENG.pdf (last accessed August 1, 2015).

¹⁵ Boston 2024’s original bid included plans to partner with a private developer to construct a permanent site for the International Broadcast and Main Press Center. In Bid 2.0, Boston 2024 proposed that only a temporary facility was necessary. See “Bid 1.0,” Sports and Venues, at pp. 16-17; “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22.

¹⁶ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 34; “Bid 2.0,” Midtown Development Plan, at p. 35.

¹⁷ “Bid 2.0,” Midtown Development Plan, at pp. 50-51.

¹⁸ “Bid 2.0,” Midtown Development Plan, at p. 1.

investment opportunities in the United States.”¹⁹ Development of Widett Circle could happen absent the Olympics. On July 8, 2015, Mayor Martin Walsh stated, “I think it’s something we absolutely move forward with, whether or not we get the Olympics.”²⁰

Boston 2024 described the development concept for Midtown as similar to the “overbuild” platform at Hudson Yards in New York City, a project which grew out of the city’s bid for the 2012 Summer Olympic Games.²¹ According to Bid 2.0, development at Midtown would have consisted of an elevated platform along I-93 forming the foundation for Olympic Game sites and the legacy uses following the Olympic Games.²² Mixed-use real estate development was expected to occur over seven phases between 2022 and 2040.²³ During the Olympic Games, Midtown would have housed a temporary 69,000 seat Olympic Stadium as well as operational support facilities. It would have been the largest temporary stadium constructed to date.²⁴ A pedestrian passageway called Olympic Boulevard would have connected the Olympic Plaza at Midtown to nearby South Station and Broadway Station.²⁵ Figure 2 below compares Widett Circle in its current state with the Midtown development that was proposed for 2024 in Bid 2.0.

¹⁹ “Bid 2.0,” Midtown Development Plan, at pp. 1 and 3.

²⁰ Jon Chesto, “Mayor backs plan for Widett Circle, even if city loses Olympic bid,” *The Boston Globe*, July 8, 2015, available at <https://www.bostonglobe.com/business/2015/07/07/mayor-wants-push-ahead-with-redeveloping-widett-even-olympics-don-materialize/53gpUWCh2lOowvzNPg89kK/story.html> (last accessed August 3, 2015).

²¹ “Bid 2.0,” Midtown Development Plan, at p. 33.

²² “Bid 2.0,” Midtown Development Plan, at pp. 29, 31, and 39. The elevated platform will be comprised of three levels, the lower at an elevation of 8 feet, the middle level at an elevation of 18 feet 9 inches, and the top plaza level at an elevation of 34 feet.

²³ “Bid 2.0,” Midtown Development Plan, at p. 69.

²⁴ Michael Levenson. “Architects caution about costs of temporary Boston Olympic stadium.” *The Boston Globe*, available at <https://www.bostonglobe.com/metro/2015/01/15/audacious-plan-backers-city-olympic-bid-want-build-temporary-seat-stadium-south-boston/U8nsaAiY4qUbQgEQJNP7tN/story.html> (last accessed July 27, 2015).

²⁵ “Bid 2.0,” Midtown Development Plan, at p. 39.

Figure 2: Midtown Today vs. Midtown 2024



Sources & Notes:

“Bid 2.0,” Midtown Development Plan, at pp. 6-7, 12-13.

As suggested in Bid 2.0, development of Midtown for the Olympic Games and its post-Olympic legacy uses would have been done by a private master developer. As a precursor to finding a master developer, Boston 2024 would have needed to secure a commitment from the City of Boston for a real estate tax agreement with the eventual developer, secure entitlements to develop the land for its new intended uses, and assemble all land from existing public and private owners through option agreements and memorandums of understanding.²⁶ The private master developer, who would have been selected through a competitive Request for Proposal (“RFP”) process, would have been responsible for financing the entire project, which was expected to cost \$1.2 billion in 2022 dollars or \$1.0 billion in 2016 dollars.²⁷ In exchange for financing the project, the master developer would have been granted the rights to develop the land for its permanent uses.²⁸ Development was expected to begin in 2022. Approximately twelve months prior to the games, Boston 2024 would have taken control of a portion of Midtown in order to construct the temporary stadium, warm-up fields, and support facilities for the Olympic Games.²⁹

Following the Olympic Games, the temporary stadium, warm-up fields, and support facilities would have been removed, leaving permanent parks and new civic space.³⁰ The remainder of the site would have been returned to the master developer for continued legacy construction.³¹

²⁶ “Bid 2.0,” Midtown Development Plan, at pp. 68-69.

²⁷ “Bid 2.0,” Midtown Development Plan, at pp. 66-67. Midtown cost estimates were reported in 2016 dollars and 2022 dollars.

²⁸ “Bid 2.0,” Midtown Development Plan, at p. 65.

²⁹ “Bid 2.0,” Midtown Development Plan, at pp. 67-69.

³⁰ “Bid 2.0,” Midtown Development Plan, at pp. 10-11, and 43. The Midtown Development plans included both a “legacy park” and a “sports park.”

Boston 2024’s development plan for Midtown assumed that the City of Boston would have entered into a “121A” agreement with the master developer, which provides tax exemptions for urban redevelopment projects.³² Based on Boston 2024’s assumptions, the master developer was expected to earn a 12.2 percent rate of return for its investment.³³

According to Boston 2024, in return for these temporary tax incentives that reduce a portion of the real estate taxes, the City of Boston was expected to benefit from retail, hotel, and office development and 5,000 permanent parking spaces. The increased value to the area was expected to offset the temporary loss of real estate taxes and was expected to generate between \$190 and \$215 million in nominal dollars (between approximately \$107 million and \$123 million in 2016 dollars) in incremental taxes between 2023 and 2040.³⁴

b. Columbia Point—Athletes’ Village

Bid 2.0 proposed to use the Columbia Point/UMass Precinct as the site for Boston 2024’s Athletes’ Village.³⁵ Boston 2024 noted that redevelopment of this area was previously contemplated by the 2011 Boston Redevelopment Authority Columbia Point Master Plan.³⁶ Boston 2024 believed that hosting the Olympic Games would have served as a catalyst to transform the area and

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³¹ “Bid 2.0,” Midtown Development Plan, at p. 69. Phase 1 consisting of nearly 1.74 million square feet of mixed-use development and 1,500 parking spaces would have occurred prior to the Olympic Games. Phases 2 through 7 consisting of the remaining 6.15 million square feet and 3,500 parking spaces would have occurred between 2025 and 2040.

³² “Chapter 121A – Section 18C,” 189th General Court of the Commonwealth of Massachusetts, available at <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXVII/Chapter121A/Section18C> (last accessed August 3, 2015).

³³ “Bid 2.0,” Midtown Development Plan, at p. 67. Boston 2024’s model assumed that the Midtown area would have benefitted from transportation improvements around the area including a new commuter rail station at Widett Circle, which would have been funded by the master developer, and enhancements to the Broadway T Station which would have been funded by the MBTA and Massachusetts Department of Transportation. MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 11, 17. Additional transit improvements including a passenger rail service running from Back Bay to the Seaport were expected to increase the value of the land and increase the master developer’s IRR to 17.8 percent.

³⁴ Midtown and Athletes’ Village Developer Models provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group. See Figure 8.

³⁵ “Bid 2.0,” Columbia Point Development Plan, at pp. 1-2.

³⁶ “Bid 2.0,” Columbia Point Development Plan, at pp. 2 and 37.

represented “a watershed opportunity to address Boston’s need for mixed-income housing by creating a vibrant mixed-use and multi-generational community on the Columbia Point waterfront.”³⁷

As with the Midtown development, a master private developer, or group of developers, was to be selected through a competitive RFP process for the project, which was expected to cost \$2.9 billion in 2024 dollars or \$2.4 billion in 2016 dollars.³⁸ Before the RFP process, Boston 2024 would have needed to secure a commitment from the City of Boston for a real estate tax agreement with the eventual developer, secure entitlements to develop the land for its new intended uses, and assemble all land from existing public and private owners through option agreements and memorandums of understanding.³⁹ Unlike the Midtown development, which as described above was expected to occur over seven phases through 2040, the development of Columbia Point for Athletes’ Village was to be completed prior to the Olympic Games in order to house over 17,000 Olympic athletes and later approximately 8,000 Paralympic athletes.⁴⁰ The Athletes’ Village was also to include temporary dining, healthcare, training, and transportation facilities, all of which would have been funded by Boston 2024 through its ticketing, sponsorship, and other sources of revenues.⁴¹ Figure 3 below compares Columbia Point in its current state with the Athletes’ Village development in 2024 as proposed in Bid 2.0.

³⁷ “Bid 2.0,” Columbia Point Development Plan, at p. 3.

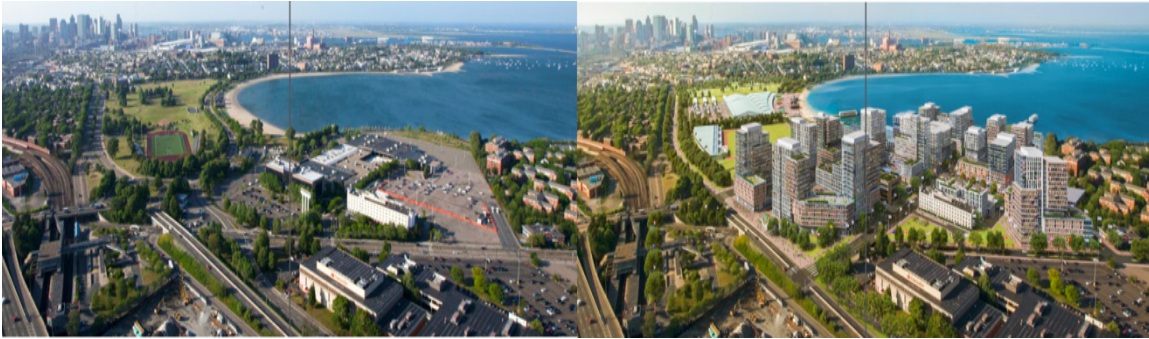
³⁸ “Bid 2.0,” Columbia Point Development Plan, pp. 59, 61, and 64. Athletes’ Village estimates were reported in 2015 dollars and 2024 dollars. \$2.9 billion is the cost in 2024 dollars. To report the Athletes’ Village estimate in 2016 dollars, we have grown the \$2.3 billion estimate in 2015 dollars at a three percent inflation rate.

³⁹ “Bid 2.0,” Columbia Point Development Plan, at pp. 60-62 and 69.

⁴⁰ “Bid 2.0,” Columbia Point Development Plan, at p. 31.

⁴¹ “Bid 2.0,” Columbia Point Development Plan, at pp. 31 and 63.

Figure 3: Columbia Point Today vs. Columbia Point 2024



Sources & Notes:

“Bid 2.0,” Columbia Point Development Plan, at pp. 4 - 7, 32 - 33.

Following the Olympic Games, the master developer was expected to convert athlete housing into multi-family housing, student housing, senior housing, and other retail and restaurant space.⁴² Boston 2024 expected that the new housing would have been absorbed by the market over a 30-month period.⁴³ This was due to the proximity of colleges and universities, including UMass Boston and Suffolk University, and the City of Boston’s 2030 housing plan calling for the creation of 53,000 housing units including 3,500 for senior housing and 16,000 new dorm beds for students.⁴⁴

As described above, Boston 2024 expected the City of Boston to provide real estate tax credits.⁴⁵ Overall, the master developer was expected to achieve an eight percent leveraged return on its capital investment.⁴⁶ Nevertheless if the projected had been adopted, according to Boston 2024, Columbia Point was expected to generate \$53 million in nominal dollars (or \$32 million in 2016 dollars) in incremental real estate taxes between 2023 and 2040.⁴⁷

⁴² “Bid 2.0,” Columbia Point Development Plan, at p. 58.

⁴³ “Bid 2.0,” Columbia Point Development Plan, at pp. 67-68.

⁴⁴ “Bid 2.0,” Columbia Point Development Plan, at pp. 67-68.

⁴⁵ “Bid 2.0,” Columbia Point Development Plan, at p. 59; “Bid 2.0,” Midtown Development Plan, at pp. 70-71.

⁴⁶ “Bid 2.0,” Columbia Point Development Plan, at pp. 67 and 74. Eight percent was the estimated leveraged IRR. Boston 2024 also estimated the master developer would achieve a 5.7 percent return on cost. For a description of how the master developer would leverage, see discussion in Section IV.

⁴⁷ Athletes’ Village Developer Model provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group. See Figure 8 in Section V.

2. Overview of Boston 2024 Olympic Budget

As per Bid 2.0, Boston 2024’s budget consisted of four categories:

- An operating budget, which we refer to as “OCOG”⁴⁸
- A private capital budget, which we refer to as “Non-OCOG”
- Public infrastructure investments
- A security operations budget.⁴⁹

Table 2 below provides a description of each type of cost and the funding source of each one of those costs.

Table 2: Olympic Games Costs

| Cost Category | Description | Examples | Funding Mechanism |
|----------------|--|---|---|
| OCOG | The majority of temporary costs attributable to hosting the Olympics | Construction of athletic venues, rental of land, staffing, technology, and other Olympic operations | Olympic revenues including ticket sales, sponsorships, and broadcast and licensing fees |
| Non-OCOG | Permanent costs associated with the proposed plan that are not directly attributable to hosting the Olympics | Permanent improvements to the UMass Boston area resulting from the creation of Athletes’ Village | Privately funded |
| Infrastructure | Infrastructure upgrades that are not directly attributable to Olympic venues | Transportation improvements to railways, highways, buses, etc. | Commonwealth of Massachusetts and Massachusetts Department of Transportation |
| Security | Considered | Security overlay and personnel | Federal government |

Sources & Notes:

“Bid 1.0,” Bid + Games Budgets, at pp. 10 – 19.

Figure 4 shows the breakdown of costs associated with each category and how each category was expected to recover or fund these costs.⁵⁰ As illustrated below, Boston 2024 expected that the

⁴⁸ OCOG stands for Organizing Committees for the Olympic Games.

⁴⁹ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 22, 44-45, and 50; “Bid 2.0,” Midtown Development, at p. 66; “Bid 2.0,” Columbia Point Development, at p. 64.

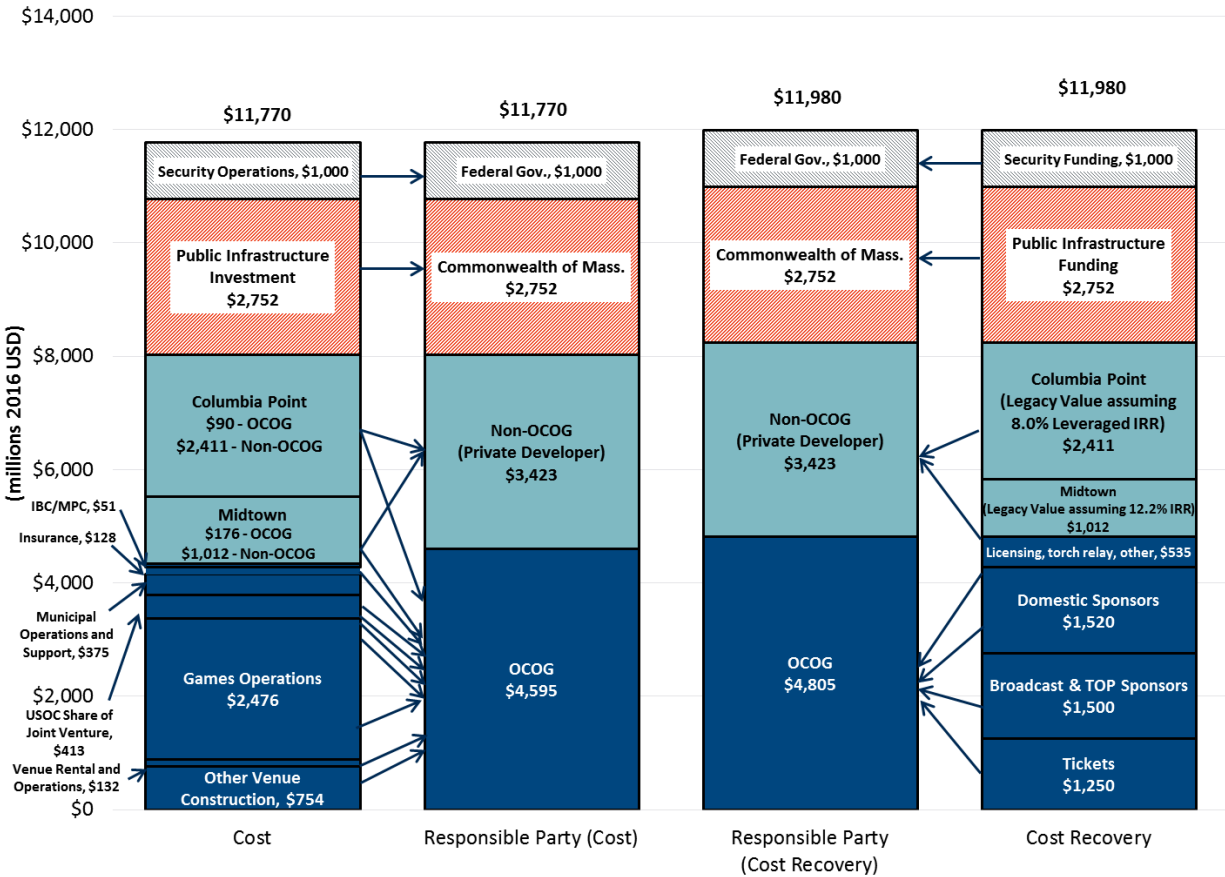
total cost of its plan by 2024 of \$11.8 billion would have been more than offset by revenue sources including broadcast, sponsorship, ticketing, the legacy value to the master developers for the Midtown and Columbia Point developments, and public funding for security operations and infrastructure upgrades. Boston 2024 estimated a budget surplus of \$210 million.⁵¹ The estimated budget surplus implied that neither the City of Boston nor the Commonwealth of Massachusetts as financial guarantors of the Olympic Games would have ultimately borne any of the costs for venues or operation of the Olympic Games. The Commonwealth was expected to fund public infrastructure projects.

Continued from previous page

⁵⁰ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 5; “Bid 2.0,” Midtown Development, at pp. 67; “Bid 2.0,” Columbia Point Development, at p. 59. In order to estimate the revenues and costs associated with Boston hosting the 2024 Olympic Games, Boston 2024 had retained or consulted with real-estate contractors, USOC officials, consultants to previous games including London, and insurance experts.

⁵¹ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22.

Figure 4: Boston 2024 Bid 2.0 Budget (millions 2016 USD)



Sources & Notes:

OCOG: “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22. Cost and cost recovery sources were reported in 2016 dollars.

Non-OCOG: “Bid 2.0,” Midtown Development Plan, pp. 66-67; “Bid 2.0,” Columbia Point Development Plan, pp. 59, 64, 67. Midtown cost estimates were reported in 2016 dollars. The Midtown legacy value is equal to the cost assuming a 12.2% Internal Rate of Return (“IRR”). Columbia Point estimates were reported in 2015 dollars. We have grown this amount at a 3.0% inflation rate to bring to 2016 dollars. The Columbia Point legacy value is equal to the cost assuming an 8.0% Leveraged IRR.

Public Infrastructure Investment: “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 22, 44 – 45. The year basis for infrastructure investments was not specified. Investments include nine projects that were expected to be funded by the Commonwealth of Massachusetts. Bid 2.0 did not specify the year basis for its estimates. For the purpose of this analysis, we will assume that all public infrastructure figures are in 2016 dollars. The Kosciuszko Circle Improvements were estimated to cost between \$120 million and \$220 million. See “Bid 2.0,” Columbia Point Development, at p. 53. Bid 2.0 estimated the cost at \$160 million. \$160 million is used in the figure above. Private developer infrastructure costs were already included in the projected \$1.0 billion and \$2.4 billion costs for the Midtown and Athletes’ Village developments.

Security: “Assessing the Olympics, Preliminary Economic Analysis of a Boston 2024 Games – Impacts, Opportunities, and Risks,” UMass Donahue, Economic and Public Policy Research, March 2015, pp. 12, 19. Security costs and funding estimate is from a preliminary economic analysis of the Boston 2024 Games located on Boston 2024’s website. Boston 2024 anticipated that the Federal Government would have overseen Games security operations and would have provided the necessary funding as a National Special Security Event, but Bid 2.0 provided no estimate of the security operations cost (See “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 50).

As detailed in Section V, there were risks associated with Boston hosting the Olympic Games. In addition to careful venue planning, Boston 2024 developed a comprehensive insurance plan to

mitigate some of these risks. Insurance policies are typical for mega-construction and infrastructure projects and even other mega-events such as the Super Bowl.⁵² Boston 2024's insurance plan included:⁵³

- Requiring that contractors and private developers purchase insurance, which would have reduced Boston 2024's risk of increased costs due to construction delays or losses of financing for projects.
- Purchasing a \$128 million insurance policy for OCOG, which would have reduced Boston 2024's risk of losses in ticketing and sponsorship revenues and cost increases due to indemnity or liability claims or other excess-risk claims.

If Boston OCOG were able to acquire such an insurance policy and require contractors and private developers to purchase insurance, this would have added a layer of protection to Massachusetts taxpayers but would not have been able to eliminate all risks. We discuss insurance as a method to mitigate potential risks associated with Bid 2.0 in further detail in Section V.

B. Historical Olympic Games and Bids

While each Olympic Games has its own unique goals and objectives, the experiences of prior Olympic Games, and successful and unsuccessful bids, are vital to ensure the informed and complete establishment of an Olympic Games budget and provide insight as to potential financial risks or sensitivities. In this section we will discuss past successful bids, including London (2012), Vancouver (2010), Atlanta (1996), as well as New York City's ("New York") unsuccessful bid to host the Summer Olympic Games in 2012, and Chicago's unsuccessful bid to host the Summer Olympic Games in 2016. This will allow us to draw comparisons to prior Olympic Games and bids and provide a greater understanding of Boston 2024's bid.

1. Reasoning Behind Choice of Bids Being Analyzed

The review of past bids is selective and focuses on past bids from U.S. cities and host cities in countries with similar economic and political conditions to the U.S. Because the economic and

⁵² "Boston 2024: Insurance Overview," June 2015, at pp. 7-8, available at https://s3.amazonaws.com/2024boston/app/uploads/2015/07/09125211/Boston2024_RiskManagementPlan_FNL_7-22-15.pdf (last accessed August 11, 2015). ("Boston 2024: Insurance Overview")

⁵³ "Boston 2024: Insurance Overview."

political conditions in Beijing and Sochi (and other cities like Athens and Sydney) differ from those in Boston, less can be learned from evaluating their bids. In addition, we will discuss economic and financial differences between Summer and Winter Games. Thus, we expect limited applicability to evaluating Winter Games in depth with the exception of Vancouver, where significant cost overruns associated with the Athletes' Villages are of potential relevance.

The past bids reviewed reflect situations similar to Boston's 2024 bid. We selected both successful and failed bids to help identify positive and negative elements in bids. We selected bids based in the U.S., Canada, and the United Kingdom ("U.K.") because of their similarities to the Boston 2024 bid. We also selected relatively recent bids because the nature of hosting the Olympic Games has changed significantly in the last few decades.

2. Overview of Historical Bids and Games

a. London 2012

In 2012, London was the host city for the Summer Olympic Games and featured the motto "excellence without extravagance."⁵⁴ The 32-sports venue proposal included 17 existing facilities, 7 new temporary facilities, and 8 new permanent facilities.⁵⁵ One of London's two main legacy goals was to use the Olympics to inspire greater youth participation in sports and promote general health.⁵⁶ To that end, London proposed a unique legacy use of the temporary facilities involving deconstructing and relocating four sports arenas to other parts of the U.K. after the Games.⁵⁷

A few major permanent facilities, including the Olympic Stadium, Aquatics Center, and the Velopark, formed the heart of the new Olympic Park.⁵⁸ These three permanent venues have seen extensive use by elite and community sports since the Olympic Games.⁵⁹ The active use of these

⁵⁴ "London 2012 Candidature File," Vol. 1, at p. 19, available at <http://doc.rero.ch/record/23124?ln=en> (last accessed August 1, 2015) ("London 2012 Bid"). The London Bid used a conversion rate of 1 GBP = 1.6 USD.

⁵⁵ "London 2012 Bid," Vol. 2, at pp. 21-25. Venue count does not include the IBC/MPC.

⁵⁶ "London 2012 Bid," Vol. 1, at pp. 11, 19, and 23.

⁵⁷ "London 2012 Bid," Vol. 1, at p. 97. Venues proposed for relocation include Olympic Park Arenas 1 and 2, Greenwich Arena, and The Royal Artillery Barracks.

⁵⁸ "London 2012 Bid," Vol. 1, at pp. 95-97.

⁵⁹ Dave Hill, "London's Olympic legacy three years on: is the city really getting what it needed?" *The Guardian*, July 23, 2015, available at

venues serve the other major goal of the London 2012 Games: to transform the Lea Valley, the area of East London where the Olympic Park is located and deemed “ripe for redevelopment.”⁶⁰ Three years later, the process is still ongoing—new residents and businesses are pouring into the area, but the original population is still struggling with issues of unemployment and poverty.⁶¹

The budget for the London Summer Olympic Games was originally estimated in 2004 to be \$18.3 billion, including \$2.5 billion for OCOG costs, and \$15.8 billion for non-OCOG costs.⁶² Like most other Olympic Games, London experienced significant cost overruns. OCOG costs overran by 84 percent although increased revenues balanced this cost increase. Separately, the U.K. government spent \$13.8 billion on non-OCOG expenses, more than double its original expected non-OCOG contribution of \$5.5 billion. We discuss these in more detail in Section V below.

Some of the major sources of public cost overruns included the development of the Athletes’ Village and poor planning for security. Similar to Boston 2024’s vision, London’s Athletes’ Village was intended to be mostly privately-financed. The economic downturn made it difficult to secure a good deal from private developers, and the U.K. government was burdened with the entirety of the Village’s development.⁶³ In terms of security, the final budget of \$1.4 billion was 348 percent higher than anticipated, exacerbated by the contracted security company’s announcement only two weeks prior to the Games that it was unable to deliver on the required number of personnel. The national and city governments had to deploy extra military and police personnel to fill the gap.⁶⁴

Continued from previous page

<http://www.theguardian.com/cities/davehillblog/2015/jul/23/london-olympic-legacy-three-years-on-2012-games> (last accessed 7/31/2015).

⁶⁰ “London 2012 Bid,” Vol. 1, at pp. 11, 19, and 23.

⁶¹ Dave Hill, “London’s Olympic legacy three years on: is the city really getting what it needed?” *The Guardian*, July 23, 2015, available at <http://www.theguardian.com/cities/davehillblog/2015/jul/23/london-olympic-legacy-three-years-on-2012-games> (last accessed 7/31/2015).

⁶² See Section V. Note that unlike Bid 2.0, London’s non-OCOG budget included infrastructure projects that were not directly related to the Olympic Games.

⁶³ The Athletes’ Village accounted for \$1.04 billion of London’s initial \$15.8 billion non-OCOG budget. The entirety of the project was originally intended to be privately-financed. See “London 2012 Bid,” Vol. 1, at pp. 107, and Table 8.

⁶⁴ See Section V below for details.

b. Vancouver 2010

In 2010, Vancouver was the host city for the Winter Olympic Games. Typically, the Winter Olympic Games are much smaller in scale and budget than the Summer Olympic Games.⁶⁵ For instance, the Vancouver 2010 Winter Olympic Games featured only 14 sports venues, less than half of the number proposed by Boston 2024 for the 2024 Summer Olympic Games. Only six of the 14 venues were new, one of which was temporary.⁶⁶ Despite the smaller number of venues, the 2010 Olympic Games were split between two cities, Vancouver and Whistler, located approximately 115 kilometers (71 miles) apart.⁶⁷

The separation of the two sites reinforced the need for improvements to be made to the Sea-to-Sky Highway linking Vancouver and Whistler, which had seen a high number of traffic accidents on its winding path.⁶⁸ The provincial government had already made commitments to this project regardless of whether Vancouver would host the 2010 Games. Winning the Olympic Games was also a catalyst for the development of the Canada Line rapid transit in Vancouver.⁶⁹ For Boston, similar improvements were planned for the MBTA in anticipation of the Olympic Games.⁷⁰

⁶⁵ Based on bids submitted by Candidate Cities for the 2012 through 2022 Olympic Games, the average estimated budget for Summer Olympic Games was approximately \$10.5 billion, almost twice the average estimated budget of approximately \$5.5 billion for Winter Olympic Games. Note that this is to give a sense of the relative magnitude of the planning and staging of Summer versus Winter Olympic Games, and is not meant to be a perfect comparison of the two types. Amounts are in the currency of the year the bids were submitted, and do not reflect final costs incurred by the winning Candidate Cities as bid budgets can change significantly after cities are awarded the Games. See Section V for a detailed discussion of cost overruns. See “Report of the IOC Evaluation Commission” for the 2008 through 2022 Olympic Games, all available at <http://www.olympic.org/host-city-elections/documents-reports-studies-publications> (last accessed August 4, 2015).

⁶⁶ “Vancouver 2010 Candidature File,” Vol. 2, at p. 131, available at <http://doc.rero.ch/record/23247?ln=en> (last accessed August 1, 2015) (“Vancouver 2010 Bid”). The Vancouver Bid used a conversion rate of 1.55 CAD = 1 USD.

⁶⁷ “Vancouver 2010 Bid,” Vol. 2, at p. 189.

⁶⁸ Ian Austen. “Olympic Thrill Ride, Mostly on 4 Wheels,” NYT, available at http://www.nytimes.com/2010/02/28/sports/olympics/28road.html?_r=0 (last accessed August 1, 2015).

⁶⁹ “Vancouver 2010 Bid,” Vol. 1, at p. 19. The Canada Line is the name of the Richmond-Airport-Vancouver transit link. See “Public Transportation, Canada Line,” available at <http://www.yvr.ca/en/getting-to-from-yvr/public-transportation.aspx> (last accessed August 13, 2015).

⁷⁰ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 44-45.

The Vancouver Winter Olympic Games budget was estimated in 2002 to be \$1.8 billion, with a \$874 million OCOG budget and \$958 million non-OCOG budget. The OCOG budget experienced an 84 percent cost overrun, of which 64 percent was covered by government contributions. In addition, the national and provincial governments originally pledged \$442 million for non-OCOG costs including a budget for security, but by the end of the Olympic Games, non-OCOG government contributions had increased to \$1 billion, more than double the initial estimate.⁷¹ As in London, security costs were underestimated and accounted for \$447 million, or 76 percent of the public non-OCOG cost overrun.⁷² Other than the national and provincial governments, the City of Vancouver was also exposed to financial risk. The Vancouver Athletes' Village was intended to be mostly privately financed. However, the 2008 economic recession affected the private developer responsible for the Village, as well as the hedge fund that acted as the lender. As a result of the financial guarantee signed by the city to see the project to completion, the city took on \$406 million in debt, 21 times the original estimate of the public contribution towards the Village.⁷³ The debt was finally paid off in 2014 when the last piece of the Village was sold off.⁷⁴

c. Atlanta 1996

In 1996, Atlanta was the host city for the Summer Olympic Games. While hosting the Summer Olympic Games did not solve all of Atlanta's unemployment and poverty issues, it is credited with pumping \$5 billion into the city's economy.⁷⁵ Atlanta's bid emphasized convenience—13 of the 19 venues already existed, were easily modifiable, or were planned regardless of hosting the Olympic Games. The majority of venues were located within 2.5 kilometers (0.9 miles) of the Athletes' Village in downtown Atlanta.⁷⁶ The bid leveraged many local university facilities as sports venues, similar to plans suggested by Boston 2024 in Bid 2.0. Importantly, most of the venues continued to be well-utilized after the Olympic Games. The Athletes' Village was turned

⁷¹ See Section V for details.

⁷² See Section V for details.

⁷³ See Section V for details.

⁷⁴ Glen Korstrom and Tyler Orton. "City involvement at Olympic Village costs taxpayers \$150 million," *Business in Vancouver*, April 27, 2014, available at <https://www.biv.com/article/2014/4/city-involvement-at-olympic-village-costs-taxpayer/> (last accessed August 1, 2015).

⁷⁵ Gregory Meyer. "What would Olympics really bring to Chicago?" *Crain's Chicago Business*, October 9, 2006, available at <http://www.chicagobusiness.com/article/20061009/NEWS07/200022370/what-would-olympics-really-bring-to-chicago> (last accessed August 3, 2015).

⁷⁶ "Atlanta 1996 Candidature File," Vol. 3, at p. 34. ("Atlanta 1996 Bid")

into student dormitories for Georgia Institute of Technology and Georgia State University.⁷⁷ The Olympic Stadium was retrofitted as a baseball stadium and became Turner Field, the home of the Atlanta Braves.⁷⁸ The Georgia Dome became the home stadium for the NFL's Atlanta Falcons and Georgia State University.⁷⁹

The long term legacy of the venues from the 1996 Summer Olympic Games is unclear. Turner Field and the Georgia Dome have only been used for about 20 years following the 1996 Olympic Games. In 2013, the Atlanta Braves announced that Turner Field was no longer suitable for their needs and that they intended to move to a new ballpark in suburban Atlanta in 2017.⁸⁰ The Braves have invested nearly \$125 million in the facility since it opened in 1997.⁸¹ In 2010, the Atlanta Falcons announced that the Georgia Dome was no longer suitable for their needs.⁸² Plans are underway to construct a new domed stadium for the Falcons in time for the 2017 season.⁸³

Compared to more recent Olympic Games, the Atlanta bid was relatively frugal. The \$1.3 billion budget included everything from operations to capital expenses, and like Boston's Bid 2.0, was intended to be mostly privately financed. The State of Georgia committed at least \$300 million, or 23 percent, to construction costs for the Georgia Dome and the World Congress Center.⁸⁴

⁷⁷ Curt Nickisch. "What Boston Universities Could Take From Atlanta's Olympics Experience," WBUR News, June 4, 2015, available at <http://www.wbur.org/2015/06/04/boston-universities-atlanta-olympics> (last accessed August 1, 2015).

⁷⁸ "Turner Field History," available at <http://mlb.mlb.com/atl/ballpark/information/index.jsp?content=history> (last accessed August 3, 2015).

⁷⁹ "About the Georgia Dome," available at <http://www.gadome.com/about/Default.aspx> (last accessed August 1, 2015).

⁸⁰ "Atlanta Braves Secure Land for New Stadium and Integrated Mixed-Use Community," Atlanta Braves Press Release, available at http://atlanta.braves.mlb.com/news/print.jsp?ymd=20131111&content_id=63830868&vkey=pr_atl&c_id=atl (last accessed August 1, 2015).

⁸¹ "Atlanta Braves Secure Land for New Stadium and Integrated Mixed-Use Community," Atlanta Braves Press Release, available at http://atlanta.braves.mlb.com/news/print.jsp?ymd=20131111&content_id=63830868&vkey=pr_atl&c_id=atl (last accessed August 1, 2015).

⁸² J. Scott Trubey and Maria Saporta. "Falcons Want Open Air Stadium North of GWCC," Atlanta Business Chronicle, available at <http://www.bizjournals.com/atlanta/stories/2010/05/17/daily40.html> (last accessed August 1, 2015).

⁸³ "New Atlanta Stadium," Atlanta Falcons, available at <http://newstadium.atlantafalcons.com/overview/> (last accessed August 12, 2015).

⁸⁴ "Atlanta 1996 Bid," Vol. 5, at p. 86-88.

Final OCOG spending was 71 percent more than initially estimated, and, as with London, was balanced by increased revenues. In particular, final ticket sales revenue was \$425 million, almost 150 percent higher than projected.⁸⁵

While final state spending is not available, federal spending totaled \$609 million in direct assistance in planning and staging the Olympic Games and projects related to preparing the city to host the Games, of which \$96 million, or 16 percent, was for security services.⁸⁶ A portion of the \$96 million—although it is unclear how much—may have been due to increased security following the bombing at Centennial Park during the Olympic Games.

d. New York 2012 and Chicago 2016 Bids

New York's unsuccessful bid for the 2012 Summer Olympic Games featured a total budget of \$10.7 billion, which is the most similar to that of Bid 2.0 as compared to the bids discussed in this section.⁸⁷ Twenty-nine percent (or \$3.1 billion) was budgeted for OCOG expenses, while the other 71 percent (or \$7.6 billion) was budgeted for non-OCOG expenses. Like Bid 2.0, New York also included \$2.8 billion in public transportation infrastructure investments, nearly all of which was planned regardless of the outcome of the bid.⁸⁸

Revitalizing waterfront areas was a central theme in the New York bid.⁸⁹ The Olympic Stadium was to be located in Hudson Yards in west Manhattan, and the Athletes' Village was to be along the east bank of the East River.⁹⁰ However, these plans were not abandoned after New York lost the bid. Hudson Yards has seen major changes since the bid was denied in 2005, including residential and commercial skyscrapers at the site where the Olympic Stadium was to be. The

⁸⁵ "Atlanta 1996 Bid," Vol. 5, at p. 88; "2014 Olympic Marketing Fact File," IOC, at p. 30, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

⁸⁶ "Federal Government Provides Significant Funding and Support," United States General Accounting Office, September 2000, at p. 29, available at <http://www.gao.gov/assets/160/156989.pdf> (last accessed August 12, 2015).

⁸⁷ "New York 2012 Candidature File," Vol. 1, at pp. 115-117, available at <http://doc.rero.ch/record/23187?ln=en> (last accessed August 1, 2015) ("New York 2012 Bid").

⁸⁸ "New York 2012 Bid," Vol. 1, at p. 117; "New York 2012 Bid," Vol. 3, at p. 101.

⁸⁹ "New York 2012 Bid," Vol. 1, at p. 25.

⁹⁰ "New York 2012 Bid," Vol. 1, at p. 20.

waterfront is on its way to becoming the vibrant neighborhood that the bid committee had planned for.⁹¹

Chicago's unsuccessful bid for the 2016 Olympics put forth a budget of \$4.8 billion, including 78 percent, or \$3.8 billion, budgeted for the OCOG expenses and 22 percent budgeted for non-OCOG expenses.⁹² Similar to Bid 2.0's proposal of a temporary Olympic Stadium, Chicago's bid planned for the 80,000-seat Olympic Stadium to be dramatically reduced to 10,000 seats after the Olympic Games.⁹³ Chicago's plan for the Athletes' Village was much like Bid 2.0's Midtown Development Plan.⁹⁴ The Athletes' Village was to be built near Chicago's South Side with the goal of transforming an underutilized and obsolete hospital campus into a new mixed-use community with park amenities and permanent housing. In addition, the development would have enhanced the lakefront area for existing neighborhoods.⁹⁵ Like New York, this development was planned to be carried out regardless of the outcome of the bid.⁹⁶ The City of Chicago had already signed a contract to purchase the site for the Village.⁹⁷ Had Chicago been chosen for the 2016 Olympic Games, the city would have been the guarantor for the entire project, estimated to cost around \$1 billion in 2008.⁹⁸ This would have placed Chicago in the same risky position that Vancouver faced in the development of its Athletes' Village. However, even with a failed bid, Chicago faced the alternative risk of having paid \$91 million for the land

⁹¹ Charles Bagli. "From Ashes of Olympic Bid, a Future Rises for the Far West Side," NYT, available at <http://www.nytimes.com/2011/11/28/nyregion/on-far-west-side-bloombergs-failed-olympic-plan-spurs-development.html> (last accessed August 1, 2015).

⁹² "Chicago 2016 Candidature File," Vol. 1, at pp. 117-121, available at <http://doc.rero.ch/record/23192?ln=en> (last accessed August 1, 2015) ("Chicago 2016 Bid"). Chicago's estimated budget is the smallest of those submitted by the four candidate cities. The other budgets ranged from \$5.9 billion for Tokyo to \$13.9 billion for Rio de Janeiro. See "Report of the 2016 IOC Evaluation Commission," IOC, at pp. 32, 50-51, and 68 ("IOC Evaluation 2016").

⁹³ "IOC Evaluation 2016," at p. 18.

⁹⁴ The difference is, of course, that Midtown Development Plan was for the Olympic Stadium, rather than the Athletes' Village.

⁹⁵ "Chicago 2016 Bid," Vol. 2, at p. 187.

⁹⁶ "Chicago 2016 Bid," Vol. 1, at p. 21.

⁹⁷ "Chicago 2016 Bid," Vol. 1, at p. 109.

⁹⁸ Steve Rhodes. "The Olympic Village Gamble," NBC Chicago, available at <http://www.nbcchicago.com/news/business/The-Olympic-Village-Gamble.html> (last accessed August 1, 2015).

only to have it sit undeveloped. As of March 2015, the city was still in the process of finding a developer for the site.⁹⁹

In addition to guaranteeing the funding for the Athletes' Village, the City of Chicago guaranteed up to \$500 million to cover potential OCOG shortfalls. The city did not, however, agree to guarantee any and all shortfalls that may have arisen in the preparations for and during the staging of the Olympic Games.¹⁰⁰ In the same vein, New York's bid contained a \$250 million joint guarantee by the City and State governments, but did not mention a guarantee against all shortfalls.¹⁰¹ This is an important difference between the unsuccessful New York and Chicago bids, versus the winning London and Vancouver bids.¹⁰² In fact, every other candidate city in the 2012 and the 2016 bidding process had secured full financial guarantees from their respective governments.¹⁰³

e. Summary

All three successful bids covered in this section experienced substantial cost overruns by the end of their respective Olympic Games. While we discuss these cost overruns in more detail in Section V, major sources of public overruns in these Olympic Games included development of the Athletes' Village and security costs. We note that in general, we are unable to determine the final costs to the non-OCOG private sector associated with these Olympic Games, although there were large contributions made by governments at all levels. However, hosting the Olympic Games also gives cities the impetus to invest in public projects that may otherwise occur later, or never at all. Tangible legacy benefits include sports venues for both professional and community uses, transportation infrastructure improvements, regeneration of neighborhoods, and development of underutilized land. But some of these benefits were realized even without a winning bid, as in the case of New York's Hudson Yards development.

⁹⁹ Melissa Harris. "Bidding for Reese site development about to begin," Chicago Tribune, March 31, 2015, available at <http://www.chicagotribune.com/business/ct-michael-reese-0331-biz-20150331-story.html> (last accessed August 13, 2015).

¹⁰⁰ "Chicago 2016 Bid," Vol. 1, at p. 107.

¹⁰¹ "New York 2012 Bid," Vol. 1, at p. 105.

¹⁰² "London 2010 Bid," Vol. 1, at p. 93; "Vancouver 2010 Bid," Vol. 1, at p. 71. See Section V for a detailed discussion on the importance of financial guarantees.

¹⁰³ "Report of the IOC Evaluation Commission for the Games of the XXX Olympiad in 2012," International Olympic Committee, at pp. 15, 50, 69, and 86 ("IOC Evaluation 2012"); "IOC Evaluation 2016," at pp. 33, 51, and 69.

IV. Financial Evaluation

A. Introduction to Financial Evaluation and Funding Mechanisms

In this section, we provide an overview and understanding of the Bid 2.0 budget, with a particular emphasis on the major sources and uses of funds that were projected in the bid. Our analysis is intended to provide readers with an understanding of potential increases or decreases in revenue or costs that may not have been examined and/or disclosed within Bid 2.0. Further, where appropriate, we provide sensitivity analyses for the sources and uses of funds by drawing comparisons to prior Olympic Games and through our own analysis and understanding of Bid 2.0 and its underlying supporting documentation provided to us.

Unless otherwise stated, dollar figures are in 2016 dollars to be consistent with the presentation of Bid 2.0.¹⁰⁴

Importantly, Bid 2.0 projected financial information nine years ahead. This inherently created challenges for the compilation of financial information, as well as uncertainty regarding the underlying assumptions of both sources and uses of funds. Perhaps as a result of these challenges, Bid 2.0 as it was presented should be viewed as a “partial presentation,” according to the American Institute of Certified Public Accountants (“AICPA”).¹⁰⁵ Although we recognize the difficulty in projecting out to 2024 and that the Bid was likely to evolve over time, it is important to understand the preliminary nature of the budget presented.

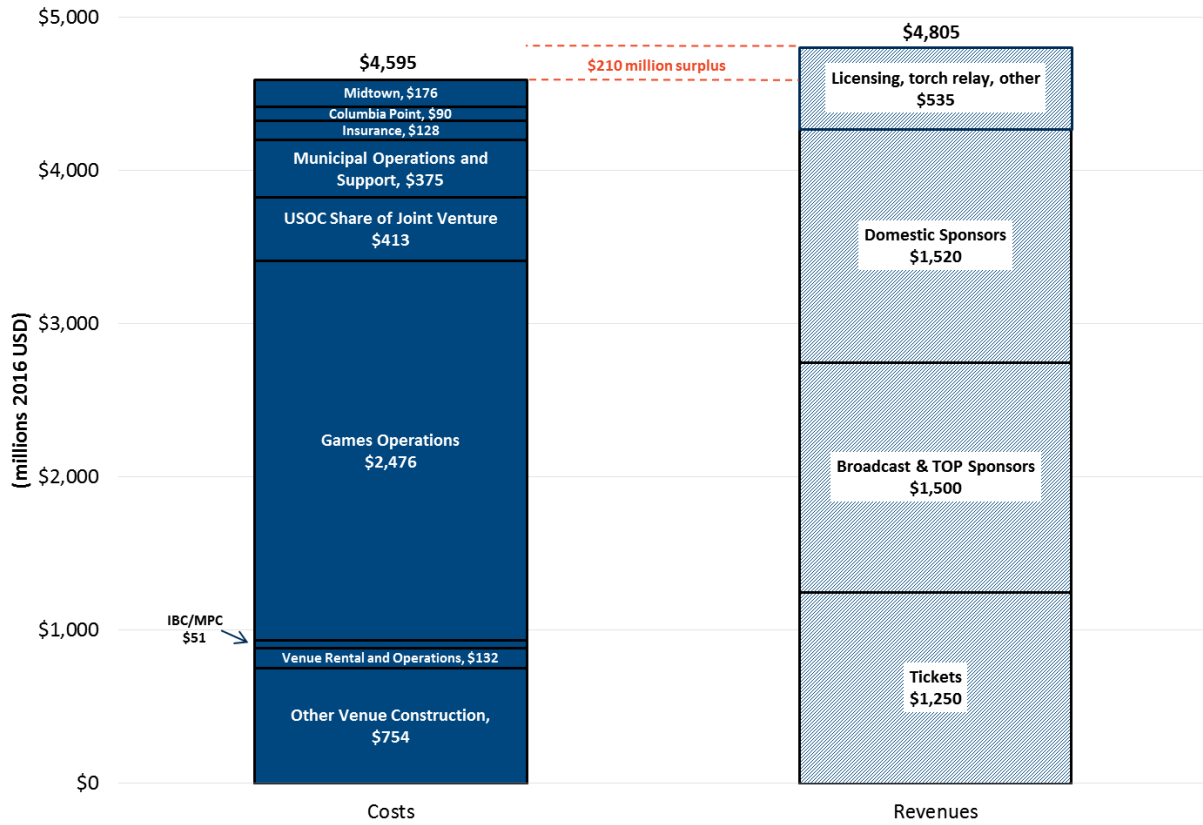
Boston 2024 projected that OCOG would have generated a surplus of \$210 million in 2016 dollars by hosting the 2024 Summer Olympic Games, as shown in Figure 5. As with any budget,

¹⁰⁴ When using 2012 London figures, figures are converted from GBP to USD using the exchange rate of 1.6 from London’s original bid. 2012 dollars are then inflated to 2016 dollars by applying the IMF’s 1.054 U.S. GDP deflator. When using 1996 Atlanta dollars, a 1.446 U.S. GDP inflator is applied to reach 2016 dollars. See *International Monetary Fund* website, “World Economic Outlook database – by Countries,” available at <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/download.aspx> (last accessed August 10, 2015).

¹⁰⁵ For more information on what constitutes a complete or partial presentation, see “AICPA Guide: Prospective Financial Information,” *American Institute of Certified Public Accountants*, New York (2012). We believe it should be viewed in this light because Bid 2.0 did not include a number of significant components that would normally be included in a complete financial forecast or projection. For example, Bid 2.0 did not state in detail how conditions between now and 2024 might change and affect the overall budget. A complete budget should provide appropriate information including a disclosure of significant assumptions and significant sources of risk to allow those evaluating it the ability to assess the reasonableness of the projected financial results.

there were risks that Boston 2024 would not have been able to realize this surplus. Inaccurate assumptions, incomplete information, and oversights would have enhanced the risk of being unable to realize the projected surplus and to meet the financing needs of hosting the Olympic Games and of legacy projects.

Figure 5: Boston 2024 Bid 2.0 OCOG Budget (millions 2016 USD)



Sources & Notes:

“Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 20 and 22. Bid 2.0 reported these figures in 2016 dollars.

In this section, we focus on Boston 2024’s proposed budget and evaluate both the reasonableness of the cost and revenue projections and assumptions, as well as the reasonableness of its reliance on third-party sources of funding.¹⁰⁶ Boston 2024’s ability to have realized a surplus would have been directly correlated with these assumptions. Of note, the projected surplus of \$210 million in 2016 dollars was less than five percent of OCOG’s estimated costs of \$4.595 billion. This indicates that were OCOG costs to have increased by five percent, the entire surplus would have been

¹⁰⁶ As shown in Figure 4, \$7.2 billion of the expected \$11.8 billion cost was expected to be funded by private developers, the Commonwealth of Massachusetts, and the Federal Government.

negated. Conducting such sensitivity tests of the potential opportunities and risks is a valuable exercise when evaluating a budget and is a generally accepted business practice when presenting forward looking financial information.

Below we provide an overview of our assessment of Bid 2.0's revenue and cost estimates. In Section IV.B, we assess Boston 2024's estimates of OCOG revenues including ticketing, IOC contributions, domestic sponsorship, and other revenues. Based on a comparison to previous Olympic Games, we evaluate potential revenue shortfalls that could have occurred as well as potential revenue opportunities. In Section IV.C, we assess Boston 2024's estimates of OCOG costs including venue construction and Games-related operating costs. In addition, we assess the reasonableness of Boston 2024's ability to have attracted private developers for the major projects at Midtown and Columbia Point and to have relied on federal funding for Paralympics and security operations. Based on a comparison to previous Olympic Games and an assessment of the likelihood of attracting third-party funding, we evaluate potential cost overruns and potential cost efficiencies.

B. Assessment of Organizing Committee Revenues

1. Ticketing

Boston 2024 estimated that it would have received \$1.25 billion in 2016 dollars from ticket sales for the Olympic Games.¹⁰⁷ Its estimate was based upon a seat-by-seat analysis of the current 34 athletic venue plan,¹⁰⁸ using the experience of the 2012 London Summer Olympic Games as a starting point and making further adjustments for the additional events and for conversion to 2016 dollars.¹⁰⁹

Based on the ticket sales at the 2012 London Olympic Games, Boston 2024's ticketing model assumed that the average ticket price for an athletic event would be \$137.¹¹⁰ Ticket prices and

¹⁰⁷ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20.

¹⁰⁸ See Table 1 of Section III for the list of venues.

¹⁰⁹ Rio 2016 is expected to have more athletic events sessions than London. Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹¹⁰ Boston 2024 estimated the average ticket price by calculating the weighted average ticket price for the London 2012 Games (£83) and converting to USD at an exchange rate of 1.65 USD to GBP. This exchange rate is different from the rate we use in our calculations. In addition, we understand that at the time of Bid 2.0's release, Boston 2024 did not have the data to estimate different prices for

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the number of tickets sold depend upon the wealth of the host country population, so assessing the comparability of the London Olympic Games and Boston 2024, both in terms of the comparability of the markets and the comparability of the event schedule is important in determining the reasonableness of Boston 2024's estimate.¹¹¹ We understand that Boston 2024 considered the London Olympic Games a reasonable starting point for its estimates. First, the London Olympic Games are the most recent Summer Games, and actual figures are available. In addition, the U.S. economy is similar to the U.K.'s with respect to macroeconomic factors, much more so than it is to China's. London is also a better benchmark than other past Olympic Games because of changing trends and the popularity of Olympic Games.

a. Potential Downside

Ticket sales are affected by the ability to fill seats with attendees who pay for their seats. We refer to this as the "seat yield." Seat yield reflects both the attendance rate of the events and the portion of seats that are filled with non-paying attendees such as IOC or USOC officials, sponsors, and the media, also colloquially known as "seat kills." The London Olympic Games had one of the highest attendance rates of all Olympic Games.¹¹² Based upon guidance from the 2012 London Olympic Games, Boston 2024's ticketing estimate assumed that vacant and non-paying seats would have accounted for ten percent of total seat capacity.¹¹³

There was a risk that the 2024 Olympic Games would have experienced relatively lower seat yield than Boston 2024 had modeled in Bid 2.0. As shown in Table 16 in Section V, since 1996, the average percentage of tickets sold for Summer Olympic Games is approximately 85 percent, or five percent lower than Boston 2024's estimate of 90 percent seat yield. Table 16 does not adjust for the seats provided to non-paying Olympic Games officials, sponsors, and press. Assuming only 15 percent of all seats would have been vacant and an additional seven percent of seats¹¹⁴ would have been non-paying, ticket revenues would decrease by \$162 million from \$1.25

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different athletic events and the ceremonies and was working to revise its ticketing estimates. Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹¹¹ Holger Preuss. "The Economics of Staging the Olympics: A Comparison of the Games 1972 – 2008," Edward Elgar, Northampton (2004) 179.

¹¹² See Table 16 in Section V.

¹¹³ Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹¹⁴ According to Boston 2024's ticketing model, ten percent of seats were either vacant or non-revenue generating. According to Table 16, only three percent of seats at London 2012 were vacant. $7\% = 97\%$

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billion to \$1.09 billion in 2016 dollars. All else being equal, this would negate over 75 percent of Boston 2024's projected surplus.

b. Potential Upside

Boston 2024 identified at least three sources of potential upside to its ticket revenue estimate: the adoption of a "regional model;" the addition of more sports such as baseball; and the use of dynamic ticketing.

Bid 2.0 included certain aspects of a regional model whereby early rounds of the football (soccer), baseball, and basketball events would have taken place at stadiums and arenas throughout the Northeast of the United States.¹¹⁵ Boston 2024 believed based on recent implementation of Olympic Agenda 2020 that the IOC would have allowed the regional model, given its potential upside and given soccer had successfully taken place as a regional event in previous games.¹¹⁶ Boston 2024 estimated that the regional model would have generated approximately 1.0 million incremental tickets and \$135 million in additional revenue for soccer and basketball.¹¹⁷

In addition, the potential upside from implementation of the regional model would have depended on the list of approved sports and the final selection of the regional venues.¹¹⁸

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– 90%. Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹¹⁵ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 21.

¹¹⁶ Based on discussions with Boston 2024.

¹¹⁷ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 21. We focus on the potential upside from adoption of the regional model for soccer and basketball as these two sports are currently Olympic sports. Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group. As discussed below, inclusion of additional sports such as baseball would have increased the potential upside of the regional model. Data provided by Boston 2024 indicated baseball ticket revenues have only been included in the 1.4 million incremental tickets identified in Bid 2.0, but not in the ticketing revenue figures which excluded the regional model. Baseball was outvoted by Wrestling for inclusion in the 2020 and 2024 Games. See "Wrestling added to Olympic programme for 2020 and 2024 Games," IOC, available at <http://www.olympic.org/news/wrestling-added-to-olympic-programme-for-2020-and-2024-games/208839> (last accessed July 21, 2015).

¹¹⁸ In addition to new sports added by the IOC, a recent change by the IOC also allows a host city to propose a new sport to be added to its Olympic program. Therefore, baseball may still be included in the 2020 Games. Jim Caple. "Baseball officials more encouraged for sport's inclusion in 2020," *ESPN*,

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Although baseball was not included in Boston 2024's ticketing revenue estimate, Boston 2024 proposed adding it back as an Olympic sport. According to its ticketing model, Boston 2024 estimated that baseball would have generated approximately \$130 million in ticket revenues under the regional model, or approximately \$36.5 million more than if all baseball games were to have occurred locally at Fenway Park.¹¹⁹

In assessing the potential upside of the regional model, one should consider whether it could be partially if not completely offset by potential incremental costs. Incremental costs might include the cost of building satellite Athletes' Villages and the transportation of athletes. We were provided no estimates of such potential costs, so we are unable to determine the potential net benefit of the regional model. Nevertheless, the adoption of the regional model and the inclusion of baseball would have provided \$265 million in potential upside.

In addition to the regional model, Boston 2024 believed that dynamic ticketing offered potential upside. Dynamic ticketing involves creating a marketplace where prices move up or down based upon market conditions determining supply and demand, much like how airline seats are priced. Tickets for less popular events would therefore provide spectators with cost savings, while the more popular events will be priced higher and possibly include premiums based upon demand.¹²⁰ Bid 2.0 provided no detail on how dynamic ticketing would be incorporated into its plan, so we are unable to assess the potential upside from its use. However, past Olympic Games have generally exceeded projected ticket revenues.¹²¹

2. IOC Contribution

The IOC distributes a share of certain revenues to OCOG based on international broadcast rights and TOP Programme sponsorships. The TOP Programme is the international sponsor program that is run and managed by the IOC. It is "established for a duration of four years, corresponding

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July 20, 2015, available at http://espn.go.com/extra/panamgames/story/_/id/13288574/2015-pan-games-outlook-encouraging-return-baseball-softball-2020-olympics (last accessed August 10, 2015).

¹¹⁹ Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹²⁰ Patrick Rishe. "Dynamic Pricing: The Future of Ticket Pricing in Sports," *Forbes*, January 6, 2012, available at <http://www.forbes.com/sites/prishe/2012/01/06/dynamic-pricing-the-future-of-ticket-pricing-in-sports/> (last accessed August 8, 2015)

¹²¹ See Table 16 in Section V.

to the Olympic quadrennial period.”¹²² The Summer Olympic Games traditionally receives 30 percent of total TOP revenue over the quadrennial period.¹²³ According to Bid 2.0, “IOC partnerships are signed far in the future creating long term stability.”¹²⁴ The IOC has contracted with NBC through 2032 for broadcast rights, and certain TOP sponsors such as Coca-Cola, McDonald’s, and Visa are contracted through 2024.¹²⁵ Sponsorship contributions are made as either cash or value-in-kind (“VIK”) such as technology services and equipment. Sometimes sponsorship agreements include clauses which allow OCOG to convert VIK into cash if the full value of VIK is not used.

Based on guidance from the USOC, Boston 2024 expected that the IOC would contribute \$1.5 billion to the OCOG.¹²⁶ Furthermore, Boston 2024 believed IOC partnership rights “are rising in value [and] Boston would [have] participate[d] in that upside.”¹²⁷

The USOC and Boston 2024 believed the IOC contribution could have been greater than the projected \$1.5 billion. For example, since 1996, the IOC’s actual contribution exceeded the local OCOG’s original estimate by an average of 28 percent (median of 12 percent) (see Table 18 and Table 19 in Section V.) Were Boston 2024 to have had a similar experience, it would have earned between \$180 million and \$421 million in additional revenue. However, Boston 2024’s estimate was already 43 percent higher than the \$1.05 billion that London received.¹²⁸ If Boston 2024 were to have received the same contribution as London, its revenue would have been nearly \$450 million lower than projected.

¹²² “What is the TOP programme?” IOC, available at <http://registration.olympic.org/en/faq/detail/id/61> (last accessed August 1, 2015).

¹²³ Hosseign Eydi and Hamed Farzi. “Comprehensive Review of Olympic Movement Marketing,” *Universal Journal of Management* 2(1): 26-33, 2014.

¹²⁴ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 20.

¹²⁵ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 20.

¹²⁶ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 20. Due to the confidentiality of broadcast and sponsorship agreements, the USOC was unable to provide a breakdown of individual broadcast and TOP agreements.

¹²⁷ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 20.

¹²⁸ Estimates have been converted to 2016 dollars by applying a 1.054 US GDP deflator. See Table 18 and Table 19, which contain actual revenues for broadcast and estimates for TOP revenue. These estimates may deviate from actual OCOG revenues generated from the TOP Programme.

3. Domestic Sponsorship

The Olympic Games domestic sponsorship program is managed by the OCOG within the host country under the direction of the IOC.¹²⁹ The domestic sponsorships generally have three tiers at varying levels of financial commitment, and a level of suppliers who provide goods and services for the Games.¹³⁰ Based on guidance from the USOC, Boston 2024 estimated that these domestic sponsors would have provided approximately \$1.52 billion in revenue.¹³¹ The USOC may provide the best estimate based on its experience with previous Olympic Games and its knowledge of the potential unique upside from U.S. bids.

Although the USOC may have the best information to provide this estimate, any estimate is subject to potential downside and upside revisions. According to Table 17, Boston 2024's domestic sponsorship estimate was in line (on an inflation-adjusted basis) with realized revenue in Beijing and London. The past two Summer Olympic Games in London and Beijing generated \$1.22 billion in 2008 dollars and \$1.15 billion in 2012 dollars in domestic sponsorships, approximately \$1 billion and \$720 million above the original estimates in nominal dollars (see Table 17).

Although Boston 2024's estimate of domestic sponsorship revenue appears reasonable and may have had the potential to be even greater, achieving \$1.52 billion would have required OCOG to secure upwards of \$100 million per sponsor from perhaps ten top-tier sponsors to account for the bulk of that revenue. There are a limited number of companies with the resources to commit that level of funds. However, the success of more recent Summer Olympic Games at London and Beijing, together with the revenues that Rio and Tokyo have projected, suggests that domestic sponsorships are being perceived as increasingly attractive.

As a sensitivity test, we assume that Boston 2024 would have received the same \$1.15 billion in domestic sponsorships as London did during the Summer Olympic Games in 2012. Adjusting this by the U.S. GDP deflator of 1.054 suggests that Boston 2024 would have received \$1.21 billion or approximately \$300 million less than projected in 2016 dollars.

¹²⁹ "Olympic Marketing Fact File: 2012 Edition," IOC, p. 17, available at http://www.olympic.org/Documents/IOC_MARKETING/OLYMPIC-MARKETING-FACT-FILE-2012.pdf (last accessed July 22, 2015).

¹³⁰ Based on discussions with the USOC.

¹³¹ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20.

4. Other Sources of Revenue

In Bid 2.0, other sources of revenue including licensing, revenues from Olympic Games signature events (such as the torch relay), premiums for hospitality packages, coin and stamp revenue, and lottery revenue made up 11.1 percent (or \$535 million) of the estimated total revenues.¹³² According to Bid 2.0, licensing projections were based on previous Olympic Games, Tokyo estimates, and a USOC model of product and licensing deals. Boston 2024 did not provide sufficient detail on these estimates to allow us to evaluate the risks or potential upsides associated with them.

5. Summary of Organizing Committee Revenue Estimates

Table 3 illustrates a sensitivity analysis of Bid 2.0 related to sources of funds. We do not estimate sensitivities for potential revenue associated with the licensing, torch relay, premium package, and other sources of funds. There are potential sources for positive and negative realizations, and on balance, we do not see significant risk associated with the revenue estimates in Bid 2.0.

Table 3: Summary of OCOG Revenue Estimates and Sensitivities (millions 2016 USD)

| Source | Boston 2024 OCOG Estimate | Estimate Comparison | Difference | Notes |
|---|---------------------------------|------------------------|-----------------------|--|
| Ticketing | \$1,250 | \$1,088 - \$1,515 | (\$162) - \$265 | Assumes average historical attendance rate or incremental revenues from the regional model and inclusion of baseball |
| Broadcast & TOP Sponsor | \$1,500 | \$1,052 - \$1,680 | (\$448) - \$180 | Assumes London's actual IOC contribution or median historical increase in IOC contribution |
| Domestic Sponsors | \$1,520 | \$1,213 | (\$307) | Assumes London sponsorship adjusted for inflation |
| Licensing, torch relay, premium packages, other | \$535 | Need more information | Need more information | No detail provided in Bid 2.0 |

Sources & Notes:

"Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20.

Sensitivities based on historical comparisons from Table 16, Table 17, Table 18, Table 19, in Section V and review of the Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group. Difference is equal to Estimate Comparison minus Boston 2024 OCOG Estimate.

¹³² "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20. And based on discussions with the USOC.

C. Assessment of Organizing Committee Costs

1. Venue Construction Costs

a. Cost of Major Venues

Boston 2024's bid consisted of three major Olympic Games venues that were not expected to take place at pre-existing facilities: Olympic Stadium, the Aquatics Center, and the Velodrome. In addition, Bid 2.0 did not state its vision for the IBC/MPC. Together these projects were estimated to cost approximately \$360 million in 2016 dollars, or approximately 39 percent of total venue costs.¹³³ As described further in Section VI, Boston 2024 had proposed building a 69,000 seat temporary stadium, which would have hosted the opening and closing ceremonies and track and field events.¹³⁴ It is our understanding that this would have been the largest temporary stadium built to date.¹³⁵ Plans for the Aquatics Center, the Velodrome, and the IBC/MPC were at a preliminary stage as of the release of Bid 2.0. The location and potential legacy use of each had not been determined.

The lack of precedent for a temporary Olympic Stadium and the lack of detail provided on the Aquatics Center, the Velodrome, and the IBC/MPC underscore the uncertainty around Boston 2024's cost estimates for these venues. For further details on our assessments of these estimates, see Section VI.

As a sensitivity test, it is worth analyzing what would have happened if the costs of these four major venues for Boston 2024 had been the same as they were for previous Olympic Games or had experienced the same cost overruns. Because Boston 2024's plan was to build a temporary stadium rather than a permanent stadium as London did, we assume Boston 2024 would have experienced the same cost overrun as London rather than assuming Boston 2024 would have incurred the same total cost. For the other three venues, the location and legacy use of the venues had not been determined, so we assume as a sensitivity that the costs would have been

¹³³ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at pp. 30-32. Total venue costs did not include \$89.8 million in OCOG costs for Athletes' Village. "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at pp. 30-32.

¹³⁴ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 34.

¹³⁵ Michael Levenson. "Architects caution about costs of temporary Boston Olympic stadium." The Boston Globe, available at <https://www.bostonglobe.com/metro/2015/01/15/audacious-plan-backers-city-olympic-bid-want-build-temporary-seat-stadium-south-boston/U8nsaAiY4qUbQgEQJNP7tN/story.html> (last accessed July 27, 2015).

the same as those for these three venues in London. These sensitivities would have increased Boston 2024's costs by \$972 million in 2016 dollars.

b. Additional Venue and Village Cost Uncertainties

While the majority of venues would have been pre-existing facilities which avoids costly new construction projects, it is our understanding that the selection of a five percent contingency detailed in Bid 2.0 is lower than real estate standards. As shown in Table 22 of Section VI, with the five percent contingencies, Boston 2024 estimated the 31 other athletic venues would have cost approximately \$558 million. We understand that a more reasonable range for cost contingencies for projects at such a conceptual stage would be in the range of 20 to 30 percent, especially at such an early stage of a proposal's development. As a sensitivity test, we measure the expected cost of these 31 venues if a 25 percent contingency were applied. Increasing the contingency would have increased the expected cost from approximately \$558 million to \$665 million, a net increase of over \$106 million in 2016 dollars.

In addition to the uncertainty surrounding the cost of these venues, Boston 2024's venue plan did not account for the potential need for satellite Athletes' Villages located outside the Boston area, and therefore, did not include such costs. Such satellite Athletes' Villages, if constructed or rented, would have required all the facilities necessary for an Athletes' Village. This was increasingly relevant to Bid 2.0 as the footprint of the Olympic Games included venues outside of the city. Nevertheless, the vast majority of planned venues were within a 6.2 mile radius of the Athletes' Village.¹³⁶ Based on discussions with Boston 2024, it is our understanding that initial discussions took place with venues suitable to be leased and used as satellite Athletes' Villages.¹³⁷ Atlanta had eight satellite Athletes' Villages, each of which was consistent with Olympic Games standards.¹³⁸ It is our understanding that Boston 2024 believed that the costs of these satellite Athletes' Villages for the 2024 Olympic Games would have been mitigated by reducing the size of the main Athletes' Village at Columbia Point.

¹³⁶ Shira Springer. "Boston 2024 stretches its definition of walkable Olympics," *The Boston Globe*, available at <https://www.bostonglobe.com/sports/2015/06/19/boston-stretches-its-definition-walkable-olympics/WNQk8yEsARnzwxwsBPj3bj/story.html> (last accessed July 18, 2015).

¹³⁷ Based on discussion and correspondence with Boston 2024.

¹³⁸ "The Centennial Olympic Games, Atlanta 1996, Vol. 2," Atlanta Committee for the Olympic Games, (1997) at p. 348, available at http://www.olympic.org/Documents/Reports/Official%20Past%20Games%20Reports/Summer/ENG/1996_Atlanta_Vol_2.pdf (last accessed July 13, 2015).

2. Games Related Costs

Olympic Games related costs included the costs for workforce, support services such as human resources, legal, and marketing, technology and telecommunications services, games services, and ceremonies, city and municipal operations, and other joint venture expenses.¹³⁹ Given the lack of detail provided on municipal operations and support in Bid 2.0, we focus on both Boston 2024's estimate of technology, workforce, games services, and support services costs, hereinafter collectively referred to as "operating costs," and also highlight potential oversights from their budget. These operating costs accounted for approximately 54 percent (or \$2.5 billion) of OCOG's budget.

a. Efficiencies over Prior Olympic Games

To estimate OCOG's operating costs, Boston 2024 relied on the London Olympics Games' budget and consulted with Broadstone Group in order to make cost efficiency adjustments.¹⁴⁰ Boston 2024 believed that it would have had relatively lower costs because relative to London, Boston would have enjoyed greater purchasing power through a stronger dollar (relative to the pound) and less expensive labor. Additionally, based on conversations with Boston 2024, it is our understanding that it planned on implementing a new policy of hiring the workforce later and training within a shorter timeframe, which they believed would have reduced labor related costs.

Table 4 shows actual costs incurred for the London Olympic Games and the adjustments made to estimate Boston 2024's costs. As shown, Boston 2024 projected £452 million or approximately 24 percent cost savings relative to London 2012. After adjusting for inflation and the exchange rate, Boston 2024's projected costs were nearly \$750 million lower than that of London.¹⁴¹

¹³⁹ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22. *See also*, "Games Operations" and "Municipal Operations and Support" in Figure 4 of Section III.

¹⁴⁰ The Broadstone Group is a consulting company that has extensive experience providing advisory support for numerous Olympic bids including working closely on the London 2012 Games. *Broadstone Group* website, available at <http://broadstonegroup.com/> (last accessed August 3, 2015)

¹⁴¹ Estimates provided by Boston 2024 shown in the table above are slightly inconsistent with estimates in Bid 2.0. *See* "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22. If the operating costs were \$2.476 billion as stated in Bid 2.0, projected cost savings would have been \$724 million (\$3.2 billion - \$2.476 billion).

Table 4: Projected Operating Costs (2012 GBP and 2016 USD millions)

| | London Actual Cost (2012 GBP) [a] | Boston 2024 Adjustment (2012 GBP) [b] | London Adjusted Cost (2012 GBP) [c] | London Actual Cost (2016 USD) [d] | Boston 2024 Adjustment (2016 USD) [e] | Boston 2024 Cost (2016 USD) [f] |
|----------------------|---|---|---|---|---|---------------------------------------|
| [1] Technology | £468 | (£130) | £338 | \$800 | (\$261) | \$539 |
| [2] Workforce | £387 | (£39) | £348 | \$640 | (\$64) | \$576 |
| [3] Support Services | £746 | (£218) | £528 | \$1,235 | (\$311) | \$924 |
| [4] Games Services | £318 | (£66) | £252 | \$526 | (\$108) | \$417 |
| [5] Total | £1,918 | (£452) | £1,466 | \$3,200 | (\$744) | \$2,456 |

Sources & Notes:

[a]-[c]: Based on Boston 2024’s method, adjusted cost included 10% cost efficiencies and additional workforce redundancies in cost as advised by Broadstone Group.

[d]-[f]: Conversion from 2012 GBP to 2016 USD included an exchange rate of 1.55 for cash considerations and 1.65 for VIK contributions. After converting to dollars, based on Boston 2024’s method, costs were inflated by approximately 6%. OCOG Operating Cost Model provided by Boston 2024 with the help of the USOC, London OCOG, and the Broadstone Group.

Estimates provided by Boston 2024 shown in the table above were slightly inconsistent with estimates in Bid 2.0. See “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22.

[1]: In addition to 10% cost efficiencies, technology cost adjustments include an additional \$39 million in efficiency savings.

[3]: In addition to 10% cost efficiencies, support services cost adjustments include an additional \$50 million in transport costs.

Boston 2024’s estimate of operating costs may have overstated cost efficiencies relative to the London Summer Olympic Games as uncertainty exists as to the applicability of these efficiencies for the following reasons:

- Boston 2024 assumed lower technology costs as compared to the London Olympic Games. Technology is an important factor in the growth of Olympic Games costs over time. Modernization in the areas of data processing, telecommunications, and venue related technologies, such as scoreboards and audio, have continued to evolve and increase in cost.¹⁴² Boston 2024 stated that it would have used “cutting-edge innovation and technology” if it won the Games.¹⁴³ As shown in Table 4 above, despite this trend of higher costs and the inevitable dependence of OCOG upon modern technology, Boston 2024 projected a decrease in costs relative to London 2012, which incurred approximately

¹⁴² Holger Preuss. “The Economics of Staging the Olympics: A Comparison of the Games 1972 – 2008”, Edward Elgar, Northampton (2004) 202.

¹⁴³ “Boston 2024 – Frequently Asked Questions”, available at <https://2024boston.org/frequently-asked-questions-faq/> (last accessed July 17, 2015).

\$800 million in 2016 dollars (see Table 4) in technology costs, as compared with \$537 to \$539 million in 2016 dollars budgeted by Boston 2024.¹⁴⁴

- The labor costs for the London Olympics may have been depressed due to the recession of 2008. Available labor ensured that costs were not be driven up by shortages.¹⁴⁵ Bid 2.0 planned to use Project Labor Agreements (“PLAs”) for all Olympic Games-related construction projects, which would imply that all construction jobs would have been given to unions.¹⁴⁶ Opponents of PLAs argue that “they raise the cost of construction both directly, because of the higher expense of following union rules, and indirectly because of diminished competition and hence fewer construction bids.”¹⁴⁷ Labor costs would also have depended on the economic conditions around 2024. Given it is difficult to predict economic conditions nine years from now, we are unable to assess Boston 2024’s labor cost estimate.
- Relative to Atlanta, Boston 2024’s transport costs appear low. Boston 2024 estimated transport costs at \$50 million in 2016 dollars.¹⁴⁸ During the 1996 Olympic Games, Atlanta spent \$92 million on transport (approximately \$133 million in 2016 dollars), which does not include \$17 million provided by the Department of Transportation to manage a temporary bus system during the Olympic Games.¹⁴⁹ These costs were approximately 107 percent higher than their forecasted cost in 1993 and represented the largest dollar

¹⁴⁴ \$537 million is from “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22. \$539 million is from Table 4 above.

¹⁴⁵ Graham Ruddick. “London 2012 Olympics: The Olympic Stadium made in Britain,” The Telegraph, available at <http://www.telegraph.co.uk/finance/london-olympics-business/8641977/London-2012-Olympics-The-Olympic-Stadium-made-in-Britain.html> (last accessed July 13, 2015).

¹⁴⁶ Ron Cogliano. “Olympics jobs shouldn’t be union only,” Commonwealth Magazine, available at <http://commonwealthmagazine.org/economy/olympics-jobs-shouldnt-be-union-only/> (last accessed July 18, 2015).

¹⁴⁷ Paul Bachman and Jonathan Haughton. “Do Project Labor Agreements Raise Construction Costs?” Suffolk University, p. 72, available at http://www.researchgate.net/publication/228734257_Do_Project_Labor_Agreements_Raise_Construction_Costs (last accessed July 18 2015).

¹⁴⁸ Transport costs are included in “Support Services.” OCOG Operating Cost Model provided by Boston 2024 with the help of the USOC, London OCOG, and the Broadstone Group. See also, “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22.

¹⁴⁹ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, pp. 34, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

increase among the Atlanta 1996 final costs.¹⁵⁰ Were Boston to have experienced the same percentage cost overrun, transport costs would have increased by approximately \$54 million to \$104 million in 2016 dollars. Boston 2024 assumed that Boston’s public transit system would have reduced its transportation costs since Atlanta relied heavily upon private transport.¹⁵¹ Boston’s ability to have lower transport costs than Atlanta may have depended on whether the public infrastructure projects proposed by Boston 2024 could have been completed prior to the Olympic Games. As discussed in Section VI, it is uncertain whether these projects could have been completed prior to the Olympic Games. The inability to complete these projects may have increased transport costs. There is however precedent for the Department of Transportation to provide funding and other resources for Olympic Games in the U.S. This occurred in Atlanta, but had not been included in Bid 2.0.¹⁵²

b. Limited Financing Costs for Periodic Deficits

The need for financing stems from the initial outlay of cash for Olympic Games operations and, for Boston 2024, this would have included expenses related to the USOC joint venture, hiring employees, securing offices, and construction contracts. Boston 2024 had included \$246 million in 2016 dollars in financial payments which were meant to cover royalties, TOP sponsor management fees, bank charges, and interest payments.¹⁵³ Boston 2024 had not presented an analysis as to the possible debts and deficits OCOG may have incurred or the extent of the financing needed to generate these costs.

Based on discussions with Boston 2024, it is our understanding that it believed it could obtain any necessary funding because a bank is usually one of the first sponsors signed by the respective OCOG, which allows for a letter of credit to be established. In order to minimize the need for

¹⁵⁰ The 1993 projection estimated Transport costs at approximately \$44 million, which is already significantly higher than the \$12.3 million estimated in the bid in 1989. *See* “The Centennial Olympic Games, Atlanta 1996, Vol. 1,” Atlanta Committee for the Olympic Games, at p. 222, available at http://www.olympic.org/Documents/Reports/Official%20Past%20Games%20Reports/Summer/ENG/1996_Atlanta_Vol_2.pdf (last accessed July 13, 2015) and “Atlanta 1996 Bid,” Vol. 5, pp. 87-88.

¹⁵¹ Based on discussion with Boston 2024.

¹⁵² “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, pp. 29, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

¹⁵³ OCOG Operating Cost Model provided by Boston 2024 with the help of the USOC, London OCOG, and the Broadstone Group.

financing, as mentioned previously, Boston 2024 stated that it had planned to run lean operations up until it was cash flow positive, and it would have looked to secure sponsors and other revenue generating sources early in the process. In addition, private sponsors may have provided early funding to alleviate the need for financing.

Historically, most Olympic Games have not required financing and past OCOGs have typically had revenues exceed costs during the planning and preparatory phase.¹⁵⁴ Atlanta was the first host city to require a commercial loan in order to sustain itself during a period of deficit. Debts in Atlanta were at \$70 million in 1996 dollars at their highest point,¹⁵⁵ caused primarily by the construction contracts for venues that needed to be awarded before revenue from sponsorships and broadcast rights had been received.¹⁵⁶ The London OCOG also negotiated a £50 million in 2005 GBP (approximately \$96 million in 2016 dollars) funding package to maintain its operations in the period after establishment in 2005 and prior to generating revenues.¹⁵⁷

Given no analysis of potential debts and deficits had been done by Boston 2024, we cannot assess whether the local organizing committee would have incurred significant financing costs, but based on the experience of past Olympic Games, it does not appear to be a significant source of risk.

¹⁵⁴ Holger Preuss. “The Economics of Staging the Olympics: A Comparison of the Games 1972 – 2008”, Edward Elgar, Northampton (2004) 186.

¹⁵⁵ The LA Games were able to secure financing through its broadcast deals, which also generated interest income. (This option is not available to Boston 2024 as the structure of broadcast agreements is no longer the same). See Holger Preuss. “The Economics of Staging the Olympics: A Comparison of the Games 1972 – 2008,” Edward Elgar, Northampton (2004) 186.

¹⁵⁶ “The Centennial Olympic Games, Atlanta 1996, Vol. 2,” Atlanta Committee for the Olympic Games, at p. 204, available at http://www.olympic.org/Documents/Reports/Official%20Past%20Games%20Reports/Summer/ENG/1996_Atlanta_Vol_2.pdf (last accessed July 13, 2015).

¹⁵⁷ We assume this estimate was reported in 2005 GBP. To convert to 2016 dollars, we apply the 1.6 USD to GBP exchange rate and then apply a 1.205 US GDP deflator to grow from 2005 to 2016. “London 2012 Olympic Games Official Report, Vol. 1,” The London Organizing Committee of the Olympic-Games and Paralympic Games Limited, at p. 73, available at http://www.olympic.org/Documents/Reports/Official%20Past%20Games%20Reports/Summer/2012/ENG/2012-RO-S-London_V1_I_eng.pdf (last accessed July 16, 2015).

3. Reliance on Outside Sources of Funding

Over 60 percent of Boston 2024's proposed budget was expected to be funded by outside sources including private developers for the Midtown and Athletes' Village development, the Commonwealth of Massachusetts and MassDOT for public infrastructure projects, and the Federal government for security operations. Additionally, Boston 2024 expected certain costs, which were not included in the budget, to be covered by the Federal government.

a. Private Developer Funding

As discussed above in Section III, Boston 2024's bid relied on being able to attract private developers to fund the \$1.2 billion and \$2.9 billion (approximately \$1.0 and \$2.4 billion in 2016 dollars)¹⁵⁸ projects at Widett Circle and Columbia Point, respectively. There were risks associated with certain assumptions made in Bid 2.0 that would have been applicable to both the Midtown and Athletes' Village developments. Ideally, Boston 2024 would have gauged developer interest before submitting a final bid to the IOC. Because Boston 2024 withdrew from consideration prior to seeking developer interest, it is not known whether Bid 2.0 would have been successful in attracting developers willing to pay the projected price. As a precondition to seeking developer interest, Boston 2024 would have had to secure a commitment from the City of Boston for a real estate tax agreement with the eventual developer, secure entitlements, and assemble all land from current owners through option agreements and memorandums of understanding. If Boston 2024 had not been able to satisfy these conditions, the development projects would not have occurred.

The two developments demand large up-front investments. In order to incentivize developers, Boston 2024 assumed that the developers would have been able to secure the necessary tax designations from the City of Boston in order to secure the projected rate of return. Such incentives are common in Boston;¹⁵⁹ however, the scale of the planned Olympic incentives has been described as "aggressive" in the press.¹⁶⁰

¹⁵⁸ Midtown cost estimates were reported in 2016 dollars and 2022 dollars. \$1.2 billion is the cost estimate in 2022 dollars, and \$1.0 billion is the cost in 2016 dollars. "Bid 2.0," Midtown Development Plan, pp. 66-67. Columbia Point estimates were reported in 2015 dollars and 2024 dollars. \$2.9 billion is the cost in 2024 dollars. To report the Columbia Point estimate in 2016 dollars, we have inflated the \$2.3 billion estimate in 2016 dollars at a three percent inflation rate. "Bid 2.0," Columbia Point Development Plan, pp. 59 and 64.

¹⁵⁹ "Over the past 16 years, Massachusetts has given away hundreds of millions of dollars in state and local tax breaks for 1,371 development projects under its Economic Development Incentive Program,

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Boston 2024 assumed that in the coming months it would have been able to purchase options to acquire the necessary land from the current owners. It stated that it was in discussions regarding the purchase of the various plots and that the necessary property would not have been acquired through eminent domain.¹⁶¹ The risk, therefore, remained that Boston 2024 would not have been able to secure those option agreements.

The primary risk for each of these developments was securing developers. Although Boston 2024 believed there would have been sufficient demand for these mega-projects from domestic and potentially international developers,¹⁶² developers may have avoided these projects due to risks associated with the accelerated timing of the projects, the need to comply with Olympic and MassDOT standards, and other construction cost risks such as those associated with building an elevated platform. These risks could have affected the developer's costs and, therefore, rates of returns. In addition, the contingencies for both Midtown and the Athletes' Village were ten percent, which are low for projects at a conceptual stage, as they were. As a sensitivity test, we have increased the built-in contingency funds for each project from 10 percent to 25 percent. The incremental contingencies equal \$138 million and \$329 million for the Midtown and Athletes' Village developments, respectively.

i. Midtown – Olympic Stadium

The IRR presented in Bid 2.0 on the Midtown Development is 12.2 percent.¹⁶³ Boston 2024 assumed that this would have been sufficient to attract a master developer. The amount that a

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which aims to encourage companies to invest here and create jobs.” – “Tax Breaks for Developments in Massachusetts.” Boston.com, Available at <http://www.boston.com/business/specials/developmenttaxbreaks/> (last accessed 7/30/2015)

¹⁶⁰ Jon Chesto, Andrew Ryan and Dan Adams. “Boston 2024 wants huge tax break for Widett Circle deal,” The Boston Globe, available at <http://www.newsjs.com/url.php?p=https://www.bostonglobe.com/business/2015/06/29/boston-envisions-tax-break-unprecedented-scope-redevelop-widett-circle/bxANs68FfocI1FK0X5PbqL/story.html> (last accessed July 17, 2015).

¹⁶¹ “Boston Olympics chief says eminent domain off the table, talks Kraft and tax breaks.” Boston Business Journal, available at http://www.bizjournals.com/boston/news/2015/07/15/boston-olympics-chief-says-eminent-domain-off-the.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bizj_boston+%28Boston+Business+Journal%29&utm_content=Google+Feedfetcher (last accessed July 17, 2015).

¹⁶² Based on discussions with Boston 2024.

¹⁶³ 12.2 percent is the rate of return under the base case. “Bid 2.0,” Midtown Development Plan, at p. 67.

master developer would have been willing to pay for the development rights would have depended on the tax benefits of the development under the contemplated 121A Tax Agreement, which would have been staggered over 40 years.¹⁶⁴

In addition, it is our understanding that Boston 2024 believed that the Midtown development could occur regardless of whether the Olympics took place.¹⁶⁵ Boston Mayor Martin J. Walsh has expressed support for this idea.¹⁶⁶ Such developments have occurred in other cities with losing bids, for example New York City, where numerous projects proposed in the bid were moved forward despite the loss to London for the 2012 Games.¹⁶⁷

The “Olympic premium” of this development would have been caused by the fact that the platform would have to be completed in time to allow for all other development necessary for the Olympic Games to occur. Such absolute deadlines can lead to increased costs. In addition, the Midtown developer would not have been able to develop much of the space until the Olympic Games had ended, subjecting the developer to lower returns from delayed realization of benefits.

Past experiences suggest these projects carry significant risks, with respect to both cost overruns and delays. For example, Millennium Park in Chicago is built on a 25-acre platform that is above the Illinois Central rail yards, just east of the Loop area of downtown Chicago. It contains several pavilions, a public garden, and other features, and is reported to draw over 3 million visitors a year.¹⁶⁸ The Millennium Park project (not just the platform) was originally estimated (in 2004

¹⁶⁴ “Bid 2.0,” Midtown Development Plan, at pp. 70-71.

¹⁶⁵ Based on discussions with Boston 2024.

¹⁶⁶ Jon Chesto, “Mayor backs plan for Widett Circle, even if city loses Olympic bid,” *The Boston Globe*, July 8, 2015, available at <https://www.bostonglobe.com/business/2015/07/07/mayor-wants-push-ahead-with-redeveloping-widett-even-olympics-don-materialize/53gpUWCh2lOowvzNPg89kK/story.html> (last accessed August 3, 2015)

¹⁶⁷ Such development in New York City included the High Line Park, middle income housing in Queens (where the Olympic Village would have been), infrastructural improvements and improvements or construction of sporting venues throughout the city. See Mitchell Moss, “How New York City Won the Olympics,” New York University, November 2011, available at https://wagner.nyu.edu/files/rudincenter/Olympics_in_NYC%202012_REPORT_110711.pdf (last accessed July 7, 2015).

¹⁶⁸ Timothy Gilfoyle. “First Chapter ‘Millenium Park,’” *NYT*, available at <http://www.nytimes.com/2006/08/06/books/chapters/0806-1st-gilf.html?pagewanted=1&r=0> (last

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dollars) to cost \$150 million, but in the end cost over three times that, \$475 million, due in part to changes in scope and in part in an attempt to complete the project on time.¹⁶⁹ In addition, the project, begun in 1998, was supposed to open by 2000 but opened four years late, in 2004. While the Midtown platform would have supported future developments on the land subsequent to the Olympics and dismantling of the Stadium, this construction effort would have carried significant risk.

Given the risks to the developers highlighted above, developers may have been unwilling to bid for the Midtown development project unless they had been provided greater incentives. As a sensitivity test, we will assume a rate of return of 15 to 20 percent would have been necessary in order to attract a private developer. We assume OCOG would have taken on the portion of the cost needed to achieve this rate of return for the developer.¹⁷⁰ As an example, Boston 2024 could have incurred portions of the construction cost such as the cost of building the platform or building the Athlete bridge to the warm-up area. Absorbing nine percent of the Midtown development cost would have increased Boston 2024's costs by \$91 million and allowed for a 15 percent IRR for the developer. Absorbing 21 percent of the Midtown development cost would have increased Boston 2024's costs by \$215 million and allowed for a 20 percent IRR for the developer.¹⁷¹

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accessed August 11, 2015); Goodman Williams Group URS Corporation. "Millennium Park Economic Impact Study," available at http://www.goodmanwilliamsgroup.com/Pages/ProjectClientPages/Millennium_Park_Economic_Impact_Study.pdf (last accessed August 11, 2015).

¹⁶⁹ We have assumed the amounts disclosed for this project are in 2004 dollars, 2004 being the year of completion. Ford, Liam, "City to finally open its new front yard," *Chicago Tribune*, July 11, 2004, available at http://articles.chicagotribune.com/2004-07-11/news/0407110234_1_millennium-park-petrillo-music-shell-band-shell (last accessed August 10, 2015)

¹⁷⁰ We are assuming that OCOG would have been contractually allowed to take on these additional costs based on its charter and other legal and operating stipulations.

¹⁷¹ This illustration assumes that the OCOG costs would have been incurred evenly over five years from 2020 to 2024.

ii. *Athletes' Village*

The leveraged IRR for the Village project was significantly lower than that for the Midtown development at 8.0 percent.¹⁷² Boston 2024 assumed that this would have been sufficient to attract one or more developers. Unlike the Midtown development, the entire Village would have needed to be completed prior to the Olympics. As a result, all of the units would have been available to enter the market at one time after the Olympic Games and conversion process. Boston 2024 estimated that developers could have reduced the impact on rents by staggering the release of units over a 30-month period. It estimated that it would have secured leases for 95 percent of the units by the end of this period, which assumed certain rent concessions.¹⁷³ It is our understanding that while Boston 2024's estimated return may have been sufficient for an investor in a fully-leased development, it appears that it would have been insufficient for an undeveloped project of this size. The 8.0 percent return was dependent on the developer's ability to secure financing and lease the housing units over the anticipated 30-month period while maintaining the rents proposed and without having to make other concessions to prospective tenants. The return would also have been contingent upon the conversion costs being accurately projected.

Boston 2024 also assumed that the student housing would have been sold to an educational institution within Boston, including possibly UMASS Boston.¹⁷⁴ The student housing was the only portion of the Athletes' Village development that could have been used prior to the Games. The other housing units would have needed to be converted to their post-Olympic use once the Olympic Games were completed. Boston 2024 estimated that the cost of converting all housing units to their legacy use after the Games would have been \$59 million.¹⁷⁵ This cost would have been an "Olympic premium."

Given the risks to the developers highlighted above, like Midtown, developers may have been unwilling to bid for the Athletes' Village project unless they received higher expected returns. As a sensitivity test, we assume a rate of return of 10 to 12 percent would have been necessary in

¹⁷² The leveraged IRR includes both debt and equity funding. Based on the model, the developer would be expected to fund 35 percent of the project through equity and 65 percent through debt. "Bid 2.0," Columbia Point Development Plan, at p. 74.

¹⁷³ "Bid 2.0," Columbia Point Development Plan, at pp. 71-73.

¹⁷⁴ Based on discussion and correspondence with Boston 2024.

¹⁷⁵ "Bid 2.0," Columbia Development Plan, at p. 69.

order to attract a private developer. We assume Boston 2024 would have taken on the portion of the cost needed to achieve this rate of return for the developer.¹⁷⁶ As an example, Boston 2024 could have incurred the \$59 million in conversion costs, among other things. Absorbing seven percent of the development cost¹⁷⁷ would have increased Boston 2024's costs by \$150 million and allowed for a ten percent IRR for the developer. Absorbing 12 percent of the development cost would have increased Boston 2024's costs by \$269 million and allowed for a 12 percent IRR for the developer.¹⁷⁸

b. Federal Funding

In this section, we review the Federal government policies for U.S.-based Olympic Games, the past practices of the Federal government, and any requirement or opportunities for Boston 2024 to partner with the Federal government. Boston 2024 assumed costs for both security and expenditures related to the Paralympic Games would have been funded by the Federal government. According to a report by the United States General Accounting Office (“the GAO Report”),¹⁷⁹ no official Federal government policy of funding the Olympic Games exists; however, there is precedent for Congress designating funds for the purposes of the Olympic Games. Despite the lack of official policy, the U.S. Federal government has provided significant funding during the last three Olympic Games held in the U.S. for costs related to planning and staging the Olympic Games, such as security and transport, and infrastructure projects. The GAO Report states that the majority of the funding of infrastructure projects would have been provided regardless of whether the Olympic Games were held.¹⁸⁰ For instance, in preparation for

¹⁷⁶ We are assuming that OCOG would have been contractually allowed to take on these additional costs based on its charter and other legal and operating stipulations.

¹⁷⁷ For the purpose of this analysis, because the Athletes' Village Developer Model only provided cash flows in 2024 dollars, we have estimated the cost of Columbia Point in 2016 dollars by deflating the \$2.9 billion estimate in 2024 dollars back at a rate of 3.0 percent. This results in an estimated cost of approximately \$2.3 billion, which is slightly lower than the \$2.4 billion estimate referenced in this report. “Bid 2.0,” Columbia Point Development Plan, pp. 59 and 64.

¹⁷⁸ This example assumes that the OCOG costs would have been incurred evenly over two years in 2021 and 2022.

¹⁷⁹ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, p. 6, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

¹⁸⁰ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, p. 8, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

the Atlanta Olympic Games, twenty-four federal agencies assisted in providing \$609 million (\$843 million in 2016 dollars) in funding for the Olympic Games.¹⁸¹ This was comprised of \$185 million (\$256 million in 2016 dollars) in operations-related funding and \$424 million (\$587 million in 2016 dollars) for infrastructure projects. The operations related funding included:¹⁸²

- \$96 million (\$133 million in 2016 dollars) spent on the safety and security of the Games. This included planning costs, military personnel, emergency response, facilities, and support of local law enforcement;
- \$56 million (\$78 million in 2016 dollars) to help build, enhance, and operate several Olympic venues. \$22 million was used to construct the Ocoee Whitewater Slalom venue;
- \$17 million (\$24 million in 2016 dollars) for buses used to transport spectators and athletes provided by the Department of Transport;
- Other services were provided by governmental agencies such as the Mint, the Postal Service, the National Park Service, the State Department, the Federal Aviation Administration, and the Environmental Protection Agency.

At the time of the GAO 2000 study, the Federal government expected to provide total support of \$1.3 billion (\$1.8 billion in 2016 dollars) for the Olympic Games in 2002 in Salt Lake City. These funds included \$254 million (\$352 million in 2016 dollars) related to the operations of the Olympic Games and \$1 billion (\$1.4 billion in 2016 dollars) allocated for infrastructure projects.¹⁸³ The operations-related funding included \$161 million (\$223 million in 2016 dollars) for security related services, \$77 million (\$107 million in 2016 dollars) for spectator transport,

¹⁸¹ All dollar values from the GAO study are in 1999 dollars. A 1.385 inflator is applied to reach 2016 dollars. See *International Monetary Fund* website, “World Economic Outlook database—by Countries,” available at <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/download.aspx> (last accessed August 10, 2015).

¹⁸² “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, pp. 28-25, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

¹⁸³ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, p. 36, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

\$12 million (\$17 million in 2016 dollars) for building enhancements or operating sports venues, and \$4 million (\$6 million in 2016 dollars) for federal agencies services.¹⁸⁴

The Department of Defense (“DOD”), one of only a few agencies with a policy and statutory authority related to its Olympic Games funding, has established the following guidelines:

- The primary defense mission could not be adversely affected by supporting the Olympic Games;
- DOD is the supplier of “last resort,” that is, it provides resources when all alternative public and private means have been exhausted;
- The use of appropriated funds was limited to security-related and logistical functions that could not otherwise be accomplished by the public authorities;
- Private organizing committees shall reimburse DOD in advance, for approved support, with the exception of the Paralympics;¹⁸⁵
- Support to other federal agencies is to be provided on a reimbursement basis, under the terms of the Economy Act.¹⁸⁶

i. Paralympics Not Included

The sources and uses of funds related to the Paralympics were not included in Bid 2.0. The potential upside or downside to the budget of including the Paralympics would have depended both on whether Paralympic revenues could have offset the additional costs of hosting the Paralympics and how much funding the Federal government would have been willing to provide. Boston 2024 disclosed in Bid 2.0 that it believed there would have been “[u]pside revenue from Paralympic Games,” but it disclosed no detail on the potential costs of the

¹⁸⁴ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, p. 36, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

¹⁸⁵ The Department of Defense has a history of supporting the Paralympics through efforts such as The Paralympic Military Program. *Team USA* website, “U.S Paralympics – Military,” available at <http://www.teamusa.org/us-paralympics/military> (last accessed August 10, 2015).

¹⁸⁶ “Olympic Games: Federal Government Provides Significant Funding and Support,” U.S. General Accounting Office, pp. 49-50, available at <http://www.gao.gov/archive/2000/gg00183.pdf> (last accessed July 15, 2015).

Paralympics.¹⁸⁷ Based on discussions with Boston 2024, we understand Boston 2024 believed that a large portion of the Paralympics cost would have been funded by the Federal government.

An initial analysis of the data based on the London Olympic Games and presented by Boston 2024 suggests that approximately \$85 million in ticket revenue may have been generated by the Paralympics based on an average price of \$30 per ticket.¹⁸⁸ In comparison to the London Olympic Games, this would appear to be a reasonable estimate—London exceeded its targets by 29 percent, selling tickets amounting to approximately \$76 million.¹⁸⁹

Meanwhile, Boston 2024 provided no estimates of the projected cost of hosting the Paralympics. As a reference, the London Paralympics costs amounted to \$365 million, or approximately \$385 million in 2016 dollars.¹⁹⁰ This represented a 153 percent increase in costs over the original London budget of \$144 million.¹⁹¹ Additionally, the Rio 2016 Olympics budgeted \$170 million in 2008 dollars or \$190 million in 2016 dollars¹⁹² for Paralympics expenditures, which will be funded by their City, State, and Federal governments.¹⁹³

As mentioned above, the net cost of hosting the Paralympics would have depended on the portion of funding that Boston 2024 could have received from the Federal Government.

¹⁸⁷ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 20.

¹⁸⁸ Ticketing Revenue Model provided by Boston 2024 with the help of the USOC and Broadstone Group.

¹⁸⁹ Jacquelin Magnay. “Paralympics 2012: sold out tickets and successful merchandise help Games break even.” *The Telegraph*, September 2012, available at <http://www.telegraph.co.uk/sport/olympics/paralympic-sport/9525290/Paralympics-2012-sold-out-tickets-and-successful-merchandise-help-Games-break-even.html> (last accessed July 16, 2015).

¹⁹⁰ U.K. Government funded 50 percent of the incremental cost of staging the Paralympic Games. The March 2013 London OCOG Report states the Government paid £114 million, or \$182.4 million. \$365 million = (\$182.4 million x 2). “Report and accounts for the 6 month period ended 31 March 2013,” The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at p. 44.

¹⁹¹ Conversions to 2016 USD made per footnote 104. Gavin Berman. “Financing the London 2012 Olympic Games,” U.K. House of Commons, 7/27/2010, at p. 13, available at <http://www.parliament.uk/briefing-papers/SN03790.pdf> (last accessed July 23, 2015).

¹⁹² A 1.117 GDP inflator is applied to reach 2016 dollars. See *International Monetary Fund* website, “World Economic Outlook Database—by Countries,” available at <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/download.aspx> (last accessed August 10, 2015).

¹⁹³ “Report of the 2016 IOC Evaluation Commission,” IOC, pp. 6 and 51, available at http://www.olympic.org/Documents/Reports/EN/en_report_1469.pdf (last accessed July 7, 2015).

Were the Federal Government not to cover a large portion of the costs of the Paralympics, Boston 2024 could have incurred significant additional costs in hosting the Paralympics as exemplified by the London and Rio Olympic Games.

ii. Security Costs

Boston 2024 expected that the Summer Games would be designated a “National Special Security Event.”¹⁹⁴ NSSE designation would require federal agencies including the FBI, US Secret Service, and FEMA to ensure the safety and security of both athletes and attendees of the Games. As described in Section V, security operations and personnel can be costly. Using London 2012 as an example, the British Government paid \$1.36 billion in 2012 dollars or \$1.44 billion in 2016 dollars.¹⁹⁵ Nevertheless, given federal agencies funded security costs at Atlanta and given both the 2002 Salt Lake City Winter Olympic Games and the 2004 Democratic National Convention held in Boston were designated NSEEs, it is reasonable to assume that the Federal government would have provided the necessary security funding.¹⁹⁶ Furthermore, it is our understanding that Boston 2024 was in dialogue with the necessary agencies to procure such funding.¹⁹⁷

4. Summary of Organizing Committee Cost Estimates

Table 5 illustrates a sensitivity analysis of Bid 2.0 related to uses of funds. Of the uses of funds for which sensitivity analyses were calculated, the results of each represents a material portion of the projected Bid 2.0 surplus.

¹⁹⁴ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 50. “Bid 1.0,” Transportation, Accommodation + Security, at pp. 52-53.

¹⁹⁵ See Table 9 in Section V. Conversions to 2016 USD made per footnote 104.

¹⁹⁶ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 50.

¹⁹⁷ Based on discussions with Boston 2024.

Table 5: Summary of OCOG Cost Estimates and Sensitivities (millions 2016 USD)

| Source | Boston 2024 OCOG Estimate | Estimate Comparison | Difference | Notes |
|--|----------------------------------|----------------------------|-----------------------|--|
| Olympic Stadium | \$175.5 | \$259.1 | \$83.6 | Assumes London's 48 percent cost overrun for the Olympic Stadium |
| Aquatic Center | \$69.5 | \$423.5 | \$353.9 | The actual cost of London's Aquatic Center |
| Velodrome | \$64.1 | \$148.5 | \$84.3 | The actual cost of London's Velodrome |
| IBC/MPC | \$50.5 | \$501.1 | \$450.6 | The actual cost of London's IBC/MPC |
| Other Athletic Venues | \$558.4 | \$664.7 | \$106.4 | Increased contingency from 5 percent to 25 percent |
| Additional Satellite Villages | \$0 | Need more information | Need more information | No detail provided in Bid 2.0 |
| Operating Costs (including financing costs) | \$2,456 – \$2,476 | \$3,200 | \$724 – 744 | Assumes London's actual costs (no cost efficiencies) after adjusting for the exchange rate and inflation |
| Midtown Development (excl. Olympic Stadium) | \$0 | \$138.0 | \$138.0 | Increased contingency from 10 percent to 25 percent and assume OCOG incurs the incremental cost |
| Columbia Point Development (excl. temporary overlays) | \$0 | \$328.8 | \$328.8 | Increased contingency from 10 percent to 25 percent and assume OCOG incurs the incremental cost |
| Midtown Development (excl. Olympic Stadium) | \$0 | \$91.2 - \$214.7 | \$91.2 - \$214.7 | Assume OCOG incurs portion of cost so developer achieve 15 to 20 percent IRR |
| Columbia Point Development (excl. temporary overlays)* | \$0 | \$149.9 – \$268.5 | \$149.9 – \$268.5 | Assume OCOG incurs portion of cost so developer achieves 10 to 12 percent IRR |
| Security Costs | \$0 | \$0 | \$0 | Reasonable to assume that the Federal government will incur the full estimated \$1 billion cost. |
| Paralympic Net Costs** | \$0 | \$308.6 | \$308.6 | The actual Paralympic net cost at London. |

Sources & Notes:

Net Difference is equal to Estimate Comparison minus Boston 2024 OCOG Estimate.

Venue and operating cost sensitivities based on historical comparisons from Table 10 in Section V and Table 4 above. Developer sensitivities based on analysis of the Midtown and Athletes' Village Developer Models provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group.

* The sensitivity test is based on Boston 2024's leveraged cash flow analysis of the Athletes' Village Development, which reports the total projected cost at \$2.87 billion in 2024 dollars. To estimate cash flows in 2016 dollars, we deflate these cash flows values by 3% a year per the inflation assumption from the Columbia Point Development Plan. This results in 2016 projected costs of approximately \$2.26 billion. The sensitivity assumes that OCOG would have absorbed a percentage of this cost. Using the \$2.41 billion estimate noted elsewhere would have only increased the sensitivity by less than \$20 million. "Bid 2.0," Columbia Point Development Plan, at p. 59.

** Paralympic net costs is equal to actual costs less revenues (\$385 million in costs and \$76 million in revenues).

V. Risk to Taxpayers and Potential for Mitigation

The IOC requires letters of financial guarantees from appropriate government entities as part of the bid process. These come from the IOC charter and are represented as inflexible elements of bids. In requiring these guarantees, the IOC imposes financial risk on the part of those entities providing the guarantees and, ultimately, in the case of Boston, on city and state taxpayers. To understand the nature of the risks inherent in providing the guarantees, it is necessary to understand the bid process from an economic and financial perspective. In this section we first describe the relevant players and the bid process they participate in, including the required financial guarantees. Next, we describe the potential for several types of cost overruns and revenue shortfalls and draw on the experiences of previous Olympic Games in these areas. Finally, we analyze the risks inherent in a bid for the Olympic Games, assess the potential to mitigate some of those risks, including through the use of insurance, and conclude by illustrating these risks for the Boston 2024 Bid 2.0.

A. Background

1. Tensions Between IOC Objectives, USOC Objectives, Local Organizing Committee Objectives, And Required Government Responsibilities

The process of bidding for the right to host the Olympic Games generates tensions between the parties involved. In addition to the IOC, the relevant parties generally include an NOC, an OCOG, and local and regional governments. These parties have different objectives, responsibilities, and economic incentives. Understanding these differences is key to understanding the risk to taxpayers associated with bidding for and hosting the Olympic Games.

a. *The International Olympic Committee*

The IOC is an international, non-governmental, non-profit organization,¹⁹⁸ which defines itself as “the supreme authority of the Olympic Movement.”¹⁹⁹ The Olympic Movement refers to “the concerted, organi[z]ed, universal and permanent action, carried out under the supreme authority

¹⁹⁸ “Fact Sheet—The Olympic Movement,” available at http://www.olympic.org/Documents/Reference_documents_Factsheets/The_Olympic_Movement.pdf (last accessed July 8, 2015).

¹⁹⁹ “The IOC—The Organization,” available at <http://www.olympic.org/about-ioc-institution> (last accessed July 8, 2015).

of the IOC, all individuals and entities who are inspired by the values of Olympism.”²⁰⁰ The Olympic Movement is guided by the Olympic Charter, which sets out the formal objectives of the IOC, including: 1) promoting Olympism throughout the world and leading the Olympic Movement; 2) ensuring the regular celebration of the Olympic Games; and 3) promoting a positive legacy from the Olympic Games to the host cities and host countries, among others.²⁰¹ The IOC generates the revenues required to achieve these goals from three primary sources: 1) broadcast rights; 2) TOP program sponsor rights; and 3) the IOC supplier and licensing program.²⁰² From 2009 to 2012, the IOC and OCOGs generated \$8.0 billion in revenues: 48 percent (\$3.9 billion) from broadcast rights, 12 percent (\$1 billion) from TOP sponsor rights, 23 percent (\$1.8 billion) from OCOG domestic sponsorships, 15 percent (\$1.2 billion) from ticketing, and two percent (\$170 million) from supplier and licensing programs.²⁰³ The IOC distributes 90 percent of its revenue to organizations including NOCs, International Sports Federations (“IFs”) and OCOGs “to support the staging of the Olympic Games and to promote the worldwide development of sport.”²⁰⁴ The IOC itself keeps approximately ten percent of these

²⁰⁰ “Fact Sheet—The Olympic Movement,” available at http://www.olympic.org/Documents/Reference_documents_Factsheets/The_Olympic_Movement.pdf (last accessed July 8, 2015). According to the IOC, “Olympism is a philosophy of life, exalting and combining in a balanced whole the qualities of body, will and mind. Blending sport with culture and education, Olympism seeks to create a way of life based on the joy found in effort, the educational value of good example and respect for universal fundamental ethical principles.” See “Olympism In Action,” available at <http://www.olympic.org/olympism-in-action> (last accessed August 10, 2015).

²⁰¹ “IOC Olympic Charter,” IOC, at pp. 16-17, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 3, 2015).

²⁰² “Factsheet—IOC Financial Summary,” available at http://www.olympic.org/Documents/Reference_documents_Factsheets/IOC_Financial_Summary.pdf (last accessed July 8, 2015).

²⁰³ “IOC Olympic Marketing Fact File, 2014 Edition,” IOC, at p. 6, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 26, 2015).

²⁰⁴ “Factsheet—IOC Financial Summary,” available at http://www.olympic.org/Documents/Reference_documents_Factsheets/IOC_Financial_Summary.pdf (last accessed July 8, 2015). “The International Sports Federations are international non-governmental organisations recognised by the International Olympic Committee (IOC) as administering one or more sports at world level. The national federations administering those sports are affiliated to them.” “International Sports Federations,” IOC, available at <http://www.olympic.org/content/the-ioc/governance/international-federations/> (last accessed July 31, 2015).

Olympic Games marketing revenues for the operational and administrative costs of governing the Olympic Movement.²⁰⁵

Primary venues, including the Olympic Stadium, Athletes' Village, IBC/MPC, and other facilities, signal the quality of the Olympic Games and enhance the prestige of the IOC. This can be understood in light of the IOC's formal objective to promote the Olympic Movement and Olympic legacy, and additionally, in terms of the IOC's strong economic incentives towards boosting viewership and broadcast revenue.²⁰⁶ Furthermore, the IOC's promotion of Olympism means it is deeply concerned with the continued propagation of the Olympic Games in the future. This longer term goal is consistent with the IOC's insistence that all financial risk associated with hosting the Olympic Games is borne by relevant entities in the host country—a position it can take as long as the rights to host the Olympic Games are allocated through a worldwide competition.

A deeper understanding of the IOC's motivations can be gained by examining the mechanisms it has put in place to determine the host city or region. In theory, the rights to host the Olympic Games could be allocated in a number of ways. For example, designating permanent sites for Summer and Winter Olympic Games would avoid or reduce many of the costs of hosting the Olympic Games. In the current bidding process, potential hosts must demonstrate their willingness to pay for the Olympic Games no matter what the cost, and the primary margin on which cities compete is promised spending on venues and other facilities and infrastructure.

b. National Olympic Committees

According to the IOC, NOCs are “ambassadors” of the Olympic Movement in their respective countries, responsible for sending participants to the Olympic Games and endorsing potential future Olympic Games host cities within their countries.²⁰⁷ The USOC serves as the NOC for the U.S. The 1978 Ted Stevens Olympic and Amateur Sports Act appointed the USOC as the

²⁰⁵ “IOC Olympic Marketing Fact File, 2014 Edition,” IOC, at p. 6, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 26, 2015).

²⁰⁶ Rowan Moore Gerety. “The economics of winning an Olympics,” MarketPlace, available at <http://www.marketplace.org/topics/world/economics-winning-olympics> (last accessed July 3, 2015).

²⁰⁷ “Factsheet—The Olympic Movement,” available at http://www.olympic.org/Documents/Reference_documents_Factsheets/The_Olympic_Movement.pdf (last accessed July 8, 2015).

coordinating body for all Olympic-related athletic activity in the United States.²⁰⁸ The USOC oversees the process by which U.S. cities bid to host the Olympic Games, and approves U.S. trials' sites and procedures for team selections.²⁰⁹

The USOC is a non-profit corporation funded primarily through contributions from the general public, and revenues from the sale of Olympic Games broadcasting rights and the licensing of trademarks.²¹⁰ The USOC's rights to Olympic Games broadcasting and trademarks are established by the IOC in the Olympic Charter.²¹¹ The USOC licenses these to various sponsors and receives a portion of these proceeds, as governed by an official agreement with the IOC. Until 2012, this agreement was covered by a 1996 contract between the USOC and the IOC, which stipulated, in recognition of the relative size of the U.S. in the world economy, that the USOC would receive 12.75 percent of revenues from U.S. broadcasting deals and 20 percent of IOC global marketing revenues.²¹² In 2012, however, the USOC finalized a revised contract with the IOC that called for the USOC to contribute towards the cost of staging the Olympic Games and to reduce claims to future revenue from television and sponsorship rights. Besides the revenue it currently receives, under the new agreement, the USOC's share of broadcast and sponsorship revenue rights will be reduced to seven percent and ten percent on any increases in revenue, respectively.²¹³

It is our understanding that if Boston had been awarded the 2024 Olympic Games, the USOC would have formed a joint venture with the local organizing committee (including members of the Boston 2024 Partnership). Under this joint venture, the USOC would have received a share of sponsorship revenues. According to Bid 2.0, \$413 million of the \$1.52 billion in estimated

²⁰⁸ "Inside the USOC: History," available at <http://www.teamusa.org/About-the-USOC/Inside-the-USOC/History> (last accessed July 5, 2015).

²⁰⁹ "About the USOC," available at <http://www.teamusa.org/about-the-usoc> (last accessed July 17, 2015).

²¹⁰ "USOC 2013 Form 990," at Schedule A p. 4, available at http://990s.foundationcenter.org/990_pdf_archive/131/131548339/131548339_201312_990.pdf (last accessed July 5, 2015).

²¹¹ "IOC Olympic Charter," IOC, at p. 22.

²¹² Juliet Macur. "International and U.S. Olympic Leaders Agree on Revenue-Sharing Plan," NYT, available at http://www.nytimes.com/2012/05/24/sports/olympics/international-and-us-olympic-leaders-agree-on-revenue-sharing-plan.html?_r=0 (last accessed July 5, 2015).

²¹³ Mason Levinson. "USOC Ends Revenue Dispute with IOC, Paving Way for Olympic Bid," Bloomberg Business, available at <http://www.bloomberg.com/news/articles/2012-05-24/usoc-ends-revenue-dispute-with-ioc-paving-way-for-olympic-bid> (last accessed July 5, 2015).

domestic sponsorship revenue would have been allocated to the USOC.²¹⁴ This revenue split was meant to compensate the USOC for sponsorship money it would have expected to generate outside of the joint venture.²¹⁵ Indications were that Boston 2024 would have had some say in the timing and split of these revenues. The percentage of sponsorship funds allocated to the USOC has varied in previous U.S. Olympic Games. It is our understanding that in the 1996 Atlanta Games, the USOC received 50 percent of sponsorship revenue and in the 2002 Salt Lake City Games, it received 30 percent.

The USOC is funded via several avenues including direct contributions, broadcast rights, USOC trademark rights, licensing royalties, and grants from the United States Olympic Foundation. Between 2009 and 2012, it generated \$852 million in revenue, of which direct contributions accounted for 19 percent (\$164 million), broadcast accounted for 32 percent (\$268 million), USOC trademarks accounted for 33 percent (\$284 million), and licensing and grants accounted for eight percent (\$65 million).²¹⁶

NOCs, including the USOC, fill different roles from the IOC, and face different costs and incentives. One key difference lies in the NOC's mission of sending athletes to the Games to compete for medals. The Olympic Medal tables receive extensive attention, and the success of the national team is directly linked to the NOCs. NOCs devote significant resources to the development of Olympic athletes. As an example, the USOC employs coaches and trainers, operates specialized facilities for athletes, and engages in other activities designed to maximize the success of Team USA.²¹⁷ This applies to NOCs in all countries, large and small, developed and developing.

NOCs differ from one another in the process used to winnow down the field of potential host cities to a single candidate city in the IOC selection process. Some NOCs identify potential host

²¹⁴ "Bid 2.0," Planning Process, Benefits, Risk, Opportunities, at pp. 20 and 22.

²¹⁵ Adam Vaccaro. "Olympics Marketing Agreement Among Issues Raised at City Council Hearing," available at <http://www.boston.com/news/local/massachusetts/2015/03/06/olympics-marketing-agreement-more-issues-raised-city-council-hearing/IVPEiO8ZSfkvxzu5jTowkK/story.html> (last accessed July 14, 2015).

²¹⁶ "United States Olympic Committee 2012 Annual Report," TeamUSA, at pp. 21-22, available at <http://www.teamusa.org/footer/finance> (last accessed July 12, 2015).

²¹⁷ "About the USOC," TeamUSA, available at <http://www.teamusa.org/about-the-usoc> (last accessed August 12, 2015); "Training Centers and Sites," TeamUSA, available at <http://www.teamusa.org/about-the-usoc/training-centers-and-sites> (last accessed August 12, 2015).

cities and work with those cities to develop a bid. Others, including the USOC, have competitions, much like the IOC, in which prospective host cities prepare preliminary bids and a single city is selected to move forward. All NOCs have an incentive to make their country's bid as competitive as possible in the IOCs competition.

c. Bid Committee and Local Organizing Committees

It is our understanding that if Boston had been chosen for the Olympic Games in September 2017, the USOC would have formed a joint venture with the local organizing committee (including members of the Boston 2024 Partnership) to form the official Boston Organizing Committee of the Olympic Games ("Boston OCOG"), as designated by the IOC to manage the process of preparing for staging the games.²¹⁸

The IOC's bidding process has produced bids for lavish, expensive Olympic Games, because proposed spending on venues, the Athletes' Village, and the opening and closing ceremonies detailed in the bids are the primary ways that potential host cities can enhance their bids. To win the Olympic Games, the local organizing committee must secure sufficient funding to support a bid that matches or exceeds other bids. In order to secure sufficient funding, however, the local organizing committee must garner support from local and state government (as well as local residents). This requires the local organizing committees to consider the alignment of the facilities and infrastructure developed for the Games with local economic development plans and to work with local real estate developers to maximize legacy impacts of the Athletes' Village, while including local stakeholders in the planning process. Securing the financial support of Local and State government is critical because, as described below, the IOC requires guarantees from appropriate fiscal authorities that all cost overruns and revenue shortfalls generated by hosting the Olympic Games will be paid for by the government guarantor, and not the IOC. As a result, the bid submitted by the local organizing committee is influenced by various incentives.

²¹⁸ Philip Hersh. "USOC chairman says odds good for 2024 Olympic bid, with single city," Chicago Tribune, available at <http://www.chicagotribune.com/sports/international/chi-usoc-chairman-says-odds-good-for-2024-olympic-bid-with-single-city-20141209-story.html> (last accessed July 27, 2015). See also "Host City Contract – XXIV Olympic Winter Games in 2022," IOC, at p. 11, available at http://www.olympic.org/Documents/Host_city_elections/Host-City-Contract-XXIV-Olympic-Winter-Games-in-2022--Beijing-Execution-no-signature.pdf (last accessed August 6, 2015).

The IOC recently adopted its Agenda 2020, a series of 40 reforms to the Olympic movement.²¹⁹ Most of the reforms relate to the IOC's activities, but several should have a direct influence on the bids submitted by committees such as Boston 2024. For instance, *Recommendation 1* aims to make the bidding process more transparent and potentially broaden the base of signatories to the Host City Contract. *Recommendation 2* directs the Evaluation Committee to broaden its scope of criteria and place additional weight on legacy portions of the bid. *Recommendation 3* is intended to reduce the cost of bidding. *Recommendation 4* directs the IOC to work with local organizing committees to include sustainability in the Olympic Games. The 2024 Olympic Games will be the first Olympic Games to be bid upon completely under the Agenda 2020 proposals.

From the IOC's perspective, OCOGs must have sufficient expertise and funding to successfully move from the plan described in the bid to the actual venues, including the Olympic Stadium, Athletes' Village, and other infrastructure, while meeting IOC requirements for hotels, security, treatment of the "Olympic Family," and other non-event related requirements and successfully stage the Games. Past IOC experience with host cities—notably the awarding of the 1976 Summer Olympic Games to Denver, and the subsequent decision by the OCOG to back out of their bid²²⁰—has led the IOC to closely scrutinize bids and OCOGs' ability to deliver on all aspects of their bids, including letters of guarantee from Local, State and Federal governments.

Bids contain forecasts of construction costs for the promised facilities and other Olympic Games-related capital. This capital is not put in place until after the outcome of the selection process has determined the host. The fact that cost overruns have occurred in all past Olympic Games and

²¹⁹ "Olympic Agenda 2020: 20 + 20 Recommendations," IOC, available at http://www.olympic.org/Documents/Olympic_Agenda_2020/Olympic_Agenda_2020-20-20_Recommendations-ENG.pdf (last accessed August 1, 2015).

²²⁰ Soon after Denver was awarded the 1976 Olympic Games, Colorado residents began to oppose hosting the Olympic Games on the grounds that it would pose significant financial risk as well as environmental damage in multiple locations. In 1972, voters passed a referendum to prohibit state funding for the Denver Olympic Games, forcing the Denver Olympic Organizing Committee to withdraw from hosting the Olympic Games. See, Jack Moore. "When Denver rejected the Olympics in favour of the environment and economics," *The Guardian*, April 7, 2015, available at <http://www.theguardian.com/sport/blog/2015/apr/07/when-denver-rejected-the-olympics-in-favour-of-the-environment-and-economics> (last accessed August 5, 2015).

that those overruns have been significant—as high as eight times initial expectations—suggests that *underestimating* by OCOGs is common.²²¹

d. Local and State Government Objectives and Responsibilities

Typically, local and state governments are interested in promoting their own economic interests, while protecting taxpayers. From the Olympic Games perspective, cities host the games; as a practical matter, the cities, local and state (and national) governments may also play a crucial role in the bid. Both local and state governments must approve of the Olympic Games to be held in their city and state and are also (historically) responsible for various guarantees required by the IOC, covering any economic shortfall from the Olympic Games. As a result, local and state governments examine potential costs and benefits to their residents and taxpayers and indirectly influence the structure of any bid submitted to the IOC.

2. The Bid Process and IOC Requirements

Until recently, the bidding process to host the Olympic Games was a three-phase process that took approximately three years, with each phase lasting approximately one year.²²² The *Invitation Phase* required a country's NOC to declare its interest in bidding to host the Games and identify a potential Host City. This phase concluded with the IOC inviting NOCs and their selected Host Cities to formally commit to the bid process and become Applicant Cities.²²³ For the 2024 Olympic Games, the *Invitation Phase* would have ended on September 15, 2015. In the second phase, the *Applicant Phase*, the IOC provided Applicant Cities with a full set of documentation, including the Host City Contract,²²⁴ so that each Applicant City may develop its vision and concept for the Games. Aspiring Applicant Cities like Boston were intended to work with their respective NOCs to prepare an Applicant File for the Olympic Games and would

²²¹ See Table 7 below.

²²² “All About the Bid Process,” IOC, available at <http://www.olympic.org/content/the-ioc/bidding-for-the-games/all-about-the-bid-process/> (last accessed July 7, 2015). New procedures set in place in August 2015 are outlined below.

²²³ “All About the Bid Process,” IOC, available at <http://www.olympic.org/content/the-ioc/bidding-for-the-games/all-about-the-bid-process/> (last accessed July 7, 2015).

²²⁴ The Host City Contract is signed by the IOC on the one hand and the NOC and winning Candidate City on the other hand and requires that a local OCOG be formed and added as a party to the Contract. The Contract outlines responsibilities and liabilities of each party. See “Host City Contract – XXIV Olympic Winter Games in 2022,” IOC, available at http://www.olympic.org/Documents/Host_city_elections/Host-City-Contract-XXIV-Olympic-Winter-Games-in-2022--Beijing-Execution-no-signature.pdf (last accessed August 6, 2015).

receive general guidance at an Applicant City Seminar hosted by from the IOC.²²⁵ At the end of the Applicant Phase, the IOC selected which Applicant Cities would become Candidate Cities.²²⁶ The third and final phase, the *Candidature Phase*, required the selected Candidate Cities to develop a *Candidature File* as outlined in the *Candidature Procedure & Questionnaire* (the “CP&Q”).²²⁷ As the primary reference for this phase of the bid process, the CP&Q provides detailed instructions for bidding, questions under designated themes for Candidate Cities to respond to, and provides formatting instructions for submitting bids.²²⁸

In August 2015, the IOC changed the bidding process by eliminating the various phases whereby cities are cut from the competition. Under the new procedures, once potential Host Cities of the 2024 Olympic Games enter the race on September 15, 2015, they will become Candidate Cities and remain in the race until the IOC votes on the winner in September 2017. Candidate Cities will present their bids to the IOC in stages. First, Candidate Cities will present their overall visions for the Olympic Games by May 2016; second, Candidate Cities will present legal guarantees and venue funding by December 2016; finally, Candidate Cities will present details on Olympic Games delivery and venue legacy by September 2017.²²⁹

The changes to the bidding process will likely give the IOC more Candidate Cities from which to make its selection in 2017 and for future Olympic Games. This change can avoid situations such as the recent competition to host the 2022 Winter Olympic Games, where political and economic reasons forced four Candidate Cities to pull out of the bid, leaving the IOC with only two Candidate Cities to choose from.²³⁰ Even though the changes are an effort to widen the field of

²²⁵ “All About the Bid Process,” IOC, available at <http://www.olympic.org/content/the-ioc/bidding-for-the-games/all-about-the-bid-process/> (last accessed August 11, 2015).

²²⁶ “IOC Executive Board sets dates for 2024 Olympic Games bid process,” IOC, available at <http://www.olympic.org/news/ioc-executive-board-sets-dates-for-2024-olympic-games-bid-process/242111> (last accessed August 3, 2015).

²²⁷ “All About the Bid Process,” IOC, available at <http://www.olympic.org/content/the-ioc/bidding-for-the-games/all-about-the-bid-process/> (last accessed July 7, 2015).

²²⁸ “2022 Candidature Procedure and Questionnaire,” at p. 13.

²²⁹ “IOC shakes up bid process for 2024 Summer Olympics,” *The Chicago Tribune*, August 2, 2015, available at <http://www.chicagotribune.com/sports/international/ct-2024-olympics-voting-20150802-story.html> (last accessed August 6, 2015).

²³⁰ “IOC shakes up bid process for 2024 Summer Olympics,” *The Chicago Tribune*, August 2, 2015, available at <http://www.chicagotribune.com/sports/international/ct-2024-olympics-voting-20150802-story.html> (last accessed August 6, 2015).

competitors, the IOC will still have the right to eliminate Candidate Cities at any point in the process if they are deemed to be failing to meet IOC requirements.²³¹

a. The Formal Bid Process

Candidate Cities work in a coordinated effort with the Bid Committee and the NOC to submit several items to the IOC, including the *Candidature File* and the *Guarantees File*.²³² The Candidature File provides the IOC with a detailed plan that will act as a “blueprint” for the Olympic Games.²³³ The structure of the Candidature File, laid out explicitly in the CP&Q, requires Candidate Cities to provide detailed responses to all questions that the IOC will consider in its decision. The most recent available questionnaire portion of the 2022 CP&Q is organized along 14 themes, encompassing all expectations the IOC has of the Host City and its partners.²³⁴

Along with the Candidature File, Candidate Cities must provide a Guarantees File containing *Letters of Guarantee* from various third parties.²³⁵ These letters are necessary to demonstrate that relevant third parties, be they national, regional, or local government authorities, the NOC, interested venue and business owners, or any other competent bodies, are committed to providing the promised financial and legal support promised in the Candidature File.²³⁶ However, while Candidature Files are publicly available, Guarantees Files are not and no past files could be located for our review. The requirements for the Guarantees File for 2024 are not yet available, but the requirements for the 2022 Guarantees File are available.

Additionally, Candidate Cities must submit to the IOC comprehensive financial data supporting their build-up of each budgetary item (including a list of all people who have contributed to the preparation of the budget),²³⁷ a duly signed “Undertaking” as provided by the IOC,²³⁸ printed

²³¹ “IOC shakes up bid process for 2024 Summer Olympics,” The Chicago Tribune, August 2, 2015, available at <http://www.chicagotribune.com/sports/international/ct-2024-olympics-voting-20150802-story.html> (last accessed August 6, 2015).

²³² “2022 Candidature Procedure and Questionnaire,” at p. 62.

²³³ “All About the Bid Process,” IOC, available at <http://www.olympic.org/content/the-ioc/bidding-for-the-games/all-about-the-bid-process/> (last accessed July 7, 2015).

²³⁴ “2022 Candidature Procedure and Questionnaire,” at p. 64.

²³⁵ “2022 Candidature Procedure and Questionnaire,” at p. 26.

²³⁶ “2022 Candidature Procedure and Questionnaire,” at p. 26.

²³⁷ “2022 Candidature Procedure and Questionnaire,” at p. 221.

maps illustrating the opening and closing ceremony venue, the Athletes' Village, other key accommodation sites of more than 1,000 rooms, Olympic Hotels, the IBC/MPC, and a printed set of accommodation maps.²³⁹

Once the Candidate Cities submit their completed bids to the IOC, an Evaluation Commission is charged to study the feasibility of its plans.²⁴⁰ As noted above, Agenda 2020 is intended to widen the scope of criteria used to evaluate bids.²⁴¹ The completed Evaluation Commission's report is submitted to each IOC member, and the Host City is elected by secret ballot at a full IOC Session.²⁴² For the 2024 Summer Olympic Games, this will take place in Lima, Peru in September 2017.²⁴³

It is difficult to say how important specific IOC requirements for hosting the Olympic Games are during the bidding process. The Evaluation Commission examines answers submitted in the Candidature File and comments when a requirement is met or not, but it appears IOC members are free to vote for any Candidate City regardless of the Commission's evaluation. This is not to say that there are no requirements to be met in order to host the Olympic Games. The CP&Q, as the primary guide to the bid process, refers Candidates to several documents, including the Olympic Charter, the Host City Contract, 42 individual technical manuals and guides, and other documents for host cities to follow when preparing their bids.²⁴⁴ The IOC specifically points out that IOC requirements for the Olympic Games are "actual requirements and should not be

Continued from previous page

²³⁸ "2022 Candidature Procedure and Questionnaire," at pp. 26 and 55-56. At the onset of the Candidate Phase, the IOC requires the "Undertaking" agreement to be signed by the Bid Committee, the City, and the NOC, which "primarily states that, if the Candidate City is elected as Host City, representatives of the city and the NOC will sign the Host City Contract."

²³⁹ "2022 Candidature Procedure and Questionnaire," at p. 221.

²⁴⁰ "IOC Olympic Charter," IOC, at p. 71, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 14, 2015).

²⁴¹ "Olympic Agenda 2020: 20 + 20 Recommendations," IOC, available at http://www.olympic.org/Documents/Olympic_Agenda_2020/Olympic_Agenda_2020-20-20_Recommendations-ENG.pdf (last accessed August 1, 2015).

²⁴² "IOC Olympic Charter," IOC, at p. 35, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 14, 2015).

²⁴³ Philip Hersh. "U.S. will bid for 2024 Olympics, pick city later," Chicago Tribune, available at <http://www.chicagotribune.com/sports/breaking/chi-us-will-bid-for-2024-olympics-pick-city-later-20141216-story.html> (last accessed July 14, 2015).

²⁴⁴ "2022 Candidature Procedure and Questionnaire," at pp. 6-7.

interpreted as minimum requirements” due to concerns about bids making promises that exceed the requirements, resulting in outcomes where “the future OCOG inevitably finds itself facing additional costs to deliver services that have not been requested by the IOC.”²⁴⁵ However, the Evaluation Commission looks at the overall bid and notes if and when a requirement is not met. For instance, regarding Chicago’s response to a particular guarantee related to economic shortfalls, the Evaluation Commission pointed out that “contrary to IOC requirements, Chicago 2016 had not provided a full guarantee covering any potential economic shortfall ...;”²⁴⁶ in the event an elected Host City has not met all IOC Requirements during the bidding process, the Host City Contract is assumed to account for this in some way.²⁴⁷

b. Local Government Influence on Bid Selection Process

State and local governments are placed in an unusual position in the bidding process. They must assume some, or potentially all, of the responsibility for cost overruns that occur while a host city prepares for the Olympic Games as specified in the OCOG’s official bid, but the OCOG does not necessarily include any representatives from local or state government.²⁴⁸ In the case of Boston 2024’s bid, the state would have been expected to finance substantial infrastructure changes specified in Bid 2.0.²⁴⁹ Local and state governments bear a substantial portion of the costs of hosting the Olympic Games and especially the residual risk, yet have only limited ability to influence and shape the bid, which is developed by the OCOG.

This situation exists by design. The IOC interacts exclusively with OCOGs and NOCs in terms of enforcing the bidding rules and accepting formal bids to host the Games, and at the same time

²⁴⁵ “Report of the 2020 Evaluation Commission,” at p. 7, available at http://www.olympic.org/Documents/Host_city_elections/2020_Evaluation_Commission_report.pdf (last accessed July 14, 2015).

²⁴⁶ “IOC Evaluation 2016,” at p. 15.

²⁴⁷ In its summary of Chicago’s bid the Evaluation Commission stated the following regarding Chicago’s failure to provide a full guarantee covering economic shortfalls of the OCOG: “At the time of the Commission’s visit, Chicago 2016 had formally requested the IOC to amend the Host City Contract. The Commission informed the bid that a standard Host City Contract applied to all cities.” See “IOC Evaluation 2016,” at p. 82.

²⁴⁸ In the case of Boston 2024, Massachusetts State Senator Eileen Donoghue was on the Board of Directors. “Boston 2024 Board of Directors Profile,” Boston 2024, available at <http://2024boston.s3.amazonaws.com/app/uploads/2015/07/09125353/BoardBios.pdf> (last accessed July 27, 2015).

²⁴⁹ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 44-45.

requires OCOGs to obtain letters of guarantee from state and local governments. As discussed below, bids can mitigate some risks, including through the use of insurance, but since not all risk can be mitigated, the process ensures the final risk of cost overruns falls onto state and local governments as signatories of the financial Letters of Guarantee.

OCOG-developed bids typically contain plans to upgrade or expand transportation infrastructure in the host city. Planning for expansion of local transportation infrastructure is an important function of local and state government, but the IOC bidding process interjects the OCOG into this process. The plans and needs of the OCOG may or may not coincide with the plans and needs of local and state government. Consequently, an Olympic bid may cause state and local governments to alter their infrastructure investment priorities.

Finally, only one OCOG in recent times—Los Angeles 1984—has been awarded the right to host the Olympic Games without letters of guarantee from state and local governments in its bid, which came about partially as a result of no other city competing to host the games.²⁵⁰ While it may be difficult for a Candidate City to obtain commitments so far in advance, these guarantees, particularly those related to economic and financial commitments, seek to bind all necessary parties together and to assure the IOC that the Olympic Games will take place.

c. Financial Guarantees

While the required Letters of Guarantee run the gamut from financing and funding commitments to political and public support, legal requirements for the use of venues and the Athletes' Village, and availability and price controls for accommodations, there are 11 required Letters of Guarantee that may be considered "Financial Guarantees." Financial Guarantees, as the term will be used going forward, are limited to Letters of Guarantee that require a guarantee for the financing and/or funding of a project, facility, task, or event necessary to complete the commitment in the Candidature File. Table 6 lists the 11 Financial Guarantees and the parties responsible for providing them as they are stated in the 2022 CP&Q. There are, of course, other Letters of Guarantee required for commercial rights, marketing rights, price controls, etc., which, although motivated by financial concerns, are not explicitly Financial Guarantees as discussed here. We discuss other Letters of Guarantee, beyond the Financial Guarantees, and their implications for taxpayers in Section V.F below.

²⁵⁰ "Los Angeles and the 1984 Olympic Games," The Boys and Girls Clubs of Venice, California, <http://www.bgcgv.org/Websites/bgcgv/Images/20thAnniversary.pdf> (last accessed August 5, 2015).

Table 6: Financial Guarantees Requested by the IOC (2022 Winter Games)

| | 2022 CP&Q Question | Guarantee |
|------|---------------------------------------|--|
| [1] | Q 6.1.1 | Guarantee to cover any potential economic shortfall of the OCOG, including refunds to the IOC of advances in payment or other contributions made by the IOC to the OCOG, which the IOC may have to reimburse to third parties in the event of any contingency such as full or partial cancellation of the Olympic Games. |
| [2] | Q 6.2.1 | Guarantee from the relevant authorities to provide all security, medical, customs, immigration and other government-related services at no cost to the Organizing Committee. |
| [3] | Q 6.2.2 | Additional financial guarantees, if applicable. |
| [4] | Q 8.7 | Guarantees for the financing of work (for each venue). |
| [5] | Q 10.6 | Guarantees for the financing of work. Underwriting from the local, regional or national government in the event of a shortfall in the financing of the Olympic Village(s). |
| [6] | Q 12.7.2 | Guarantees of use, including possession and vacation dates, rental costs and financial guarantees for upgrades for all existing buildings. |
| [7] | Q 12.7.3 | Construction authorization, works timelines and finance guarantees for hotels/other accommodation to be built. |
| [8] | Q 13.3 | Construction and finance guarantees for projected capacity improvements at your airport(s). |
| [9] | Q 13.6 | Construction and finance guarantees for planned and additional transport infrastructure projects. |
| [10] | Q 13.11 | Responsibility and finance guarantees for projected fleet and rolling stock capacity improvements. |
| [11] | Q 14.1 | Guarantees of use and/or construction for the IBC and MPC and control of commercial rights. |

Sources & Notes:

“2022 Candidature Procedure and Questionnaire,” at pp. 212-215.

The Financial Guarantees are comprehensive, covering nearly all aspects of the bid, including construction of venues, Olympic Stadium and the Athletes’ Village, accommodations for visitors to the Host City, local transportation infrastructure, and media facilities to ensure that the Candidate City and its partners are financially committed to cover all the costs necessary to host the Games. Even if all 11 are requested by the IOC for the 2024 Olympic Games, some may not have been relevant or binding for Boston’s bid. For example, issues of insufficient airport or hotel capacity had not been raised as a concern for Boston.

3. Letters of Financial Guarantee in Previous Olympic Bids

Historical bids provide insight into the various approaches taken by Candidate Cities to address the Financial Guarantees required by the IOC. In reviewing CP&Qs between 2012 and 2022, the number of total guarantees has changed from year to year,²⁵¹ but the number and nature of *Financial* Guarantees has remained constant at 11.²⁵²

In our view, Financial Guarantees can be divided into two general groups: primary Economic Shortfall Guarantees and secondary Endeavor-Specific Guarantees. Economic Shortfall Guarantees (see Q 6.1.1 and Q 6.2.2 in Table 6 above) require a guarantee to cover any potential economic shortfall of the OCOG. This can apply to revenue shortfalls, cost overruns, or other unexpected expenses not included in the bid. These guarantees are generally expected to be signed by any one or a combination of national, regional, and local government authorities as determined by the IOC Executive Board.²⁵³ Endeavor Specific Guarantees refer to a specific task or activity, such as the guarantee of financing for the construction of the Athletes' Village or projected transport infrastructure improvements, by a competent body or authority.²⁵⁴ This section will discuss how some of the 11 common Financial Guarantees were addressed by Vancouver for 2010,²⁵⁵ London and New York for 2012, and Chicago for 2016, how those guarantees have been viewed by the IOC, and the individual groups or entities that have made those Financial Guarantees in order to shed light on some of the financial risks involved.²⁵⁶

²⁵¹ Guarantees requested in Candidature Procedure & Questionnaires for the three summer and three winter Olympic Games between Olympic years 2012 to 2022 ranged from forty-two (2022) to fifty-two (2016 and 2018).

²⁵² Financial guarantees are limited to Letters of Guarantee that require financing and/or funding of required projects, facilities, and events. Other guarantees such as price controls are not included in this section.

²⁵³ "2022 Candidature Procedure and Questionnaire," at p. 82 and 212 – 215.

²⁵⁴ "2022 Candidature Procedure and Questionnaire," at pp. 153 and 180-181 respectively.

²⁵⁵ The 2010 Manual for Candidate Cities provided a different structure for addressing Letters of Guarantee and will be analyzed to the extent comparable guarantees exist in current CP&Qs. "Manual for Candidate Cities for the XXI Olympic Winter Games 2010, Part II: Candidature File" available at http://www.olympic.org/Documents/Reports/EN/en_report_524.pdf (last accessed August 12, 2015).

²⁵⁶ All Letters of Guarantee documents are submitted by the relevant Candidate Cities in a "Guarantees File." See, e.g., "2022 Candidature Procedure and Questionnaire," at pp. 209-211. As no Guarantees Files have been made available to us, this analysis is based solely on information found in the CP&Qs, Candidature Files, and Reports of the Evaluation Commissions.

a. Economic Shortfall Guarantees in Past Bids

In bids going back to Olympic Year 2010, the IOC required an Economic Shortfall Guarantee from competent authorities to cover any potential shortfalls of the OCOG.²⁵⁷ Since the 2016 Olympic Year, this guarantee has specifically included “refunds to the IOC of advances in payment or other contributions made by the IOC to the OCOG, which the IOC may have to reimburse to third parties in the event of any contingency such as full or partial cancellation of the Olympic Games.”²⁵⁸ The approach that Candidate Cities have taken to the Economic Shortfall Guarantees has varied. The winning bid from London for the 2012 Olympic Games promised a total funding package of \$5.5 billion with the U.K. government acting as the “ultimate financial guarantor” for any shortfalls beyond that amount.²⁵⁹ Vancouver’s successful Winter Games bid specified that the governments of Canada and British Columbia would fund Olympic construction and endowments totaling \$400 million, but the Province of British Columbia guaranteed to pay any financial shortfalls of the OCOG.²⁶⁰ Chicago’s Summer Games bid included a guarantee and indemnity from the City of Chicago to cover up to \$500 million in potential operating shortfalls.²⁶¹ Additionally, Chicago OCOG noted that a “private insurer ha[d] indicated its interest in providing coverage against a potential financial shortfall or risks not covered in Games cancellation policies obtained jointly by the IOC and CHICOG.”²⁶² Finally, the New York City and State governments guaranteed \$250 million to cover any shortfalls in the bid for the 2012 Summer Games.²⁶³ Although the financial guarantees noted were of comparable size, the Vancouver guarantee was for a smaller Winter Games and therefore was much larger as a share of the bid.²⁶⁴ It is important to note, however, that the Evaluation Commission did not

²⁵⁷ Based on our review of all Candidature Procedure & Questionnaires from 2010 to 2022, all have nearly the same language requiring Competent Authorities to guarantee to cover any potential economic shortfalls of the OCOG.

²⁵⁸ “2016 Candidature Procedure and Questionnaire,” at p. 95, available at http://www.olympic.org/Documents/Reports/EN/en_report_1318.pdf (last accessed July 14, 2015).

²⁵⁹ “London 2012 Bid,” Vol. 1, at p. 93; “Preparations for the London 2012 Olympic and Paralympic Games – Risk assessment and management,” National Audit Office, February 2, 2007, at p. 13, available at <http://www.nao.org.uk/wp-content/uploads/2007/02/0607252.pdf> (last accessed August 11, 2015). See Table 8 and supporting discussion. For exchange rate conversion see footnote 287.

²⁶⁰ “Vancouver 2010 Bid,” Vol. 1, at p. 71.

²⁶¹ “Chicago 2016 Bid,” Vol. 1, at p. 107.

²⁶² “Chicago 2016 Bid,” Vol. 1, at p. 107.

²⁶³ “New York 2012 Bid,” Vol. 1, at p. 105.

²⁶⁴ See Table 8 and Table 11 for a comparison of the London 2012 and Vancouver 2010 budgets.

consider Chicago's Economic Shortfall Guarantee to be sufficient. Neither Chicago's nor New York's—nor any other city's bid for the Summer Games that we are aware of since 2000—was successful in the bidding phase without a full financial guarantee.²⁶⁵

b. Endeavor-Specific Guarantees in Past Bids

Endeavor-Specific Guarantees are focused on the specific goal stated in the Candidature File. Unlike the Economic Shortfall Guarantees intended to cover any financial shortfall that the OCOG may incur, Endeavor-Specific Guarantees are commitments by any party to ensure performance of a specific project promised in the Candidate City's bid. For example, regarding the Letters of Guarantee to provide certain government-related services at no cost,²⁶⁶ Chicago responded that the "City of Chicago has agreed to provide all necessary government services at no cost to CHICOG. Other relevant jurisdictions involved in the project of hosting the Games have also agreed to provide all necessary government services at no cost to CHICOG as part of the 2016 Olympic and Paralympic Games Governmental Cooperation Agreement."²⁶⁷ Alternatively, Vancouver's bid guaranteed financing for venues entirely through provincial and Federal government grants of the specified amounts provided in its Candidature File.²⁶⁸

Bids may also disregard some of these Letters of Guarantee if the stated project is unnecessary because the city already has the minimum resources to comply with IOC requirements. For example, New York had sufficient hotel accommodations already in place and therefore did not produce any guarantees related to new hotel construction to meet IOC requirements.²⁶⁹ In other instances, the Candidate City may not provide a guarantee as described in the CP&Q, but instead

²⁶⁵ We have been able to confirm that guarantees were provided by all successful Summer Games bids going at least as far back as the Sydney 2000 Games. Similarly, the 2016 and 2020 Summer Games will have the full economic shortfall guarantee. See "Report of the IOC Evaluation Commission" for the 2008 through 2020 Games. Prior IOC Evaluation Commission Reports are not available online. For Athens and Sydney, see "Official Report of the XXVIII Olympiad," IOC, at pp. 64, 71, available at <http://library.la84.org/6oic/OfficialReports/2004/or2004a.pdf> (last accessed July 31, 2015) and "The Sydney 2000 Olympic and Paralympic Games," The Audit Office of New South Wales, at p. 2, available at http://www.audit.nsw.gov.au/ArticleDocuments/131/62_Sydney_Olympic_Games.pdf.aspx?Embed=Y (last accessed July 31, 2015).

²⁶⁶ "2016 Candidature Procedure and Questionnaire," at p. 96, available at http://www.olympic.org/Documents/Reports/EN/en_report_1318.pdf (last accessed July 14, 2015).

²⁶⁷ "Chicago 2016 Bid," Vol. 1, at p. 109.

²⁶⁸ "Vancouver 2010 Bid," Vol. 2, at p. 133.

²⁶⁹ "New York 2012 Bid," Vol. 3, at pp. 81 and 83.

discusses plans already in place or covered under the scope of another project. Chicago's Candidature File addressed ongoing improvements to O'Hare International Airport, but did not specify any guarantees or commitments to such plans.²⁷⁰ Endeavor-Specific Guarantees are often addressed ambiguously in the Candidature Files, though the actual Guarantees Files (which are not made public) likely have more detailed information.

c. Parties Responsible for Executing Letters of Guarantee

Letters of Guarantee come from different entities involved in hosting the Olympic Games. Some Letters of Guarantee, such as the general guarantee for support and commitment must come from national, state, and local government authorities.²⁷¹ Security costs must be similarly guaranteed; however, Olympic Games held in the U.S. would be considered National Special Security Events and are expected to be guaranteed by the Federal government.²⁷² Other guarantees may be required from local business owners where their involvement in hosting the Games is considered pertinent to consideration. For instance, a guarantee to finance upgrades to existing accommodations may be required from business owners if the Candidate City is using such upgrades to meet accommodation requirements.²⁷³ The IOC determines who is required to sign which guarantees. With regard to Financial Guarantees, the current Olympic Charter provides that the IOC Executive Board “*will determine whether such guarantees shall be issued by the city itself, or by any other competent local, regional, or national public authorities, or by any third parties.*”²⁷⁴

²⁷⁰ “Chicago 2016 Bid,” Vol. 3, at p. 95.

²⁷¹ See Q.3.2 in the “2022 Candidature Procedure and Questionnaire,” at p. 72.

²⁷² Olympic Games held in the U.S. would be considered National Special Security Events and are expected to be guaranteed by the Federal government. See “New York 2012 Bid,” Vol. 3, at p. 35, and “Chicago 2016 Bid,” Vol. 1, at p. 17. This was also the plan for Boston. “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 50.

²⁷³ “2022 Candidature Procedure and Questionnaire,” at pp. 214-215.

²⁷⁴ Emphasis Added. “IOC Olympic Charter,” IOC, at p. 72, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 14, 2015).

B. Potential Risks

1. Cost Overruns

a. What are Cost Overruns?

Cost overruns refer to outcomes where the actual cost of constructing Olympic venues, the Athletes' Village, media facilities, or other capital projects, as well as Games operations exceeds the amount of spending specified in the bid. The right to host the 2024 Games will be awarded by the IOC in September 2017, and the competing bids will be developed by OCOGs in 2016. The IOC requires specific information about the venues that will be used, including new construction and existing facilities, and the Athletes' Village, which has specific requirements as per the IOC.²⁷⁵ This information includes the total cost of the facilities, their location, and their characteristics. Because bids are developed at least seven years before the Olympic Games take place, the cost estimates contained in bids are forecasts of the actual costs that will be incurred when facilities are built or renovated some years in the future.

Cost overruns have historically been a prominent and consistent feature of Olympic Games. Table 7, which is reproduced from a study by scholars at University of Oxford's Said Business School, summarizes information about cost overruns for 17 Olympic Games since the 1968 Winter Games.²⁷⁶ The authors address two primary Olympic costs: OCOG costs and non-OCOG *direct* costs.²⁷⁷ The study does not account for non-OCOG *indirect* costs such as rail or airport

²⁷⁵ See, e.g., "Technical Manual on Olympic Village," November 2005, available at http://www.gamesmonitor.org.uk/files/Technical_Manual_on_Olympic_Village.pdf (last accessed August 11, 2015).

²⁷⁶ It is also important to understand the contexts between Olympic Games when comparing Olympic Games across geographies and time, whether it is financial guarantees, costs or revenues. For instance, costs associated with Winter Olympic Games are vastly different from costs associated with Summer Olympic Games. Therefore, though we present information regarding costs and revenues, it is important to keep such considerations in mind.

²⁷⁷ Bent Flyvbjerg, Allison Stewart. "Olympic Proportions: Cost and Cost Overrun at the Olympics 1960-2012," Said Business School University of Oxford, June 2012, at p. 9, available at [http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_\(2\).pdf](http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_(2).pdf) (last accessed July 14, 2015) ("The Said Business School Study").

The study investigates the difference between final reported costs of the Olympic Games and the cost estimates in the Olympic bids that are submitted to the IOC over seven years prior to the games. This report focuses on evidence from 17 Olympic Games out of a total of 27 games between 1960 and 2012, for which authors are able to obtain reliable budget information to establish cost overrun. The nominal estimate of cost overruns is calculated as the difference between final expenditure of the

Continued on next page

infrastructure improvements or hotel upgrades.²⁷⁸ Some cost overruns were under 100 percent of the spending forecast in the bid, while some were up to almost 800 percent of the spending forecast in the bid. Note that the cost overruns, especially from Atlanta 1996, should be interpreted with care, as the authors may not have reported all costs associated with the Olympic Games.²⁷⁹ Additionally, the estimate of London's cost overruns was preliminary at the time of writing. We present this information nevertheless as an illustration meant to highlight the general trends and the history of cost overruns of the Olympic Games, though we do not intend for this information to provide a complete and detailed understanding of any specific Olympic Games' overruns.

Continued from previous page

Olympic Games and the estimated costs at the time of the Olympic bid, divided by the estimated costs at the time of the Olympic bid. OCOG costs in this study refer to operational costs incurred directly by the organizing committee to put on the Olympic Games. These include "technology, transportation, workforce, and administration costs, while other costs include items like security, catering, ceremonies and medical services." Non-OCOG direct costs in this study include "construction costs incurred by the host city or country or private investors to build the competition venues, Olympic Village(s), International Broadcast Centre and Media and Press Centre, which are required to host the Games."

²⁷⁸ Flyvbjerg and Stewart 2012, at p. 9.

²⁷⁹ "Debate on Olympic Profit, Loss Complicated by Missing Details," *The Boston Globe*, available at <https://www.bostonglobe.com/metro/2015/07/21/trying-make-sense-olympic-profitability/vOtLvHBS9JXtPMvVNGiiXM/story.html> (last accessed August 6, 2015).

Table 7: Cost Overruns of Past Olympic Games

| Year | City | Country | Type | % Cost Overrun |
|------|----------------|------------|--------|----------------|
| 2012 | London | UK | Summer | 101% |
| 2010 | Vancouver | Canada | Winter | 17% |
| 2008 | Beijing | China | Summer | 4% |
| 2006 | Torino | Italy | Winter | 82% |
| 2004 | Athens | Greece | Summer | 60% |
| 2002 | Salt Lake City | USA | Winter | 29% |
| 2000 | Sydney | Australia | Summer | 90% |
| 1998 | Nagano | Japan | Winter | 56% |
| 1996 | Atlanta | USA | Summer | 147% |
| 1994 | Lillehammer | Norway | Winter | 277% |
| 1992 | Barcelona | Spain | Summer | 417% |
| 1992 | Albertville | France | Winter | 135% |
| 1988 | Calgary | Canada | Winter | 59% |
| 1984 | Sarajevo | Yugoslavia | Winter | 173% |
| 1980 | Lake Placid | USA | Winter | 321% |
| 1976 | Montreal | Canada | Summer | 796% |
| 1968 | Grenoble | France | Winter | 201% |

Sources & Notes:

Bent Flyvbjerg, Allison Stewart. "Olympic Proportions: Cost and Cost Overrun at the Olympics 1960-2012," Said Business School University of Oxford, June 2012, at p. 10, available at [http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_\(2\).pdf](http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_(2).pdf) (last accessed July 14, 2015); London 2012 based on initial projections in the report, not on final spending estimates. Figures based on spending in original currencies and inflation adjusted to 2009.

b. Potential Sources of Cost Overruns

Cost overruns occur for a number of reasons. In general, the existence of persistent cost overruns—many of them quite large—in every recent Olympic Games suggests that they may be due to systematic factors in the Olympic Games bidding process. Because the Olympic Games are not the only large-scale endeavors that experience cost overruns and in order to provide some perspective on this, we also undertook a review of cost overruns associated with other large-scale construction projects.

Some cost forecasting errors may be attributed to the planning process, which requires estimating costs that will not be incurred until years in the future. Prices of construction materials like steel are difficult to forecast because they are set in world markets that are subject to many random factors. Wages in the construction sector are also difficult to forecast because they depend on the state of the economy, regional supply and demand conditions, interest rates,

and other random factors. Even the general rate of inflation, which affects the overall cost of construction projects, and all other economic activities, may be difficult to forecast years in advance.

Cost overruns can also occur because of changes in the scope of the venues and other capital projects contained in the bid. As the Olympic Games draw nearer, OCOGs and host cities may realize that some venues described in the bid may not be large enough, or contain adequate features for the Olympic Games or for their intended use after the Olympic Games. Also, infrastructure improvements may expand for various reasons and create benefits that go beyond the Olympic Games.

Cost overruns may also occur because the Host City or OCOG may need to respond to pressures from both internal and external special interest groups during the run-up to the games. As discussed above, Host Cities and OCOGs must generate broad-based support in order to put together a successful bid and host the Olympic Games. Accommodating groups to build this support can lead to scope creep.

Different mega-construction projects may be subject to different external and internal factors that ultimately lead to cost overruns. To develop a better understanding of cost overruns associated with mega-construction-projects, we investigate cost overruns in previous Olympic Games and in other mega-projects such as large-scale transportation projects. These case studies can help place potential cost overruns associated with the Boston 2024 bid in perspective, and shed light on general factors that drive cost overruns in any large scale construction project.

c. Lessons about Cost Overruns from Past Olympic Games

To understand the risks that the Commonwealth may have ultimately borne, it is essential to develop a better understanding of cost overruns in past Olympic Games. The Said Business School study found that between 1960 and 2012, the Olympic Games experienced an average cost overrun of 179 percent in inflation adjusted terms.²⁸⁰ Another study concluded that the average cost overrun for hosting the Olympic Games since 1976 was more than 200 percent.²⁸¹

²⁸⁰ Flyvbjerg and Stewart 2012, at p. 3.

²⁸¹ Will Jennings. "Why costs overrun: risk, optimism and uncertainty in budgeting for the London 2012 Olympic Games", *Construction Management and Economics* (June 2012) 30, 455–462.

These findings are consistent with evidence presented in other academic research suggesting that systematic cost overruns are not unusual in mega-projects such as the Olympic Games.²⁸²

The findings of cost overruns hold, on average, for Olympic Games hosted in different cities under different economic conditions. In the following section, we consider the experiences of past Olympic Games. For comparability, we choose Olympic Games held in the U.S. (Atlanta 1996), Canada (Vancouver 2010), and the U.K. (London 2012) as these countries are similar in economic, political, and social structure and stability. Furthermore, since these Olympic Games were held in recent years, they tend to have more detailed information available. Since Boston 2024 would have bid for the Summer Olympic Games, we focus on past Summer Games, with the exception of the Vancouver 2010 Winter Olympic Games, which provides an interesting case study on the development of the Athletes' Village.

For these three Olympic Games, we compare OCOG, non-OCOG, infrastructure, and security costs at two points in time: at the time of the bid budget estimates prepared for the Host City's Candidature File and final realized costs. Specifically, we estimate the discrepancy between estimated costs in the bid budget and final realized costs of the hosting the Olympic Games with a focus on expenses that were ultimately paid by the host city and government. Further, for each city, we identify key reasons for the cost overrun particularly due to increased expenditure for projects that were supposed to be financed by private parties.

We also briefly discuss the experiences that Rio and Tokyo have had so far in preparation for the 2016 and 2020 Games, respectively, to give a sense of the cost issues that have come up and will likely persist in future Olympic Games. Costs are reported in nominal terms of the year in which they were calculated and converted to U.S. dollars based on the exchange rate stated in the Candidate Files, unless otherwise stated.

i. 2012 London Summer Olympic Games

London hosted the Summer Olympic Games in 2012. The bid London submitted in late 2004 estimated the total cost for the Olympic Games at \$18.3 billion, with OCOG costs accounting for 13 percent (\$2.5 billion), and non-OCOG costs accounting for 87 percent (\$15.8 billion) of the

²⁸² Edward Merrow. "Understanding the Outcome of Megaprojects: A Quantitative Analysis of Very Large Civilian Projects", The Rand Corporation, Santa Monica, (1988); Bent Flyvbjerg, Bruzelius, N. and Rothengatter, W. "Megaprojects and Risk: An Anatomy of Ambition", Cambridge University Press, Cambridge, (2003).

total estimated costs.²⁸³ Seventy percent (\$12.7 billion) of the total cost was intended to be privately financed; the remaining 30 percent (\$5.5 billion) was to be funded by the government almost exclusively for non-OCOG costs.²⁸⁴ In addition, as per requirements, the government provided guarantees to the IOC that it would be responsible for covering any cost overruns associated with the Olympic Games in London. As of July 2013, the U.K. government had spent \$14 billion on the London Summer Olympic Games, more than double the original bid estimate for Government-provided financing.²⁸⁵ Table 8 below summarizes the estimated costs and the ultimately realized costs of the London Summer Olympic Games.²⁸⁶

As of March 2013, the London OCOG budget had experienced a cost overrun of 84 percent, for a final budget of \$4.5 billion. The extra cost was partially mitigated by increased OCOG revenues through sponsorship, ticket sales, and merchandising, which came in at \$3.9 billion.²⁸⁷ However, the London OCOG was able to report excess revenues over expenses by counting a large publicly-funded subsidy as revenue. This was money that the OCOG received from the national government for work that was “non-core” to OCOG operations, but for which the OCOG was

²⁸³ “London 2012 Bid,” Vol. 1, at p. 103-105. The London Bid used a conversion rate of 1 GBP = 1.6 USD. OCOG refers to costs associated with London Organizing Committee of the Olympic and Paralympic Games (“London OCOG”)’s activities including Opening and Closing Ceremonies, and technology and workforce coordination. Similarly, non-OCOG refers to non-OCOG activities such as construction of venues and public infrastructure improvements for roads and railways.

²⁸⁴ “Preparations for the London 2012 Olympic and Paralympic Games – Risk Assessment and Management,” National Audit Office, February 2, 2007, at p. 13, available at <http://www.nao.org.uk/wp-content/uploads/2007/02/0607252.pdf> (last accessed August 11, 2015).

²⁸⁵ “London 2012 public sector funding package £528m under budget,” Department of Culture, Media, and Sport Press Release, July 16, 2013, available at <https://www.gov.uk/government/news/london-2012-public-sector-funding-package-528m-under-budget> (last accessed August 11, 2015).

²⁸⁶ Outside of the official Public Sector Funding Package, there are additional indirect costs which are not part of the current analysis. This includes, for example, public funding to buy the Olympic Park land, fund legacy programs, pay for costs incurred by government departments for Olympics-related work, and subsidize the purchaser of Athletes’ Village housing units. “The London 2012 Olympic and Paralympic Games: post-Games Review,” National Audit Office, December 5, 2012, at pp. 26-27, available at <http://www.nao.org.uk/wp-content/uploads/2012/12/1213794fr.pdf> (last accessed August 11, 2015).

²⁸⁷ “Report and accounts for the 6 month period ended 31 March 2013,” The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at p. 14, available at http://www.olympic.org/Documents/Games_London_2012/London_Reports/LOCOG_FINAL_ANNUAL_REPORT_Mar2013.PDF (last accessed August 11, 2015). This is the last financial report from the London OCOG. London costs and revenues discussed in this section are based on the exchange rate assumed in the “London 2012 Bid,” Vol. 1 at p. 102: 1 GBP = 1.6 USD.

“best placed to deliver” when the scope of the Games increased in the years leading up to 2012.²⁸⁸ Accounting for this subsidy, the amount of publicly-funded spending allocated to the OCOG was \$1.5 billion, 21 times more than the original estimate of \$72 million.²⁸⁹

Table 8: Summary of Costs for the 2012 London Olympic Games (millions USD)

| | Estimate (2004) | Actual (2012) | Cost Overrun | Percent Overrun |
|------------------|--------------------|------------------|-----------------|--------------------|
| [a] | [b] | [c] | [d] | [e] |
| OCOG | | | | |
| [1] Public | \$72 | \$240 | \$168 | 233% |
| [2] Private | \$2,390 | \$4,292 | \$1,902 | 80% |
| [3] | \$2,462 | \$4,532 | \$2,070 | 84% |
| Non-OCOG | | | | |
| [4] Public | \$5,470 | \$13,792 | \$8,322 | 152% |
| [5] Private | \$10,324 | \$9,277* | (\$1,047) | -10% |
| [6] | \$15,794 | \$23,069 | \$7,275 | 46% |
| [7] Total | \$18,256 | \$27,601 | \$9,345 | 51% |

Sources & Notes:

*Actual private non-OCOG cost is equal to its estimated value less the portions of the Athletes' Village and Media Center that were originally supposed to be privately-funded, but later became public projects. See notes to [5][c] below for details.

[1][b],[3][b],[6][b]: “London 2012 Bid,” Vol. 1, pp. 103-105. The estimated public OCOG cost represents the estimated national government’s contribution to the Paralympic Games.

[2][b]: [3][b] - [1][b].

[4][b]: “Preparations for the London 2012 Olympic and Paralympic Games – Risk assessment and management,” National Audit Office, February 2, 2007, at p. 13. Publicly-funded non-OCOG costs at the time of the bid included \$3,800 million to meet the costs of the Games, and \$1,670 million towards the cost of non-Olympic infrastructure on the site of the Olympic park.

[5][b]: [6][b] - [4][b].

[7][b]: [3][b] + [6][b].

[1][c]: “Report and accounts for the 6 month period ended 31 March 2013,” The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at pp. 44-45. This is the portion of government funding provided to the OCOG and categorized as “core” to

²⁸⁸ “Report and accounts for the 6 month period ended 31 March 2013,” The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at pp. 14 and 44-45. For exchange rate conversion see footnote 287.

²⁸⁹ “Report and accounts for the 6 month period ended 31 March 2013,” The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at pp. 44-45. The public London OCOG costs presented in Table 8 represent the “core” \$240 million of the \$1.5 billion public funding package provided to London OCOG. For exchange rate conversion see footnote 287.

the OCOG budget, consisting of \$182 million for the Paralympic Games and \$58 million for work on venues and facilities on the Olympic Park.

[2][c]: [3][c] - [1][c].

[3][c]: "Report and accounts for the 6 month period ended 31 March 2013," The London Organizing Committee of the Olympic Games and Paralympic Games Limited, at p. 14.

[4][c]: "London 2012 public sector funding package £528m under budget," Department of Culture, Media, and Sport Press Release, July 16, 2013. This excludes \$240 million government funding for "core" OCOG budget for work delivered on behalf of the government, mentioned above in note [1][c].

[5][c]: No official statistic was available for actual private non-OCOG costs, so we are unable to calculate cost overruns for private non-OCOG projects. However, some projects originally intended to be privately-financed are categorized under actual public non-OCOG costs since they became 100% publicly-funded projects after the bid was published. Specifically, this includes \$1,040 million for the Village and \$6 million for the Media Center that were originally supposed to be privately funded. To remain conservative, we assume the remaining portion of the estimated private non-OCOG costs experienced no cost overruns. ("The budget for the London 2012 Olympic and Paralympic Games," National Audit Office, July 20, 2007 at p. 22; "The London Olympics Bill, Bill 45 of 2005-06," House of Commons, at p. 35, available at researchbriefings.files.parliament.uk/documents/RP05-55/RP05-55.pdf (last accessed August 11, 2015).

[7][c]: [3][c] + [6][c].

[d]: [c] - [b].

[e]: [d] / [b].

Both estimated and actual amounts are based on the exchange rate assumed in the "London 2012 Bid," Vol. 1 at p. 102: 1 GBP = 1.6 USD.

Table 9 below shows the estimated and actual public infrastructure and security spending. In percentage terms, the cost overruns associated with security were substantial, primarily due to unforeseen circumstances with the private security contractor. Funding for security was originally limited to only \$304 million at the time of the bid.²⁹⁰ In December 2011, the OCOG contracted with the private security firm G4S to supply nearly half of the security guards for the Olympic Games and to manage the entire security workforce for a cost which already would have represented a cost overrun of nearly 50 percent. However, only two weeks prior to the Games, G4S informed the OCOG that it would not be able to provide enough security guards, forcing the government to deploy additional military and police personnel to fill the gap.²⁹¹ The ultimate total public cost of security both inside and outside of sports venues was \$1.4 billion, over four times the original estimate.²⁹²

²⁹⁰ "Preparations for the London 2012 Olympic and Paralympic Games – Risk assessment and management," National Audit Office, February 2, 2007, at p. 14.

²⁹¹ "The London 2012 Olympic Games and Paralympic Games: Post-Games Review," National Audit Office, December 5, 2012, at p. 16.

²⁹² "London 2012 public sector funding package £528m under budget," Department of Culture, Media, and Sport Press Release, July 16, 2013.

In addition to security costs, public infrastructure costs almost doubled from the original estimate. This includes projects such as preparations for the site of the Olympic Park and transportation improvements in and around London.²⁹³ As shown in Table 9, infrastructure and security together resulted in over \$3.9 billion in public cost overruns, or almost half of all public non-OCOG cost overruns.²⁹⁴

Table 9: Publicly-funded Security and Infrastructure Costs, London 2012 (millions USD)

| | Estimate (2004) | Actual (2012) | Cost Overrun | Percent Overrun |
|--------------------|----------------------------|--------------------------|-------------------------|----------------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] Security | \$304 | \$1,363 | \$1,059 | 348% |
| [2] Infrastructure | \$1,400 | \$4,275 | \$2,875 | 205% |
| [3] Total | \$1,704 | \$5,638 | \$3,934 | 231% |

Sources & Notes:

[1][b]: “The London 2012 Olympic and Paralympic Games – Risk Assessment and Management,” National Audit Office, February 2, 2007, at p. 16.

[2][b]: “The London 2012 Olympic and Paralympic Games – Risk Assessment and Management,” National Audit Office, February 2, 2007, at p. 14.

[3][b]: [1][b] + [2][b].

[1][c]: “London 2012 public sector funding package £528m under budget,” Department of Culture, Media, and Sport Press Release, July 16, 2013. This includes \$677 million in policing and wider security and \$686 million in venue security.

[2][c]: “London 2012 Olympic and Paralympic Games Quarterly Report,” Department of Culture, Media, and Sport, p. 12, October, 2012. This includes \$2,918 in Olympic Park site preparation and infrastructure as well as \$1,357 million in transportation infrastructure.

[3][c]: [1][c] + [2][c].

[d]: [c] - [b].

[e]: [d] / [b].

Both estimated and actual amounts are based on the exchange rate assumed in the “London 2012 Bid,” Vol. 1 at p. 102: 1 GBP = 1.6 USD.

Another source of cost overruns for London was venue construction costs. These cost overruns fell on the government. The four largest projects in terms of cost are listed below in Table 10. Across these four major venues, cost overruns totaled about 63 percent, from a total of approximately \$1.9 billion in the bid to over \$3 billion in 2012. Two of these venues in

²⁹³ “London 2012 Olympic and Paralympic Games Quarterly Report,” Department of Culture, Media, and Sport, October, 2012, at p. 12, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78251/DCMS_GOE_Quarterly_Report_Q3.pdf (last accessed August 11, 2015).

²⁹⁴ \$3,934 million / \$8,322 million = 47.3%.

particular, the Athletes' Village and the Media Center, were originally intended to be primarily financed by private developers. The economic downturn made it difficult to secure adequate private funding for these two projects, so both were ultimately publicly financed.²⁹⁵ The final cost for the Athletes' Village and the Broadcast and Media Center came to \$1.5 billion and \$475 million, respectively. The Aquatics Center, though not the most expensive venue, experienced the highest percentage of cost overruns at over 200 percent due to architectural designs that proved to be more costly to build than anticipated, as well as last minute installations to accommodate requirements of the international governing body for swimming.²⁹⁶ In comparison, the percentage cost overrun for the Athletes' Village was a modest 40 percent, but the \$1.5 billion in government spending for this project alone was completely unpredicted at the time of the bid.²⁹⁷

²⁹⁵ "Preparations for the London 2012 Olympic and Paralympic Games: Progress Report," National Audit Office, February 26, 2010, at p. 12, available at <http://www.nao.org.uk/wp-content/uploads/2010/02/0910298.pdf> (last accessed August 11, 2015).

²⁹⁶ Robert Booth. "Cost worries over Hadid's 'seductive' pool centre were waved aside by Olympic jury," *The Guardian*, July 14, 2008, available at <http://www.theguardian.com/uk/2008/jul/15/olympics2012.olympicgames2012> (last accessed August 12, 2015); Jacquelin Magnay. "London 2012 Olympics: Sweltering temperatures in aquatic centre for test event satisfy FINA regulations," *The Telegraph*, March 6, 2012, available at <http://www.telegraph.co.uk/sport/olympics/9125059/London-2012-Olympics-Sweltering-temperatures-in-aquatic-centre-for-test-event-satisfy-FINA-regulations.html> (last accessed August 12, 2015).

²⁹⁷ The cost overrun was calculated even after reducing the scope of Athletes' Village from 3,700 housing units to approximately 2,800 units. "Preparations for the London 2012 Olympic and Paralympic Games: Progress Report," National Audit Office, February 16, 2011, at p. 15.

Table 10: Major Venue Costs, London 2012 (millions USD)

| Venue | Estimate (2004) | Actual (2012) | Cost Overrun | Percent Overrun |
|-----------------------|--------------------|------------------|-----------------|--------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] Athletes' Village | \$1,101 | \$1,538 | \$437 | 40% |
| [2] Olympic Stadium | \$465 | \$686 | \$221 | 48% |
| [3] Media Center | \$215 | \$475 | \$260 | 121% |
| [4] Aquatics Center | \$127 | \$402 | \$275 | 216% |
| [5] Total | \$1,908 | \$3,101 | \$1,193 | 63% |

Sources & Notes:

[1][b]: "London 2012 Bid," Vol. 2, at p. 213. This includes \$1,040 in permanent construction costs funded by the non-OCOG private sector, and \$61 million in temporary overlays funded by the London OCOG.

[2][b]-[4][b]: "London 2012 Bid," Vol. 2, at p. 23. Estimated totals include temporary OCOG overlays.

[5][b]: Sum of [1][b] through [4][b].

[c]: "London 2012 Olympic and Paralympic Games Quarterly Report," Department of Culture, Media, and Sport, October, 2012, at p. 12. Actual amounts are the Anticipated Final Costs as of October 2012, the last time the U.K. government published such costs, and may be understated because they do not include temporary overlay costs paid by the London OCOG but not itemized in its financial statements.

[5][c]: Sum of [1][c] through [4][c].

[d]: [c] - [b].

[e]: [d] / [b].

Both estimated and actual amounts are based on the exchange rate assumed in the "London 2012 Bid," Vol. 1 at p. 102: 1 GBP = 1.6 USD.

In summary, the London Olympic Games experienced cost overruns due to underestimates of the construction cost of major venues, the loss of private developer funding due to the economic downturn, and poor planning for security needs. The government was forced to spend \$8.5 billion more than initially estimated in the bid, with the national government picking up nearly 90 percent of these cost overruns.²⁹⁸ As in all bids, letters of guarantee were in place that ensured that the U.K. Government would pay these costs, no matter what caused them.

²⁹⁸ Initial central government funding was \$1,670 million for the cost of non-Olympic infrastructure at the Olympic Park and \$72 million for the Paralympics. Final central government funding is assumed to be \$9,997 million identified by October 2012 less \$603 million in contingency funds and \$242 million in savings identified by June 2013. ("Preparations for the London 2012 Olympic and Paralympic Games – Risk assessment and management," National Audit Office, February 2, 2007, at p. 13; "London 2012 Olympic and Paralympic Games Quarterly Report," Department of Culture, Media, and Sport, October, 2012, at p. 16; "London 2012 public sector funding package £528m under budget,"

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ii. 2010 Vancouver Winter Olympic Games

In 2010, Vancouver was the host city for the Winter Olympic Games. In comparison to Summer Olympic Games, Winter Olympic Games typical cost less.²⁹⁹ Vancouver submitted a bid in 2002 with an estimated total cost of \$1.8 billion,³⁰⁰ with OCOG costs accounting for 48 percent (\$874 million) and non-OCOG costs accounting for 52 percent (\$958 million) of the total estimated costs.³⁰¹ Twenty-six percent (or \$468 million) of the total estimated costs of \$1.8 billion was to be publicly funded, while the remaining 74 percent (or \$1.4 billion) was to be privately financed. While actual private non-OCOG spending is not available, actual public non-OCOG spending was about \$1 billion, more than two times the original bid estimate.³⁰² It is worth noting that

Continued from previous page

Department of Culture, Media, and Sport Press Release, July 16, 2013. For exchange rate conversion see footnote 287.)

\$9,997 million - \$603 million - \$242 million - \$1,670 million - \$72 million = \$7,410 million.

\$7,410 million / (\$8,322 million + \$168 million) = 87.3%.

²⁹⁹ As discussed in Section III, generally, the estimated budgets of Candidate Cities since 2008 have been twice as high for Summer Games as they have been for Winter Games.

³⁰⁰ “Vancouver 2010 Bid,” Vol. 1, at pp. 79 – 81. The Vancouver Bid used a conversion rate of 1.55 CAD = 1 USD.

³⁰¹ “Vancouver 2010 Bid,” Vol. 1 at pp. 71, 79, and 81; “Games Security and Public Safety for the Vancouver 2010 Olympic and Paralympic Games,” Royal Canadian Mounted Police, October 2012, available at <http://www.rcmp-grc.gc.ca/aud-ver/reports-rapports/pp-gs-ps-eval-eng.htm> (last accessed August 11, 2015) (“Games Security for Vancouver 2010”). The \$442 million in estimated public non-OCOG costs includes \$329 million in capital investments for venue construction and \$113 in security costs, not explicitly stated in the Candidate File. Vancouver costs and revenues discussed in this section are based on the exchange rate assumed in the “Vancouver 2010 Bid,” Vol. 1 at p. 79: 1 USD = 1.55 CAD.

OCOG costs refer to costs associated with Vancouver Organizing Committee (“Vancouver OCOG”)’s activities including Opening and Closing Ceremonies, and technology and workforce coordination. Similarly, non-OCOG refers to non-OCOG activities such as construction of venues and public infrastructure improvements for roads and railways.

³⁰² Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, June 27, 2014, available at <http://olympic.ca/press/vanoc-final-financial-report/> (last accessed August 11, 2015); Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Annual Financial Report at p. 18, December 17, 2010, available at http://www.fin.gov.bc.ca/reports/2010_VANOC_Financial_report_English.pdf (last accessed August 11, 2015); Rob VanWynsberghe. “Olympic Games Impact (OGI) Study for the 2010 Olympic and Paralympic Winter Games Post-Games Report,” October 23, 2013, at p. 94, available at

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\$3.2 billion of infrastructure spending (on a highway, rail line and convention center upgrades) that supported the Olympic Games is not counted here, of which 67 percent was publicly-funded.³⁰³

The Vancouver OCOG experienced costs overruns of 84 percent. As in the case of London, the increase in the Vancouver OCOG costs was balanced by higher revenues than initially projected to help the OCOG break even at the end of the Olympic Games.³⁰⁴ However, 64 percent of the \$738 million in increased “revenues” were actually contributions from the national and provincial governments.³⁰⁵ Thus, we categorize this as a public OCOG cost overrun in Table 11 below. The overrun was largely driven by \$187 million in contributions from *each* of the national and provincial governments, covering 96 percent of OCOG capital expenses for sports venues, none of which was projected in the initial bid.³⁰⁶

Continued from previous page

<http://circle.ubc.ca/bitstream/handle/2429/45295/OGI-UBC%20Post-Games%20Report%202013-10-23.pdf?sequence=4> (last accessed August 11, 2015).

³⁰³ Rob VanWynsberghe. “Olympic Games Impact (OGI) Study for the 2010 Olympic and Paralympic Winter Games Post-Games Report,” October 23, 2013, at p. 94. Initial estimated costs for these projects are not reported, with the exception of the Vancouver Convention Center discussed below.

³⁰⁴ “Vancouver 2010 Bid,” Vol. 1 at p. 81; Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, June 27, 2014; Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, December 17, 2010, at p. 18.

³⁰⁵ See “Government contributions” in Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, December 17, 2010, at pp. 17-18. For exchange rate conversion see footnote 300.

³⁰⁶ “Vancouver 2010 Bid,” Vol. 1 at p. 81; Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, December 17, 2010, at p. 18.

Table 11: Summary of Costs for the 2010 Vancouver Olympic Games (millions USD)

| | | Estimate (2002) | Actual (2010) | Cost Overrun | Percent Overrun |
|-----|--------------|----------------------------|--------------------------|-------------------------|----------------------------|
| | [a] | [b] | [c] | [d] | [e] |
| | OCOG | | | | |
| [1] | Public | \$26 | \$495 | \$470 | 1820% |
| [2] | Private | \$848 | \$1,116 | \$268 | 32% |
| [3] | | \$874 | \$1,612 | \$738 | 84% |
| | Non-OCOG | | | | |
| [4] | Public | \$442 | \$1,030 | \$588 | 133% |
| [5] | Private | \$516 | \$505* | (\$11) | -2% |
| [6] | | \$958 | \$1,534 | \$576 | 60% |
| [7] | Total | \$1,832 | \$3,146 | \$1,314 | 72% |

Sources & Notes:

*Actual private non-OCOG costs is equal to its estimated value plus an adjustment for private contributions to the development of the Vancouver Athletes' Village. See notes to [5][c] below for details.

[1][b],[3][b]: "Vancouver 2010 Bid," Vol. 1, at p. 81.

[2][b]: [3][b] - [1][b].

[4][b]: "Vancouver 2010 Bid," Vol. 1, at p. 71; "Games Security and Public Safety for the Vancouver 2010 Olympic and Paralympic Games," Royal Canadian Mounted Police, October 2012. Estimated public non-OCOG costs include \$329 million in capital investments for venue construction and an additional \$113 in security costs not explicitly stated in the bid. It does not include \$71 million for an endowment trust for legacy maintenance of venues.

[5][b]: [6][b] - [4][b].

[6][b]: "Vancouver 2010 Bid," Vol. 1, at p. 79; "Games Security and Public Safety for the Vancouver 2010 Olympic and Paralympic Games," Royal Canadian Mounted Police, October 2012. Estimated total non-OCOG costs include \$113 in security costs not explicitly stated in the bid.

[7][b]: [3][b] + [6][b].

[1][c]: Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, December 17, 2010, at pp. 17 and 18.

[2][c]: [3][c] - [1][c].

[3][c]: Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, June 27, 2014; Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games Final Financial Report, December 17, 2010, at p. 18. Capital expenditures are from the 2010 financial statements, while operational expenditures are from the 2014 financial statements because they were not finalized until the Vancouver OCOG dissolved in 2014.

[4][c]: Rob VanWynsberghe. "Olympic Games Impact (OGI) Study for the 2010 Olympic and Paralympic Winter Games Post-Games Report," October 23, 2013, at p. 94.

[5][c]: No official statistic was available for actual private non-OCOG costs, so we are unable to calculate cost overruns for private non-OCOG projects. To remain conservative, we assume the estimated private non-OCOG costs experienced no overruns, with the exception of the \$11 million in savings from smaller-than-anticipated private contribution to the development of the Vancouver Athletes' Village. See Table 12 for details.

[6][c]: [4][c] + [5][c].

[7][c]: [3][c] + [6][c].

[d]: [c] - [b].

[e]: [d] / [b].

Both the estimated and actual amounts are based on the exchange rate assumed in "Vancouver 2010 Bid," Vol. 1 at p. 79: 1.55 CAD = 1 USD.

The Athletes' Village in Vancouver was a major source of cost overruns in the 2010 Winter Olympic Games. Similar to the Master Developers envisioned in Boston's Bid but on a smaller scale, the City of Vancouver contracted with Millennium Properties Ltd. in 2006 to develop the Vancouver Athletes' Village and signed a three-way agreement in 2007 with Millennium and its private lender, Fortress Credit Corp., acting as Millennium's financial and completion guarantor.³⁰⁷ In 2008, Fortress stopped advancing additional funds to Millennium, forcing the City of Vancouver to take over Millennium's debt and become its lender.³⁰⁸ After the Olympic Games in 2010, Millennium defaulted on the City's loan and went into receivership. Not only was the cost of the project itself, at \$484 million, much higher than the initial estimate of \$108 million, but also the City of Vancouver was responsible for \$406 million in loans that Millennium never paid.³⁰⁹ This is 20 times more than the planned \$19 million public contribution at the time of the bid.³¹⁰ Even though the City eventually managed to recover its costs by selling off the housing units in the Athletes' Village, this was never assured, especially in the period following the 2007 recession.³¹¹

Table 12, below, highlights the funding and cost overruns specific to the Vancouver Athletes' Village.

³⁰⁷ "Olympic Village Chronology of Events and Community Benefits," City of Vancouver, April 28, 2014, available at <http://vancouver.ca/docs/sefc/olympic-village-fact-sheet.pdf> (last accessed August 11, 2015). A "completion guarantee" is a guarantee to the lender to complete the whole project to the original designs and specifications.

³⁰⁸ Michael De La Merced. "Fortress, the Hedge Fund, is Crumbling," The New York Times, December 4, 2008, available at <http://www.nytimes.com/2008/12/04/business/04place.html> (last accessed July 21, 2015); See also "Olympic Village Chronology of Events and Community Benefits," City of Vancouver, April 28, 2014.

³⁰⁹ "Olympic Village Chronology of Events and Community Benefits," City of Vancouver, April 28, 2014. For exchange rate conversion, see footnote 300.

³¹⁰ "Vancouver 2010 Bid," Vol. 1, at pp. 82-83.

³¹¹ "City involvement at Olympic Village costs taxpayers \$150 million," Business in Vancouver, April 27, 2014, available at <https://www.biv.com/article/2014/4/city-involvement-at-olympic-village-costs-taxpayer/> (last accessed July 17, 2015).

Table 12: Vancouver Athletes' Village, Vancouver 2010 (millions USD)

| | Estimate (2002) | Actual (2010) | Cost Overrun | Percent Overrun |
|------------------|--------------------|------------------|-----------------|--------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] Public | \$19 | \$406 | \$387 | 2000% |
| [2] Private | \$89 | \$77 | (\$11) | -13% |
| [3] Total | \$108 | \$484 | \$376 | 348% |

Sources & Notes:

[b]: "Vancouver 2010 Bid," Vol. 1, at pp. 82-83. The bid did not state whether the \$108 million estimated total cost included land acquisition costs.

[1][c]: "Olympic Village Chronology of Events and Community Benefits," City of Vancouver, April 28, 2014; "City involvement at Olympic Village costs taxpayers \$150 million," Business in Vancouver, April 27, 2014, available at <https://www.biv.com/article/2014/4/city-involvement-at-olympic-village-costs-taxpayer/> (last accessed July 17, 2015). The actual public cost includes \$406 million in debt that the city assumed when Millennium Development put itself in receivership. It does not include \$39 million in additional working capital debt the City of Vancouver owed to itself, \$110 million in land acquisition costs that the private developer was supposed to, but never paid to the City of Vancouver, as well as an additional \$32 million over the initial estimated cost to provide affordable housing units within the Village.

[2][c]: [3][c] - [1][c].

[3][c]: "Olympic Village Chronology of Events and Community Benefits," City of Vancouver, April 28, 2014; "Olympic Village Financial Arrangements," City of Vancouver, January 9, 2009, at p. 10. This does not include \$129 million in total land acquisition costs and \$81 million in contingencies.

[d]: [c] - [b].

[e]: [d] / [b].

Both the estimated and actual amounts are based on the exchange rate assumed in "Vancouver 2010 Bid," Vol. 1 at p. 79: 1.55 CAD = 1 USD.

Although not a part of the original bid budget, the expansion of the Vancouver Convention Center was key to Vancouver's venue planning. It was another project for which the government was liable for much more than was initially planned. The Convention Center was designated as the venue for the Media Center for the 2010 Winter Games, which increased pressures to complete the project on time and reduced procurement options.³¹² As shown in Table 13, the budget for the Convention Center was estimated at \$345 million in 2002. The final actual cost of the Convention Center was \$570 million, representing a 65 percent cost overrun. However, the Federal government's contribution did not increase from the original promised

³¹² "A Review of the Vancouver Convention Centre: Governance and Risk Management," Auditor General of British Columbia, October 2007, at pp. 3, 15-16, available at <http://www.bcauditor.com/sites/default/files/publications/2009/report3/report/review-vancouver-convention-centre-expansion-project.pdf> (last accessed August 11, 2015).

contribution of \$144 million. The British Columbia provincial government had to pay for the entire cost overrun.

Table 13: Vancouver Convention Center Expansion Costs (millions USD)

| | Estimate (2002) | Actual (2010) | Cost Overrun | Percent Overrun |
|------------------|--------------------|------------------|-----------------|--------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] Federal | \$144 | \$144 | \$0 | 0% |
| [2] Provincial | \$202 | \$426 | \$225 | 111% |
| [3] Total | \$345 | \$570 | \$225 | 65% |

Sources & Notes:

[b]: "A Review of the Vancouver Convention Centre Expansion Project: Governance and Risk Management," Auditor General of British Columbia, October 2007, at p. 14. The Vancouver Convention Centre was originally estimated to cost \$319 million, but public contribution was not determined until the total cost had risen to \$345 million in December 2002.

[c]: "A Review of the Vancouver Convention Centre Expansion Project: Governance and Risk Management," Auditor General of British Columbia, October 2007, at p. 29.

[d]: [c] - [b].

[e]: [d] / [b].

Both the estimated and actual amounts are based on the exchange rate assumed in "Vancouver 2010 Bid," Vol. 1 at p. 79: 1.55 CAD = 1 USD.

Like London, Vancouver underestimated the cost of security, although for different reasons. The initial estimated budget of \$113 million was developed in December of 2001, but did not fully take into account the complexity of providing security in a post-September 11 environment.³¹³ This estimated amount "was used for initial planning of safety and security," and "did not include all of the [Games Security and Public Safety] federal partners."³¹⁴ Some of the specific drivers of the cost overrun identified by the Royal Canadian Mounted Police include security equipment, training costs for personnel and exercises, infrastructure to accommodate security offices and personnel, and inflation from 2001 to 2010.³¹⁵ As seen in Table 14, the final total cost of security was \$560 million, almost five times the original budgeted amount.³¹⁶ The Province of British Columbia had to increase its contribution for security costs from \$56 million in 2006 to \$163

³¹³ "Games Security for Vancouver 2010."

³¹⁴ "Games Security for Vancouver 2010."

³¹⁵ "Games Security for Vancouver 2010."

³¹⁶ "Games Security for Vancouver 2010."

million in 2009. The Federal government picked up the remaining costs.³¹⁷ The \$447 million in cost overruns account for 76 percent of the total public non-OCOG cost overruns for the Vancouver Winter Games.³¹⁸

Table 14: Security Costs, Vancouver 2010 (millions USD)

| | Estimate (2002) | Actual (2010) | Cost Overrun | Percent Overrun |
|------------------|----------------------------|--------------------------|-------------------------|----------------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] Federal | \$56 | \$397 | \$341 | 603% |
| [2] Provincial | \$56 | \$163 | \$106 | 189% |
| [3] Total | \$113 | \$560 | \$447 | 396% |

Sources & Notes:

[b],[c]: “Games Security and Public Safety for the Vancouver 2010 Olympic and Paralympic Games,” Royal Canadian Mounted Police, October 2012, available at <http://www.rcmp.gc.ca/aud-ver/reports-rapports/pp-gs-ps-eval-eng.htm#fn36> (last accessed July 17, 2015).

[d]: [c] - [b].

[e]: [d] / [b].

Both the estimated and actual amounts are based on the exchange rate assumed in “Vancouver 2010 Bid,” Vol. 1 at p. 79: 1.55 CAD = 1 USD.

The Vancouver Athletes’ Village, the expansion of the Vancouver Convention Center, and high security costs resulted in major cost overruns for the Vancouver 2010 Winter Olympic Games. The process by which the overruns occurred was different across these three categories, as was the level of government from which funding was needed to cover additional expenses. Due to the financial and completion guarantees that the City of Vancouver signed for the Athletes’ Village, Vancouver had to bear the associated costs and risks produced by the economic downturn when both the developer and private lender encountered financial trouble. Despite initial agreements between the provincial and Federal government to evenly split the costs of the Convention Center and security, in each case one government was forced to take on much more than initially anticipated.

iii. 1996 Atlanta Summer Olympic Games

Atlanta was the host city for the 1996 Summer Olympic Games. In 1989, Atlanta submitted a bid for the 1996 Summer Olympic Games with a total estimated budget of \$1.3 billion. OCOG costs

³¹⁷ “Games Security for Vancouver 2010.”

³¹⁸ \$447 million / \$588 million = 76.1%.

accounted for 77 percent (or just over \$1 billion), and non-OCOG costs accounted for the remaining 23 percent (or \$300 million).³¹⁹ OCOG costs were expected to be funded entirely through private-financing while non-OCOG costs were expected to be funded entirely through public funding.³²⁰ Cost overruns during the Atlanta Olympic Games were also on a smaller scale than either London or Vancouver. The OCOG cost overruns were 71 percent, but were balanced by increased revenue. Unlike London and Vancouver, Atlanta was able to achieve this balance without public contributions.³²¹ The eventual public spending amounted to about \$823 million, or 174 percent above initial estimates. Of this, \$609 million came from the Federal government to support the planning and operation of the Games, and for indirect construction and transportation projects necessary to prepare and upgrade the City of Atlanta to host the Games.³²² None of the Federal government funding had been planned for in the original bid.³²³

³¹⁹ “Atlanta 1996 Bid,” Vol. 5, at pp. 87-88. OCOG costs refer to costs incurred by Atlanta Committee for the Olympic Games (“Atlanta OCOG”). Unlike London and Vancouver’s OCOG activities, the Atlanta OCOG was responsible for most of the construction for sports venues, estimated at \$418 million, in addition to the usual OCOG activities such as Opening and Closing Ceremonies and technology and workforce coordination.

³²⁰ The Atlanta bid did not explicitly outline non-OCOG activities and costs, except for the \$300 million contribution from the State of Georgia.

³²¹ “Planning and Organizing - The Official Report of the Centennial Olympic Games,” Vol. 1, at p. 222, available at <http://library.la84.org/6oic/OfficialReports/1996/1996v1.pdf> (last accessed August 11, 2015).

³²² “Olympic Games-Federal Government Provides Significant Funding and Support,” United States General Accounting Office, September 2000, at p. 29, available at <http://www.gao.gov/assets/160/156989.pdf> (last accessed August 11, 2015).

³²³ See footnote 320.

Table 15: Summary of Costs for the 1996 Atlanta Olympic Games (millions USD)

| | Estimate (1989) | Actual (1996) | Cost Overrun | Percent Overrun |
|-----------------------|----------------------------|--------------------------|-------------------------|----------------------------|
| [a] | [b] | [c] | [d] | [e] |
| [1] OCOG (Private) | \$1,005 | \$1,721 | \$716 | 71% |
| [2] Non-OCOG (Public) | \$300 | \$823 | \$523 | 174% |
| [3] Total | \$1,305 | \$2,544 | \$1,239 | 95% |

Sources & Notes:

[b]: “Atlanta 1996 Bid,” Vol. 5, at pp. 86-88. The estimated cost to the public refers to the commitment of at least \$300 million made by the State of Georgia to fund the construction of the Georgia Dome Stadium and the expansion of the World Congress Center, used as venues during the Olympic Games.

[1][c]: “Planning and Organizing - The Official Report of the Centennial Olympic Games,” Atlanta Committee for the Olympic Games, Vol. 1 at p. 222.

[2][c]: “Olympic Games-Federal Government Provides Significant Funding and Support,” United States General Accounting Office, September 2000, at p. 29; Leon Stafford and Tim Tucker. “New Falcons stadium cost could exceed \$1 billion,” The Atlanta Journal-Constitution, April 27, 2012, available at <http://www.ajc.com/news/news/local/new-falcons-stadium-cost-could-exceed-1-billion/nQTMw/> (last accessed July 23, 2015). Actual public cost includes \$185 million in federal funding for projects related to planning and staging the Games, \$424 million for indirect infrastructure projects necessary to prepare the City of Atlanta to host the Games, and \$214 million in state funding for the Georgia Dome, and may be understated because of lack of reliable data on the final state funding for the expansion of the World Congress Center.

[3][c]: [1][c] + [2][c].

[d]: [c] - [b].

[e]: [d] / [b]

As discussed earlier in Section III, most of the Atlanta sports venues have been host to various teams, both collegiate and professional. In particular, the Olympic Stadium was turned into Turner Field, currently home to the Atlanta Braves, and the Georgia Dome, currently home to the Atlanta Falcons.³²⁴ However, even though Atlanta largely avoided the problem of “white elephants” so far, both the Braves and the Falcons are relocating to new stadiums, which means their respective stadiums will have to attract other events to remain profitable.³²⁵

³²⁴ “Turner Field History,” available at <http://mlb.mlb.com/atl/ballpark/information/index.jsp?content=history> (last accessed August 3, 2015); “About the Georgia Dome,” available at <http://www.gadome.com/about/Default.aspx> (last accessed August 1, 2015).

³²⁵ “Atlanta Braves secure land for new stadium and integrated mixed-use community,” Atlanta Braves Press Release, available at <http://m.braves.mlb.com/news/article/63830868/atlanta-braves-secure-land-for-new-stadium-and-integrated-mixed-use-community> (last accessed August 1, 2015); J. Scott Trubey and Maria Saporta. “Falcons want open air stadium north of GWCC,” Atlanta Business Chronicle,

Continued on next page

iv. 2016 Rio de Janeiro Summer Olympic Games

Rio will be the host city for the Summer Olympic Games in 2016. In 2008, in its bid for the Olympic Games, Rio estimated \$14.4 billion in total costs with OCOG costs accounting for 20 percent (\$2.8 billion), and non-OCOG costs accounting for 80 percent (\$11.6 billion) of the total estimated costs.³²⁶ An estimate released in January 2014 showed that the estimated OCOG expenses had already risen by 24 percent to \$3.5 billion. The same update also showed that non-OCOG construction costs for the Tennis Center, Aquatics Center, and Velodrome were all double their original estimates.³²⁷ And at \$1.5 billion, the cost of the Athletes' Village was more than triple the original 2008 estimate of \$427 million.³²⁸ The construction of the Athletes' Village is currently completely privately funded although, like the other cities mentioned above, the Federal, State, and City governments have signed financial guarantees to finance any potential OCOG and certain non-OCOG shortfalls.³²⁹ A more recent estimate from May 2015 puts the current costs of the Rio Games at \$20 billion, almost 40 percent higher than initially estimated.³³⁰

Continued from previous page

available at <http://www.bizjournals.com/atlanta/stories/2010/05/17/daily40.html> (last accessed August 1, 2015).

³²⁶ "Rio de Janeiro 2016 Candidature File," Vol. 1 at pp. 125-127, available at <http://doc.rero.ch/record/20998?ln=en> (last accessed August 3, 2015) ("Rio de Janeiro 2016 Bid"). The Rio de Janeiro Bid used a conversion rate of 2 BRL = 1 USD. Bid estimates detailed for Rio in this section are in 2008 USD.

³²⁷ Paul Kiernan. "Rio's Summer Olympics Likely to Cost More Than Original Estimates," *The Wall Street Journal*, January 29, 2014, available at <http://www.wsj.com/articles/SB10001424052702304428004579351220839194230> (last accessed July 30, 2015).

³²⁸ "Rio de Janeiro 2016 Bid," Vol. 1, at p. 129; "Responsibility Matrix," *Autoridade Publica Olimpica*, January 28, 2014, available at <http://www.apo.gov.br/index.php/matrix/responsibility-matrix/> (last accessed July 30, 2015). Converted to dollars using the same conversion rate as specified in the bid book of 2 BRL = 1 USD.

³²⁹ "Rio de Janeiro 2016 Bid," Vol. 1, at p. 115. See also "Responsibility Matrix," *Autoridade Publica Olimpica*, January 28, 2014, available at <http://www.apo.gov.br/index.php/matrix/responsibility-matrix/> (last accessed July 30, 2015).

³³⁰ Stephen Eisenhammer. "500 days out, Rio risks Olympics cost surge as building lags," *Reuters*, May 8, 2015, available at <http://www.reuters.com/article/2015/05/09/us-olympics-brazil-idUSKBN0NT0BT20150509> (last accessed August 3, 2015).

Construction efforts have also been significantly delayed, meaning the rush to complete the required venues will likely lead to more cost overruns.³³¹

v. 2020 Tokyo Summer Olympic Games

Tokyo will be the host city for the 2020 Summer Olympic Games. In its bid in 2012, Tokyo put forth an estimated total cost of \$8.3 billion, with OCOG costs accounting for 41 percent (\$3.4 billion) and non-OCOG costs accounting for 59 percent (\$4.9 billion) of the total estimated cost.³³²

The single largest project is the Olympic Stadium, estimated at \$1.5 billion, representing over a third of the \$4.4 billion budgeted for all capital expenditures, or nearly one-fifth of the total estimated Olympic Games budget.³³³ However, by July 2015 the estimated costs for the Olympic Stadium had already risen to \$2.9 billion, almost double the original estimate.³³⁴ As a result, the government of Japan has decided to halt the project and start completely from scratch.³³⁵ Zaha Hadid Architects (“ZHA”), the firm responsible for the design of the Olympic Stadium in Tokyo, stated that the cost overruns are due not to the complex designs of the Olympic Stadium, but rather to the steep rise in construction and labor costs in Japan, exacerbated by the early selection of contractors without a sufficiently competitive process. ZHA warned that the construction costs in Tokyo are not forecasted to decrease, and therefore future projects will continue to face rising costs.³³⁶

³³¹ Stephen Eisenhammer. “500 days out, Rio risks Olympics cost surge as building lags,” Reuters, May 8, 2015.

³³² “Tokyo 2020 Candidature File,” Vol. 1, at pp. 74-78, available at <http://doc.rero.ch/record/23193?ln=en> (last accessed August 3, 2015) (“Tokyo 2020 Bid”). The Tokyo Bid used a conversion rate of 88 JPY = 1 USD. Bid estimates detailed for Tokyo in this section are in 2012 USD.

³³³ “Tokyo 2020 Bid,” Vol. 1, at p. 80.

³³⁴ Jonathan Soble. “Japan Scraps Olympic Stadium Plan Over \$2 Billion Price Tag,” The New York Times, July 17, 2015, available at <http://www.nytimes.com/2015/07/18/world/asia/japan-scraps-stadium-plan-for-2020-tokyo-olympics-over-2-billion-price-tag.html> (last accessed July 30, 2015). Converted at the same exchange rate as used in the bid estimate (88 JPY = 1 USD).

³³⁵ Jonathan Soble. “Japan Scraps Olympic Stadium Plan Over \$2 Billion Price Tag,” The New York Times, July 17, 2015.

³³⁶ “New National Stadium, Japan,” Zaha Hadid Architects, July 28, 2015, available at <http://www.zaha-hadid.com/2015/07/28/new-national-stadium-tokyo-japan-statement-by-zaha-hadid-architects/> (last accessed July 30, 2015).

d. Cost Overruns in Other Mega-Projects

This section documents the prevalence of cost overruns in non-Olympic mega-projects with a focus on transportation-related projects. We describe examples of mega projects that experienced cost overruns and potential reasons for the discrepancies between estimated costs and final expenditures.

In recent years, a growing body of academic literature has concluded that cost overruns are becoming widespread in mega-projects. For instance, one academic analysis evaluated 258 transportation infrastructure projects and concluded that nine out of ten projects exceeded their initial cost estimates.³³⁷ They reported that rail projects experienced average cost overruns of 45 percent, tunnel and bridge construction projects experienced average cost overruns of 34 percent, and road projects experienced average cost overruns of 20 percent. Overall, the average cost overrun in the sample of 258 infrastructure projects was 28 percent above estimated initial cost.

Evidence clearly suggests that the risks for underestimating project expenditures that may lead to cost overruns are prevalent for mega-projects. However, as the authors of *Megaprojects and Risk* note: “the weaknesses of the conventional approach [to megaproject development] can be overcome by emphasizing risk, institutional issues and accountability.”³³⁸ Thus, identifying key risks for cost overruns or contractor bankruptcy on mega-projects, such as uninsured project financing by private firms or preemptively negotiating contracts with capital replacement and other performance and expenditure guarantees, can go a long way to limit taxpayer exposure to cost overruns. As discussed in more detail below, Bid 2.0 proposed using many of these mitigation techniques. However, at its current stage of development, Bid 2.0 could only propose such mitigation in general terms. Specific insurance, surety bond offerings, or other mitigation efforts cannot be evaluated until the risks being mitigated are better defined. For example, as discussed in more detail below, insurance premiums are priced to cover expected risks; until those risks are defined with specific project proposals submitted to actual bidders, it is not possible to estimate premiums, or even to characterize them as “large” or “small.”

³³⁷ Bent Flyvbjerg, Mette Skamris Holm & Soren Buhl. “Underestimating Costs in Public Works Projects: Error or Lie?” *Journal of the American Planning Association*, November 2007.

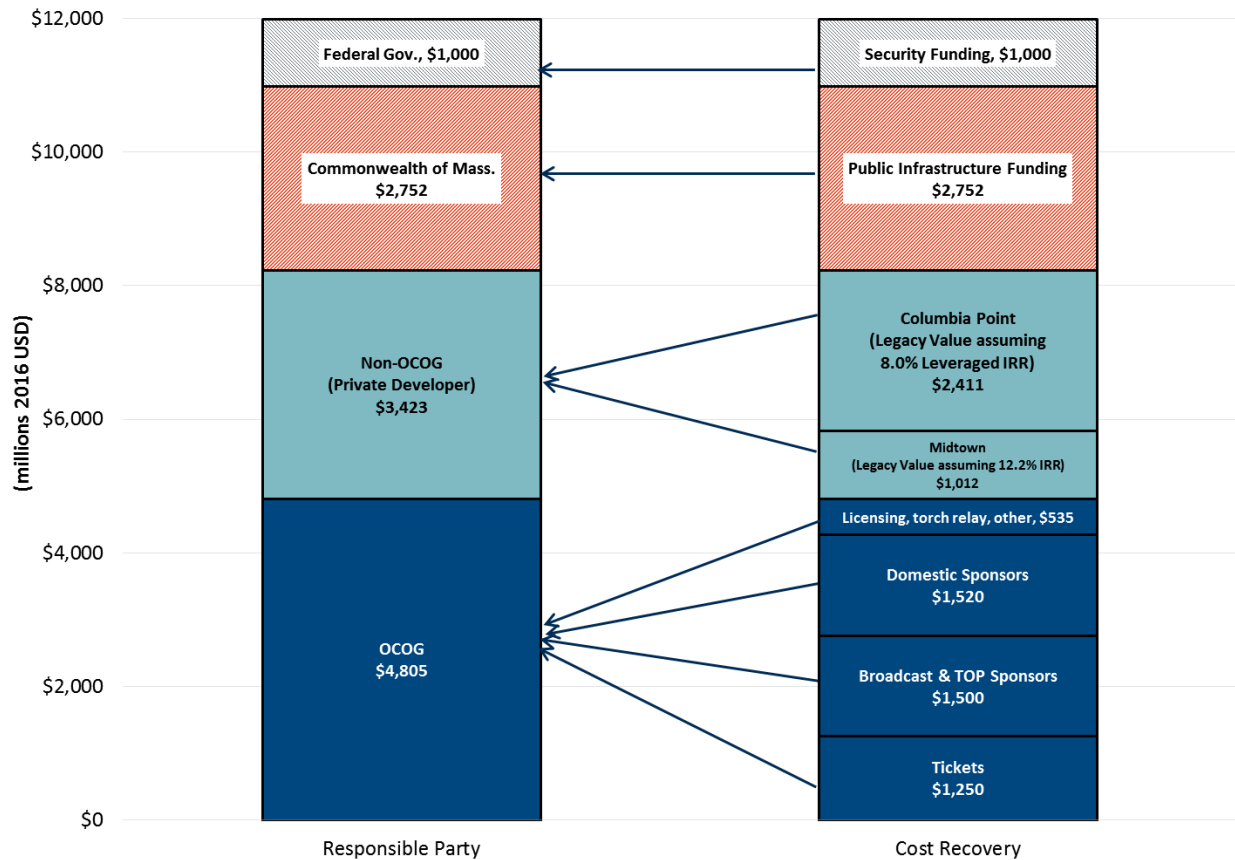
³³⁸ Bent Flyvbjerg, Nils Bruzelius & Werner Rothengatter, *Megaprojects and Risk: An Anatomy of Ambition* (Cambridge, U.K.: Cambridge University Press), March 2003.

2. Revenue Risks

a. Sources of Revenue as Proposed

As show in Figure 6 below, the primary sources of operating revenues proposed in Bid 2.0 to fund the OCOG portion of the Boston 2024 bid were broadcast and TOP sponsors, ticketing, and domestic sponsors.

Figure 6: Boston 2024 Bid 2.0 Revenues by Party (millions 2016 USD)



Sources & Notes:

OCOG: Revenue sources were reported in 2016 dollars. "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22.

Non-OCOG: Midtown cost estimates were reported in 2016 dollars. "Bid 2.0," Midtown Development Plan, pp. 66-67. The Midtown legacy value is equal to the cost assuming a 12.2% IRR. Columbia Point estimates were reported in 2015 dollars. We have grown this amount at a 3.0% inflation rate to bring to 2016 dollars. "Bid 2.0," Columbia Point Development Plan, pp. 59, 64, 67. The Columbia Point legacy value is equal to the cost assuming an 8.0% Leveraged IRR.

Public Infrastructure: Is equal to the estimated cost of the nine projects that were expected to be funded by the Commonwealth of Massachusetts and MassDOT; see Figure 4 in Section III.

Security: Is equal to the estimated cost of security operations; see Figure 4 in Section III.

The non-OCOG costs of the Columbia Point and Midtown developments were intended to be funded by master developers in exchange for development rights. As mentioned in Sections III

and IV, Boston 2024 estimated that private developers would have 8.0 percent and 12.2 percent rates of return for the Columbia Point and Midtown development projects, respectively. The Boston 2024 bid analysis suggests that if developers were willing to accept those rates of returns for those projects, and that its analysis is otherwise sound, developers would be willing to commit \$2.41 billion and \$1.01 billion for those investment opportunities.

Public infrastructure projects were planned to be funded by public infrastructure budgets. As described further in Section VI, a large portion of the estimated costs have already been funded, and some projects are underway. Boston 2024 provided no information as to whether certain funds would flow through the state from the Federal government.

Security dollars were expected to be funded by the Federal government. The impact of hosting the Olympic Games on local and state public safety agencies remains unknown, but likely would have been substantial.

b. Organizing Committee Potential Revenue Shortfalls

Primary OCOG revenues are derived from domestic sponsors, broadcast and TOP sponsors, and ticket sales.³³⁹ When analyzing revenues generated by the Olympic Games, it is important to understand the different contexts under which they were generated. For example, starting with the 2010 Vancouver Winter Games, the IOC provided the OCOGs with a revenue contribution instead of allowing the OCOG direct revenue from broadcast activities.³⁴⁰ Similarly, broadcast revenues have increased dramatically over the past several decades as a result of increased worldwide television viewership. The OCOGs traditionally manage the domestic sponsorship, ticketing, and licensing programs in their country, under the direction of the IOC, whereas the IOC manages the broadcast partnerships, the TOP Sponsorship Programme, and the IOC official supplier and licensing program.³⁴¹

³³⁹ We highlight these revenue sources here for illustration, however other revenue sources can include “official suppliers,” licensing, and in certain Games, lotteries. See, for example, “London 2012 Bid,” Vol. 1, at p. 103.

³⁴⁰ “2014 Olympic Marketing Fact File,” IOC, at p. 7, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

³⁴¹ “2014 Olympic Marketing Fact File,” IOC, at p. 6, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

Ticket revenues in prior Summer Olympic Games, beginning with the 1996 Atlanta Games, are highlighted in Table 16. Ticket revenues generated since the 1996 Games have typically outpaced initial estimates.

However, as is discussed in the following section, security (and other) risks can dramatically affect these estimates, and therefore it is important to understand the likelihood and severity of potential shortfalls, and ways in which Boston 2024 was attempting to mitigate some of these risks.

Table 16: Revenue from Olympic Ticket Sales (millions USD)

| Year | City | Estimated Ticket Revenue | Tickets Available | Tickets Sold | % Tickets Sold | Revenue to OCOG | % Increase in Revenue Over Estimates |
|------|---------|--------------------------|-------------------|--------------|----------------|-----------------|--------------------------------------|
| [a] | [b] | [c] | [d] | [e] | [f] | [g] | [h] |
| 1996 | Atlanta | \$171 | 11.0 | 8.3 | 75.0% | \$425 | 149% |
| 2000 | Sydney | \$120 | 7.6 | 6.7 | 88.0% | \$551 | 357% |
| 2004 | Athens | \$212 | 5.3 | 3.8 | 71.0% | \$228 | 7% |
| 2008 | Beijing | \$167 | 6.8 | 6.5 | 95.6% | \$185 | 11% |
| 2012 | London | \$491 | 8.5 | 8.2 | 97.0% | \$998 | 103% |
| 2016 | Rio* | \$243 | N/A | N/A | N/A | N/A | N/A |
| 2020 | Tokyo* | \$568 | N/A | N/A | N/A | N/A | N/A |
| 2024 | Boston* | \$1,250 | N/A | N/A | N/A | N/A | N/A |

Sources & Notes:

Estimated revenues are in dollars and have been converted to USD using the Games year exchange rate, except for Rio and Tokyo, which have been converted to USD using an average 2015 exchange rate. Final revenue to the OCOG is reported in dollars, and has been assumed to be as of the year of the Games since the IOC Olympic Marketing Fact File does not specify. Sydney estimated revenues are assumed to be as of 1993. USD/EUR 1997 exchange rate assumed equal to 1998. Boston 2024 estimates are in 2016 dollars. Boston 2024 estimates it would have been able to reach \$1,450 million based on future games.

[a]: Year of Games

[b]: Host city. Boston 2024 is proposed/estimated.

[c]: Tokyo 2020, Rio 2016, London 2012 and Atlanta 1996 Bids; Jeffrey G. Owen. "Estimating the Cost and Benefit of Hosting Olympic Games: What Can Beijing Expect from Its 2008 Games?" available at <http://igeographer.lib.indstate.edu/owen.pdf> (last accessed July 13, 2015).; "The Olympic Market Newsletter," Issue 17, September 2000, at p. 7, available at http://www.olympic.org/documents/reports/en/en_report_275.pdf (last accessed July 28, 2015); "Official Report of the XXVIII Olympiad," Athens 2004 Organizing Committee, at p. 131, available at <http://library.la84.org/6oic/OfficialReports/2004/or2004a.pdf> (last accessed July 28, 2015); "Boston 2024 Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20.

[d] – [g]: "2014 Olympic Marketing Fact File," IOC, at p. 30, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

[h]: [g] / [c] – 1.

Ticket sales for mega-events such as the Olympic Games and the World Cup can be negatively impacted by safety and security concerns. Concerns in Rio have centered around violence and

pollution, while London and Sochi were both marred by international terrorist threats.³⁴² Ticket revenues have the potential to be negatively impacted by a variety of factors, from low-level concerns, such as politically motivated nations refusing to participate in the Olympic Games or environmental concerns like perceptions of air and water quality, which might undermine consumer interest, to catastrophic terrorism threats, which would have much more serious consequences.

Sponsorship revenue, both domestically generated and via the IOC's TOP Programme, can also pose a potential risk to an OCOG.³⁴³ An OCOG faces both the risk that it will not be able to secure sponsors for the domestic sponsorship program and, if it does secure sponsors, the risk that sponsors will not fulfill their obligations and pay their pledged amount. However, as shown below in Table 17 and Table 18, past revenues from domestic sponsorships and the TOP Programme have typically been greater than initial bid estimates.

³⁴² Brian Michael Jenkins. "The Terrorist Threat to the Sochi Olympics," RAND, available at <http://www.rand.org/blog/2014/01/the-terrorist-threat-to-the-sochi-olympics.html> (last accessed July 15, 2015); See also "London 2012: Olympic Missile Tenants in Terrorist Fear," BBC News, available at <http://www.bbc.com/news/uk-england-london-18765062> (last accessed July 15, 2015).

³⁴³ The organizing committees receive sponsorship revenues from two primary avenues: domestic sponsorships and the IOC TOP ("The Olympic Partner") Programme. The domestic sponsorships are generated by the OCOG and the NOC, whereas the TOP Programme is run by the IOC, which then provides a portion of the revenue to the OCOG. See "2014 Olympic Marketing Fact File," IOC, at pp. 7, 11, 12 and 17, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

Table 17: Revenue from Domestic Sponsorships (millions USD)

| Year | City | Estimate in Initial Bid | Number of Partners | Revenue to OCOG | % Increase in Revenue Over Estimates |
|------|---------|-------------------------|--------------------|-----------------|--------------------------------------|
| [a] | [b] | [c] | [d] | [e] | [f] |
| 1996 | Atlanta | \$255 | 111 | \$426 | 67% |
| 2000 | Sydney | \$179 | 93 | \$492 | 174% |
| 2004 | Athens | \$302 | 38 | \$302 | 0% |
| 2008 | Beijing | \$155 | 51 | \$1,218 | 687% |
| 2012 | London | \$431 | 42 | \$1,150 | 167% |
| 2016 | Rio* | \$182 | N/A | N/A | N/A |
| 2020 | Tokyo* | \$603 | N/A | N/A | N/A |
| 2024 | Boston* | \$1,520 | N/A | N/A | N/A |

Sources & Notes:

Estimated revenues are in dollars and have been converted to USD using the Games year exchange rate, except for Rio and Tokyo, which have been converted to USD using an average 2015 exchange rate. Final revenue to the OCOG is reported in dollars, and has been assumed to be as of the year of the Games since the IOC Olympic Marketing Fact File does not specify. Sydney estimated revenues are assumed to be as of 1993. USD/EUR 1997 exchange rate assumed equal to 1998. Boston 2024 estimates are in 2016 dollars.

[a]: Year of Games.

[b]: Host city. Boston 2024 is proposed/estimated.

[c]: Tokyo 2020, Rio 2016, London 2012 and Atlanta 1996 Bids; Jeffrey G. Owen. "Estimating the Cost and Benefit of Hosting Olympic Games: What Can Beijing Expect from Its 2008 Games?" available at <http://igeographer.lib.indstate.edu/owen.pdf> (last accessed July 13, 2015).; "The Olympic Market Newsletter," Issue 17, September 2000, at p. 7, available at http://www.olympic.org/documents/reports/en/en_report_275.pdf (last accessed July 28, 2015); "Official Report of the XXVIII Olympiad," Athens 2004 Organizing Committee, at p. 131, available at <http://library.la84.org/6oic/OfficialReports/2004/or2004a.pdf> (last accessed July 28, 2015); "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 20.

[d] – [e]: "2014 Olympic Marketing Fact File," IOC, at p. 17, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

[f]: [e] / [c] – 1.

Table 18: Estimated* Revenue from IOC TOP Programme (millions USD)

| Year | City | Estimate in Initial Bid | Revenue to OCOG | % Increase in Revenue Over Estimates |
|------|----------|-------------------------|-----------------|--------------------------------------|
| [a] | [b] | [c] | [d] | [e] |
| 1996 | Atlanta | \$85 | \$84 | -2% |
| 2000 | Sydney | \$78 | \$174 | 123% |
| 2004 | Athens | \$118 | \$199 | 69% |
| 2008 | Beijing | \$155 | \$260 | 68% |
| 2012 | London | \$297 | \$285 | -4% |
| 2016 | Rio** | \$195 | N/A | N/A |
| 2020 | Tokyo** | \$245 | N/A | N/A |
| 2024 | Boston** | N/A | N/A | N/A |

Sources & Notes:

*Actual OCOG TOP revenues are estimated since the IOC does not provide these in its Marketing Fact File. As a result, these estimates may differ from what the OCOGs actually generated for the Games. See note [d] for details on our estimation.

Bid estimated revenues are in dollars and have been converted to USD using the Games year exchange rate, except for Rio and Tokyo, which have been converted to USD using an average 2015 exchange rate. Final revenue to the OCOG is reported in dollars, and has been assumed to be as of the year of the Games since the IOC Olympic Marketing Fact File does not specify. Sydney bid estimates are assumed to be as of 1993. USD/EUR 1997 exchange rate assumed equal to 1998. Boston 2024 does not provide total estimated TOP Programme revenue separate from broadcast revenues.

[a]: Year of Games.

[b]: Host city. Boston 2024 is proposed/estimated.

[c]: Tokyo 2020, Rio 2016, London 2012 and Atlanta 1996 Bids; Jeffrey G. Owen. "Estimating the Cost and Benefit of Hosting Olympic Games: What Can Beijing Expect from Its 2008 Games?" available at <http://igeographer.lib.indstate.edu/owen.pdf> (last accessed July 13, 2015).; "The Olympic Market Newsletter," Issue 17, September 2000, at pp. 6-7, available at http://www.olympic.org/documents/reports/en/en_report_275.pdf (last accessed July 28, 2015); "Official Report of the XXVIII Olympiad," Athens 2004 Organizing Committee, at p. 131, available at <http://library.la84.org/6oic/OfficialReports/2004/or2004a.pdf> (last accessed July 28, 2015).

[d]: Actual revenue from the TOP Programme was estimated as follows: 30% of total TOP Programme revenue was contributed to the Summer OCOG (50% shared between Summer and Winter Games OCOGs, with Summer receiving 30% and Winter receiving 20%). See Hossein Eydi, and Hamed Farzi, "Comprehensive Review of Olympic Movement Marketing," *Universal Journal of Management* 2(1): 26-33, 2014, at pp. 29, 32. For total TOP Programme revenue, see "2014 Olympic Marketing Fact File," IOC, at p. 7, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

[e]: [d] / [c] – 1.

Although TOP and Tier One sponsorship have grown in international appeal as evidenced by Rio's significant increase in the number of major "Tier One" sponsors since its original bid, and

Tokyo's signing more TOP sponsors than Boston 2024 had included in its estimates, an economic downturn remains a serious threat to these revenues.³⁴⁴ An economic slowdown or recession might make it difficult to secure the necessary number of sponsors as major corporations would likely have tighter budgets and significantly reduced funds to spend on Olympic sponsorship opportunities. Even if an OCOG is able to secure and commit enough sponsors, unforeseen circumstances such as default could arise which would prevent major sponsors from fulfilling their obligations. There is also risk in addition to generic default risk. For instance, a company may no longer see value in sponsoring the Olympics. In the 2002 Salt Lake City Games, Johnson & Johnson backed out of a \$30 million deal with the USOC after it was unable to decide how to incorporate all of its brands and after the scandal involving payoffs from organizers to IOC members. Other sponsors also expressed concern over the value of their sponsorships after the scandal.³⁴⁵

Boston 2024's proposed insurance policy, careful selection of sponsors, and the timing of contractual agreements may have mitigated the risk of sponsorship shortfalls. Boston 2024's insurance policy was expected to include provisions that compensated Boston 2024 in the event that there were shortfalls in revenues from committed sponsors. Selection of sponsors with good credit ratings decreases the risk of default; furthermore, the underwriter that insures the Olympic Games would likely have vetted any committed sponsors, adding a layer of scrutiny to the selection process. Finally, the six-year length of the marketing period could likely overcome any recessionary environment. We understand that in the recent Great Recession sponsorships temporarily declined across the major sports, but even financial institutions and auto companies, which were severely impacted by the crisis, bounced back within a two-year span. The six-year marketing period is longer than that of typical ebbs in the market; once markets returned to normal conditions, one would expect sponsorship interest to return as well, offsetting any temporary setbacks in sponsorship revenues. However, given sponsorship revenues are more

³⁴⁴ Atsuko Fukase. "2020 Tokyo Olympics Attract Record Sponsorship," WSJ, available at <http://blogs.wsj.com/japanrealtime/2015/04/15/2020-tokyo-olympics-attract-record-sponsorship/> (last accessed August 17, 2015). See also, Associated Press. "Rio 2016 sponsorship sales to surpass 2012 Olympics, organizers say," Fox Sports, available at <http://www.foxsports.com/olympics/story/rio-2016-olympics-sponsorship-sales-to-surpass-2012-london--120314> (last accessed August 17, 2015).

³⁴⁵ "Since the scandal broke late last year, however, many firms have expressed concern that it has tarnished the value of sponsoring the Olympics." Thomas Goetz. "Johnson & Johnson Terminates Talks to Sponsor 2002 Salt Lake City Games," WSJ, available at <http://www.wsj.com/articles/SB924476270147863187> (last accessed July 14, 2015).

heavily concentrated in the years just before the Games, an ill-timed economic downturn could still pose a risk.

Lastly, the OCOGs generate revenue via broadcasting of the Olympic Games. The IOC, as opposed to the OCOG itself, manages the program and then provides a portion of the total proceeds to the organizing committee. The Olympic Charter dictates that the goal is “to ensure the fullest coverage by the different media and the widest possible audience in the world for the Olympic Games.”³⁴⁶ The IOC recently signed an agreement with NBC Universal through 2032 for all broadcast rights to the Olympic Games. The agreement from 2021 to 2032 is valued at \$7.65 billion, plus an additional \$100 million signing bonus to be used for the “promotion of Olympism and the Olympic values between 2015 and 2020.”³⁴⁷ This contract removes fluctuations in expected broadcasting revenues, reducing the risk that revenues will be lower than expected, but also reducing the possibility they will be higher.

These fees are tied to the continued centrality of broadcasting as the way most people view Olympic Games. However, technological changes pose risks to the future of the existing broadcast system for live sporting events. Smartphones, tablets, and laptop computers are increasingly used to view traditional television programming, including live sporting events, instead of watching these events on television, a phenomenon called “cord cutting.” As more consumers switch to alternative viewing media, traditional broadcast networks, the source of IOC television rights fees, could experience disruptive competition from alternative sources of coverage, potentially jeopardizing rights fees.

Table 19 shows both estimates and actual revenue from broadcast from past games.

³⁴⁶ “IOC Olympic Charter,” at p. 93, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 13, 2015).

³⁴⁷ “IOC Awards Olympic Games Broadcast Rights to NBCUniversal Through to 2032,” IOC, available at <http://www.olympic.org/news/ioc-awards-olympic-games-broadcast-rights-to-nbcuniversal-through-to-2032/230995> (last accessed July 28, 2015).

Table 19: Revenue from IOC Broadcast Rights (IOC Contribution) (millions USD)

| Year | City | Estimate in Initial Bid | Revenue to OCOG | % Increase in Revenue Over Estimates |
|------|---------|-------------------------|-----------------|--------------------------------------|
| [a] | [b] | [c] | [d] | [e] |
| 1996 | Atlanta | \$549 | \$546 | -1% |
| 2000 | Sydney | \$423 | \$797 | 88% |
| 2004 | Athens | \$633 | \$733 | 16% |
| 2008 | Beijing | \$844 | \$851 | 1% |
| 2012 | London | \$594 | \$713 | 20% |
| 2016 | Rio* | \$392 | N/A | N/A |
| 2020 | Tokyo* | \$578 | N/A | N/A |
| 2024 | Boston* | N/A | N/A | N/A |

Sources & Notes:

Bid estimated revenues are in dollars and have been converted to USD using the Olympic Games year exchange rate, except for Rio and Tokyo, which have been converted to USD using an average 2015 exchange rate. Final revenue to the OCOG is reported in dollars, and has been assumed to be as of the year of the Olympic Games since the IOC Olympic Marketing Fact File does not specify. Sydney estimated revenues are assumed to be as of 1993. USD/EUR 1997 exchange rate assumed equal to 1998. Boston 2024 did not provide total estimated broadcast revenues separate from TOP Programme revenue.

[a]: Year of Games.

[b]: Host city. Boston 2024 is proposed/estimated.

[c]: Tokyo 2020, Rio 2016, London 2012 and Atlanta 1996 Bids; Jeffrey G. Owen. "Estimating the Cost and Benefit of Hosting Olympic Games: What Can Beijing Expect from Its 2008 Games?" available at <http://igeographer.lib.indstate.edu/owen.pdf> (last accessed July 13, 2015).; "The Olympic Market Newsletter," Issue 17, September 2000, at p. 7, available at http://www.olympic.org/documents/reports/en/en_report_275.pdf (last accessed July 28, 2015); "Official Report of the XXVIII Olympiad," Athens 2004 Organizing Committee, at p. 131, available at <http://library.la84.org/6oic/OfficialReports/2004/or2004a.pdf> (last accessed July 28, 2015).

[d]: "2014 Olympic Marketing Fact File," IOC, at p. 7, available at http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf (last accessed July 17, 2015).

[e]: [d] / [c] – 1.

3. Security Risks

Olympic Games security is both costly and a source of great uncertainty. The high profile of Olympic Games makes them attractive targets for terror attacks. Olympic security concerns have been paramount since the disastrous 1972 Olympic Games during which eight Palestinian

terrorists broke into the Athletes' Village, killing two members of the Israeli team, taking, and eventually murdering nine hostages.³⁴⁸ The Centennial Park bombing at the 1996 Atlanta Games and the terror attacks of September 11, 2001 have continued to increase security concerns and efforts related to ensuring the Olympic Games are not disrupted by terror attacks.

The importance of security is recognized as a national, rather than local, concern and responsibility. Consequently, it is anticipated in Bid 2.0 that the security costs of the Olympic Games will be borne by the Federal government. The Federal government ultimately committed approximately \$225 million for safety and security during the 2002 Salt Lake City Winter Games.³⁴⁹ Security costs are expected to be significantly greater for the 2024 Olympic Games, however, as indicated by much higher security costs for the recent 2012 London Summer Olympic Games, where security costs were estimated to be \$1.4 billion, about \$400 million more than proposed in the Boston's Bid 2.0.³⁵⁰

Although these costs are seen as a federal responsibility, they require significant participation by state and local public safety agencies. The security personnel required for the London Olympic Games was double initial projections—the initial estimate was for 10,000 London security force personnel, but the Games ultimately required over 20,000 military and security personnel.³⁵¹ While there are no comparable personnel estimates currently available in Boston's Bid 2.0, Boston 2024 expected to receive designation as a National Special Security Event, meaning the Federal government would have been required to provide security funding and support through the Secret Service, FBI, and FEMA, in addition to local agencies.³⁵²

³⁴⁸ "More About Munich 1972," available at <http://www.olympic.org/munich-1972-summer-olympics> (last accessed July 5, 2015).

³⁴⁹ Michael Janofsky. "A Nation Challenged: Salt Lake City Security; New Look for the Olympics: Warplanes and Troop Patrols," NYT, available at <http://www.nytimes.com/2002/01/10/us/nation-challenged-salt-lake-city-security-new-look-for-olympics-warplanes-troop.html> (last accessed July 5, 2015).

³⁵⁰ "London 2012 public sector funding package £528m under budget," Department of Culture, Media, and Sport Press Release, July 16, 2013. This includes £423 in policing and wider security and £429 in venue security. The total £852 million is converted to US dollars using Boston 2024's assumed exchange rate of 1 GBP = 1.55 USD.

³⁵¹ Nick Hopkins and Owen Gibson. "Olympics Security Bill: How it Soared to More than £1bn," The Guardian, available at <http://www.theguardian.com/sport/2012/mar/09/olympics-security-bill-how-it-soared> (last accessed August 3, 2015).

³⁵² "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 50.

The potential financial risks to Boston and the Commonwealth related to cost recovery. Based on past Olympic Games budgets and security needs, Boston 2024 estimated that approximately \$1 billion would have been needed to provide security during the Olympic Games in Boston—largely for preparatory and preventative efforts, and most of it would have been spent even in the absence of public safety incidents.³⁵³ Should a terror attack occur, additional costs would have been incurred. While the exact nature of the added response would not be known prior to the incident, it is likely that the response to any incident will likely involve significant participation from state and local public safety agencies. The risk is whether or not all of these additional costs would ultimately be reimbursed by the Federal government or insurance claims.

Security measures were stepped up for the Boston Marathon after the bombing in April 2013 that killed three and injured more than 260 others. Extra costs associated with emergency response, increased security, and investigations were completely reimbursed by FEMA and the Department of Justice, with the exception of increased hospital costs.³⁵⁴ The 2014 Marathon saw approximately 3,500 uniformed officers, double the number from the year before, patrolling the streets, aided by plain clothed officers and National Guard personnel.³⁵⁵ The number of police officers remained high in 2015, and the Department of Homeland Security supported the Marathon with approximately 1,200 federal officials.³⁵⁶ While there has been no official cost estimate of the increased security measures, police authorities say that it is substantial and borne by the eight cities hosting the race, as well as regional, state, and federal law enforcement agencies.³⁵⁷

³⁵³ “Assessing the Olympics, Preliminary Economic Analysis of a Boston 2024 Games – Impacts, Opportunities, and Risks,” UMass Donahue, Economic and Public Policy Research, March 2015, pp. 12, 19. available at <http://www.tbf.org/~media/TBFOrg/Files/Reports/Boston%20Olympics%20Report.pdf> (last accessed August 12, 2015).

³⁵⁴ “After Action Report for the Response to the 2013 Boston Marathon Bombings,” Commonwealth of Massachusetts, December 2014, at pp. 68-69.

³⁵⁵ “Marathon Security to Include 3,500 Police; Backpacks Discouraged,” CBS Boston, available at <http://boston.cbslocal.com/2014/03/10/boston-marathon-security-plans-to-be-detailed/> (last accessed July 16, 2015).

³⁵⁶ “Boston Marathon Two Years Later...A Coordinated Effort for Security,” Department of Homeland Security, available at <http://www.dhs.gov/blog/2015/04/20/boston-marathon-two-years-later%E2%80%A6a-coordinated-effort-security> (last accessed July 16, 2015).

³⁵⁷ “Officials Increase Security Measures for 2015 Boston Marathon” Framingham Patch, available at <http://patch.com/massachusetts/framingham/officials-increase-security-measures-2015-boston-marathon-0> (last accessed July 16, 2015).

C. Risk Bearing

Boston 2024's plan for hosting the 2024 Olympics in Boston was presented in Bid 2.0, as described above in Section III. The plan laid out expectations as to what parties would have been responsible for various expected costs and were expected to receive revenues from various sources. If all went as planned, each party—OCOC, non-OCOG (Midtown and Athletes' Village master developers), the Commonwealth (for infrastructure costs), and the Federal government (for security costs)—would have made its expected contribution to the Olympic Games. If all did not go as planned, however, the costs borne by the parties could have looked very different. This subsection reviews who bears the risks outlined in the previous section.

1. IOC Not Risk Bearer

As discussed above, it is clear that the IOC will not bear *any* of the financial risks associated with the Olympic Games. It has no interest in taking on any financial risks associated with individual games. Given the competition among cities to host the Olympic Games, the IOC is in a sufficiently strong bargaining position that it does not have to accept any financial risk associated with individual Olympic Games. The 1984 Summer Games is the only recent example of the IOC consenting to have risk not guaranteed. Notably, bidding for this Olympic Games lacked competition among host cities. The previous Olympic Games had witnessed large cost overruns and political violence, creating little demand for hosting the 1984 Summer Games. Los Angeles stepped in as the only bidder after striking a deal with the IOC.³⁵⁸

2. National Olympic Committee

The National Olympic Committee—the USOC—has limited ability to bear risk. It, like the local organizing committee, does not provide any financial guarantees. However, unlike Boston 2024, it is not a temporary organization set up solely for a particular Olympic bid, and it is dependent on various revenue streams from the Olympic Games. These revenues, in addition to local donations to the organization, provide it with funds to support the U.S. Paralympics, Olympic Training Centers, coaching programs, and sports medicine, among many other efforts.³⁵⁹

³⁵⁸ “Los Angeles and the 1984 Olympic Games,” The Boys and Girls Clubs of Venice, California, <http://www.bgcv.org/Websites/bgcv/Images/20thAnniversary.pdf> (last accessed August 5, 2015).

³⁵⁹ “Team USA 2012 Annual Report,” at p. 21, available at <http://www.teamusa.org/footer/finance> (last accessed July 16, 2015).

Therefore, the USOC itself bears some risk in that it depends on revenues generated from the Olympic Games, however USOC has little it can do to mitigate that risk.

3. Local Organizing Committee

The Local Organizing Committee—to which Boston 2024 was functionally the predecessor³⁶⁰—can nominally take on risk. However, its ability to bear risk is also limited. Boston OCOG would not have borne the majority of financial risk associated with hosting the Olympic Games. Instead, it would have been in charge of coordinating the Olympic Games and establishing other parties, private and public, as the primary risk bearers. The financial guarantees, for example, would not have been provided directly by the Boston OCOG, but instead by various private, city, and state authorities, as previously discussed. It would have been able to partially mitigate risks borne by others by exerting control over some costs and certain revenues streams (ticketing and domestic sponsorships), as well as by requiring certain levels of insurance, but the organization itself would not have borne any substantial financial risk.³⁶¹ Consequently, most risks it would have taken on would have ultimately been borne by others.

4. Federal Government

The Federal government would have been responsible for security costs. Although those costs can be a significant part of the total cost of hosting Olympic Games, in the United States the Federal government will certainly be able to pay these costs.³⁶² Any uncertainty or risk would be purely political, for example, if for some unprecedented reason the Federal government chose not to reimburse state and local governments for their security costs.

³⁶⁰ As described above, the official OCOG is established by the bid committee and the USOC in the case of a successful, winning bid.

³⁶¹ Separately, Boston 2024 had purchased approximately \$1 million in insurance premiums, which would cover a \$25 million payment that it would have been required to pay the USOC in the case of a breach of the Bid City Agreement by Boston 2024 or the City of Boston prior to October 2017. See “Boston 2024 Partnership, Inc., Financial Statements for Period Ended December 31, 2014,” available at <http://www.mass.gov/ago/docs/nonprofit/boston-2024-financials.pdf> (last accessed July 16, 2015).

³⁶² The Federal government has paid for security expenses in all prior U.S. Olympic Games, since at least the 1980 Winter Games in Lake Placid, NY. See the November 2001 report titled “Olympic Games: Costs to Plan and Stage the Games in the United States,” U.S. GAO, at pp. 8, 12, 14 and 17, available at <http://www.gao.gov/new.items/d02140.pdf> (last accessed August 11, 2015).

5. Commonwealth of Massachusetts and Taxpayers

Given the structure of required financial guarantees, if Boston had been awarded the 2024 Olympic Games, the state and local governments—and ultimately Massachusetts taxpayers—would have borne significant financial risks of the Olympic Games.

D. Analysis of Risks

An analysis of risks can help to explain who ultimately is responsible when things go wrong. This section traces through the impacts of the realization of any of the risks identified above on the parties that would have been responsible for the Olympic Games. The taxpayers of the Commonwealth would have been the ultimate risk bearers. But there were potentially several layers of other risk bearers who would have absorbed at least some of the impacts of adverse outcomes before the final responsibility would have fallen on taxpayers.

1. Structure of responsibility

The risks associated with Bid 2.0 would have had an impact on both the revenue and expenditure sides of the ledger. While the City of Boston and the Commonwealth would have had to underwrite all of the risks of the Olympic Games, as described above in the section on Letters of Guarantee, it is the Commonwealth that ultimately would have assumed the risks associated with hosting the Olympic Games, as the City of Boston would be limited in its capacity to do so, and the proposed contingency fund would not have covered multiple realized risks.

Sections IV and VI discuss the individual risks associated with each cost and revenue source. Here we focus on what would have happened in the event any of those risks had been realized. The risks of an adverse revenue or cost event are first the responsibility of the party assigned the cost or revenue. As noted, however, the required financial guarantees meant that these risks would have ultimately flown through the responsible parties to the Commonwealth.

Bid 2.0 envisioned that several of the cost categories and funding sources would have had some level of insurance, discussed in more detail below. At a high level, Bid 2.0 envisioned that OCOG costs associated with Columbia Point and Midtown would have been insured by developers that took on those responsibilities. Similarly, construction insurance was intended to cover the construction cost overrun risk of the venues and IBC/MPC for which OCOG would have been responsible. Finally, OCOG was expected to have limited insurance to cover some revenue shortfalls and other events, at a cost of \$128 million. As discussed below, these insurance policies would not have eliminated the risk, but would have helped reduce it.

Depending on the specific cost or revenue and the potential mitigation from insurance, the responsible party may or may not have been able to absorb extra costs or reduced revenues. For example, should ticket sales have fallen below expectations or insufficient sponsorship have been secured, and for non-exceptional reasons as covered by the revenue insurance, OCOG may not have had sufficient revenue to meet its obligations if such losses exceeded its reserves. In that case the financial Letters of Guarantee would specify the ultimate responsible party. It is anticipated that the shortfall would have been the responsibility of the City of Boston and the Commonwealth as the ultimate guarantors of the Olympic Games, as the IOC may have perceived the City of Boston as unable to be the ultimate guarantor.

Unlike the OCOG, the non-OCOG responsible parties would have had access to capital and resources to absorb some degree of cost overruns not covered by insurance. The master developers who would have taken on those responsibilities, along with the partners they subcontract with, would have expected to make profits from their participation in the Olympic Games. Those expected profits would have provided a cushion or shock-absorber that could have covered some amount of unexpected costs. But the ability of those entities to absorb unexpected costs would have been limited. Should unexpected and uninsured costs have reached some threshold—conceptually the amount of additional costs that would make them insolvent—they may have gone bankrupt. In that case, the guarantors of the Olympic Games—the City of Boston and the Commonwealth—would have had to step in to ensure the construction required for the Olympic Games was completed.

Finally, the risks associated with public infrastructure spending would have fallen completely on the Commonwealth. These costs were already the responsibility of the Commonwealth and any cost overruns would have been borne by the Commonwealth, just as any non-Olympic-related infrastructure cost overruns would have been. Security was expected to be paid by the Federal government, and there is no significant precedent for the Federal government not meeting this obligation.

2. Conclusions on Residual Risk for Taxpayers

The nature of the risks of hosting the Olympic Games and their implications for the Commonwealth would have varied significantly. Whereas public infrastructure spending was already the Commonwealth's responsibility (and security risks were expected to be absorbed by the Federal government), the OCOG-related risks would have been "first dollar" risks in that any shortfall in OCOG revenues over OCOG expenditures would have had to have been met by the

City of Boston and the Commonwealth. For non-OCOG risks, smaller adverse events would have been expected to be covered by the master developers and their insurance policies, but larger adverse events that push the master developers into insolvency could have created significant cost shifting to the City of Boston and the Commonwealth.

E. Risk Mitigation

1. Insurance

Insurance allows an individual or organization to trade an uncertain outcome for a certain one. An insurance company, by averaging over many risks, only needs to charge premiums that cover the expected cost of the insurance policy. That is, for example, if your \$100,000 house has a one-in-1,000 chance of burning down in the next year, the insurance company only has to charge \$100 in annual premiums.³⁶³ Homeowners find this attractive because the consequences of losing a home would be devastating, while the cost of the insurance is relatively small. Insuring outcomes of an Olympic Games follows the same logic. Although it is not averaged over many Olympic Games, the underwriter can share the risk with other underwriters and, when combined with a portfolio of other insured risks, only require premiums roughly equal to the expected outcome of the insurance policy. The premium on the insurance policy needs to cover only the expected value of the costs of claims, in this case, expected cost overruns or revenue shortfalls.

2. Potentially Insurable Components of Boston 2024's Bid

Boston 2024, with the help of Mintz Levin, a general practice law firm, and Aon and Willis Group, had proposed purchasing comprehensive insurance coverage to help shield the Commonwealth from potential cost overruns and revenue shortfalls. Boston 2024's bid outlined three categories of insurance coverage:

- **Construction Insurance:** As part of the construction bid process contractors would have been required to purchase insurance that would guarantee financing and completion of athletic and non-athletic venues. Construction insurance would have helped offset OCOG's potential risks in the construction of the IBC/MPC and all athletic venues, but at the added cost of the insurance. Boston 2024 would not have known the terms of such

³⁶³ \$100,000 / 1,000 = \$100.

insurance (including the premiums or the level of insurance provided) until a contractor was selected.

- **Private Developer Insurance:** As part of the master developer bid process for Midtown and Columbia Point, developers would have been required to purchase insurance which would guarantee financing and completion of the projects. Private Developer insurance would have helped offset the potential risk to the City of Boston and the Commonwealth of bearing the cost of the Midtown and Columbia Point projects. Such insurance, of course, would have added to the developers' costs and could have affected the required rate of return for taking on the development projects.
- **OCOG Insurance:** Boston 2024 had proposed purchasing a \$128 million insurance plan that would have covered several contingencies, including potential revenue shortfalls from committed sponsors and potential shortfalls in ticketing revenues due to event cancellation and loss of appeal, indemnity and liability insurance, and an umbrella insurance policy. Between 55 and 82 percent of the \$128 million in insurance premiums was expected to go towards the indemnity, liability, and the umbrella insurance policies; a portion of the coverage would have been for revenue shortfall related policies which are described in further detail below.³⁶⁴ OCOG insurance would have helped offset OCOG's potential risk of revenue shortfalls and other contractual liabilities.

a. Construction Insurance

Table 20 outlines all types of insurance contracts that Boston 2024 proposed to require contractors to purchase as part of the venue bid process. The three primary forms of insurance relate to assurance of venue construction, builders' risk policies that would have protected against uncontrollable circumstances such as fire and flood, and professional liability protection which provides coverage against contractor mismanagement.³⁶⁵ Contractors would have paid the premiums for the required insurance coverage, and the exact amount of coverage would have depended on the construction costs of the particular project. According to Boston 2024, "[a]ll major construction and infrastructure projects typically utilize this type of program in order to

³⁶⁴ 55% = (\$60 million + \$10 million)/\$128 million. 82% = (\$90 million + \$15 million)/\$128 million. See items 6 and 8 in Table 21 below.

³⁶⁵ "Boston 2024: Insurance Overview," July 2015, at p. 8.

manage risk.”³⁶⁶ Combining these policies may have offset potential delays in construction and cost overruns.

Bid 2.0 provided no estimates of either the amount of coverage that these plans would have provided or of the premiums that contractors would have to pay to secure such coverage. This is because construction insurance is typically available only at the time of construction, once the design, permitting, and other details of the construction project are known. In contrast, the proposed construction in Bid 2.0 was at a conceptual level, and there were too many unknowns at the time of this Report for the plans (and related cost estimates) to be insurable.

Table 20: Construction Insurance

| Type: | Insured Parties: | Risks typically covered: |
|--|--|---|
| [1] Venue Construction <ul style="list-style-type: none"> • Surety Bond • Performance Bond | Contractors; Boston 2024; City of Boston | Surety and performance bonds come into play if the contractor cannot finish the project (e.g. default) or the project experiences significant delays; they cover the cost of replacing or supplementing the contractor. |
| [2] Bid Bonds | Contractors; Boston 2024; City of Boston | Bid bond guarantees that once a bid is made, the bidder will perform the contract if it wins the bid. |
| [3] Liability | Contractors; Boston 2024; City of Boston | Liability insurance covers damage to people or other people’s property during the construction phase. |
| [4] Property | Contractors; Boston 2024; City of Boston | Property insurance covers damage to the project itself. |
| [5] Builders’ Risk | Contractors; Boston 2024; City of Boston | Builders’ Risk insurance provides protections for contractors if costs run over for insurable reasons (e.g. delayed due to fire, flood, or loss of materials in transit). |
| [6] Professional Liability (with cost overrun coverage) | Contractors; Boston 2024; City of Boston | Professional liability policies provide coverage if a contractor mismanages the services it provides, including schedules and logistics. |

Sources & Notes:

“Boston 2024: Insurance Overview,” July 2015, at p. 8.

b. Private Developer Insurance

Boston 2024 proposed requiring that private developers purchase insurance as part of the Midtown and Athletes’ Village bid process. In addition to requiring their contractors to purchase

³⁶⁶ “Boston 2024: Insurance Overview,” July 2015, at p. 7.

the forms of insurance detailed in Table 20, private developers would have been required to purchase capital replacement protection. Capital replacement ensures adequate financing for a project through completion, in case the developer cannot continue due to lack of funding. The amount of coverage would have depended on the cost of construction.

c. Organizing Committee Insurance

Table 21 outlines all types of insurance contracts that Boston 2024 had suggested it planned to purchase through its \$128 million plan. According to Boston 2024, the insurance plan would have offset both potential revenue shortfalls from committed TOP and domestic sponsors and losses in ticketing revenue and also potential liabilities. The eight primary forms of insurance included protection against event cancellation, potential damages if the City of Boston was unable to host the games, trade credits in the event that a sponsor could not fulfill its obligation, potential reductions in ticket sales due to losses of appeal and terrorist threats, liability insurance, various employee insurance policies, and an all-encompassing excess risk coverage, which would have added a broad layer of additional protection.

Table 21: OCOG Insurance Plan

| | Type: | Insured Parties: | Risks Typically Covered: | Amount of Coverage: | Expected Premium: |
|-----|--|---|---|----------------------------|-----------------------------|
| [1] | Event Cancellation | Boston 2024; City of Boston | Event cancellation insurance covers the costs incurred and loss of revenue suffered if an event is cancelled (or relocated) through no fault of the organizer. | \$500 million | \$5 million - \$7 million |
| [2] | Host City Contract/ Games Operating Agreement | Boston 2024; City of Boston | This insurance would cover damages owed to the International Olympic Committee if Boston was chosen as a Host City but was unable to meet its obligations under the Host City Contract/Games Operating Agreement. | \$100 million | \$3 million - \$5 million |
| [3] | Trade Credit | Boston 2024; City of Boston | This type of insurance would step in to provide coverage if a sponsor of the Olympics could not meet its obligations (e.g., becomes insolvent or cannot make payments in accordance with the agreed to terms and conditions). | \$100-\$200 million | \$1 million - \$2.5 million |
| [4] | Loss of Appeal | Boston 2024; City of Boston | Loss of appeal insurance provides coverage for reduced ticket sales and attendance if the events become less appealing, if, for example, a competitor country drops out of the event. It could also cover a loss of advertising or broadcast revenue in such an instance. | \$350 million | \$1 million - \$2.5 million |
| [5] | Terrorism | Boston 2024; City of Boston | Terrorism insurance provides coverage for the loss of revenue and other financial losses in the event of a terrorist attack. | \$250 million | \$1 million - \$2.5 million |
| [6] | Public Liability & Indemnity | Boston 2024; Commonwealth of Massachusetts; USOC; IOC; City of Boston | This is a common type of insurance used by business owners. It provides coverage if a person, or their property, is injured on the insured's property or by an insured's employee. It also provides coverage for contractual liability. | \$500 million | \$60 million - \$90 million |
| [7] | Various miscellaneous | Boston 2024; City of Boston | This includes auto, travel and other coverage for employees (and, if needed, for participants) of the Games. | TBD | \$1 million - \$3 million |
| [8] | All-Risk Excess Coverage | Boston 2024; City of Boston | Excess insurance is a kind of "umbrella" policy that provides additional coverage over and above the amounts insured under the Public Liability, Event Cancellation, and OCOG and Host City Contract policies. | \$500 million | \$10 million - \$15 million |

Sources & Notes:

"Boston 2024: Insurance Overview," July 2015, at pp. 10 – 11.

d. Timing and Cost of Insurance

Although none of the insurance plans proposed by Boston 2024 would have required public funding from the City of Boston or the Commonwealth, the protection for contractors, private developers, and the Boston OCOG could have provided multiple layers of protection to the City of Boston and to the Commonwealth against cost overruns and revenue shortfalls.³⁶⁷ Of course, as noted, not every contingency is insurable; insurance for scope creep—expansions in what is included in preparing for an Olympic Games—could be prohibitively expensive because it could increase the likelihood of scope changes. It was also too early in the bid process to evaluate the expected cost of the proposed insurance plans; the cost and terms of many of the types of insurance that Boston 2024 proposes would not have been known until a contractor was selected.³⁶⁸ The costs of such plans would have been sensitive to the details of the final Bid requirements. For example, insurance against cost overruns is very sensitive to how well costs have been estimated because every dollar of expected overruns will be included in the calculation of premiums. Until actual proposals are developed for real bidders to submit binding bids, the cost of the major insurance items would be uncertain. Although details about various components of the Bid were continuously being developed by Boston 2024, sufficiently detailed information to evaluate the costs of the proposed insurance policies were still years away.

3. Insurer Performance Risk

The use of insurance generally reduces risks, but does create two new types of risks that must be factored into any risk assessment. The first is policy performance risk, which refers to the ability to get a legitimate claim paid in a timely manner. As an initial matter, the validity of some claims may be questionable and may require a period of time for dispute resolution or litigation to resolve. Furthermore, even if a claim is admitted as valid, it can be advantageous for an insurance underwriter to delay payment. This can lead to incentives for the insurance underwriter to take a skeptical view to the validity of claims. The central problem with having to resolve a disputed claim, even if the dispute is resolved favorably for the insured, is that it can

³⁶⁷ “Boston 2024: Insurance Overview,” July 2015, at p. 3.

³⁶⁸ Most of the insurance proposed by Boston 2024 would have required unique policies written for the Games. Without more specific proposals of what to insure, it is difficult to evaluate whether or not underwriters would have stepped forward to offer insurance policies. Nevertheless, we assume that at the right price anything can be insured, so in the text we discuss the cost of the insurance, but not its actual eventual availability.

delay the timing of insurance payments. Delayed payments could have created additional financing costs and exposed the City of Boston and the Commonwealth to additional liability.

Although rare, a second risk associated with taking insurance is the solvency risk of the underwriter or underwriters. A guarantee of payment is only as good as the ability of the guarantor to pay. The amounts envisioned to be insured related to the bid are significant sums, in some cases measured in the billions of dollars. Although insurers are skilled at managing their own risk by syndicating the risk and reselling portions to other underwriters, there is nevertheless the chance that one or more underwriters keeps more risk than they can absorb. (This issue goes beyond the Olympics risk being insured—an underwriter can become insolvent for reasons other than its Olympic-related insurance.) As the ultimate guarantor of the Olympic Games, the City of Boston and the Commonwealth would have also borne the risks related to insurer performance.

F. Additional Key Responsibilities, Risks, and Costs to the Commonwealth

In addition to the financial guarantees, discussed above, other aspects of hosting the Olympic Games would have involved costs and risks to the Commonwealth. These include IOC requirements beyond strictly financial guarantees and issues such as lost property tax revenues on property and increased overtime for Commonwealth personnel. Although direct costs related to venue construction represent an important element of Olympic Games bids, these additional requirements can also be costly, especially to state and local governments.

1. Additional IOC Requirements and Potential Responsibilities and Risks to the Commonwealth

a. Advertising Space Devoted to Olympic Games

Olympic Charter Rule 50 and its by-law give the IOC Executive Board extensive control over nearly all advertising or publicity around the Olympic Games and prohibit any non-Olympic advertising in or around all Olympic sites.³⁶⁹ Additionally, the Host City is obligated to follow all directives in the IOC's Technical Manual on Brand Protection with regard to advertising in and around the Olympic Games and to enforce brand protection for the IOC.³⁷⁰

³⁶⁹ "IOC Olympic Charter," at p. 95, available at http://www.olympic.org/Documents/olympic_charter_en.pdf (last accessed July 13, 2015).

³⁷⁰ "Technical Manual on Brand Protection," IOC, available at

Among the Letters of Guarantee required by the IOC, one relates to advertising space; all outdoor advertising space, advertising space on public transport, and advertising space at airports are to be temporarily acquired at bidding year rates adjusted solely for inflation for the duration of the Olympic Games and for one month prior to the Olympic Games.³⁷¹

Historically, not all Candidate Cities have been able to actually obtain *complete* control over their advertising space. Most have been able to ensure that a majority of the advertising space would be available to the Olympic Games organizers and corporate sponsors, with the price in general being the average price over some reference year plus inflationary adjustments.³⁷²

Nevertheless, Host Cities may actually experience increased spending on advertisement during the period of the Games. For instance, the London outdoor advertising industry reportedly witnessed a 30 percent increase in advertisement spending on media such as billboards, taxis, and buses in the period including the 2012 Games,³⁷³ including spending by non-official sponsors such as Nike to compete with rival official sponsors.³⁷⁴

b. Lost Taxes Due to Tax Exemption Required by the IOC

The IOC eliminates almost all Olympic Games-related tax liability from itself, its affiliates and enterprise partners, Olympic athletes,³⁷⁵ sponsors, and individuals or groups associated with the

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http://www.gamesmonitor.org.uk/files/Technical_Manual_on_Brand_Protection.pdf (last accessed July 13, 2015) (“Technical Manual on Brand Protection”).

³⁷¹ “2022 Candidature Procedure and Questionnaire,” at p. 114, available at http://www.olympic.org/Documents/Host_city_elections/FINAL_2022_Candidature_Procedure_and_Questionnaire-FINAL.pdf (last accessed July 13, 2015). See also, “Technical Manual on Brand Protection,” at p. 60.

³⁷² “Chicago 2016 Bid,” Vol. 1, at p. 129; “London 2012 Bid,” Vol. 1, at p. 113; and “Report of the 2016 IOC Evaluation Commission,” at p. 16, available at http://www.olympic.org/Documents/Reports/EN/en_report_1469.pdf (last accessed July 14, 2015).

³⁷³ “Olympics and Paralympics deliver outdoor advertising boost,” The Guardian, available at <http://www.theguardian.com/media/2012/aug/21/olympics-paralympics-outdoor-advertising> (last accessed July 23, 2015).

³⁷⁴ “Olympics and Paralympics deliver outdoor advertising boost,” The Guardian, available at <http://www.theguardian.com/media/2012/aug/21/olympics-paralympics-outdoor-advertising> (last accessed July 23, 2015).

³⁷⁵ The 2022 Host City Contract limits this to athletes that are not residents of the Host Country, however, previous Host City Contracts have required earnings exemptions for all Olympic athletes. See “Host City Contract: XXIV Olympic Winter Games in 2022,” IOC, at pp. 46-47, available at

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Olympic Games.³⁷⁶ The IOC requires the Host City or the OCOG to pay *all* taxes due *anywhere in the world* on *any* payment made to or from the IOC or an IOC-affiliated organization along with certain tax exemptions from every level of government in the Host Country for others in the Olympic Family.³⁷⁷ The required tax exemptions also apply to any income athletes earn from their NOCs for winning medals as well as import or export duties.³⁷⁸

This special tax treatment would implicitly make Massachusetts taxpayers responsible for some of the cost of hosting the Olympic Games. If this economic activity were generated from hosting some other athletic event, such as the NFL Super Bowl or NCAA Final Four, taxes would be collected. *Presumably, some of these provisions require the city, state, and federal governments to enact specific legislation exempting certain individuals and groups from taxes they normally would be required to pay.*³⁷⁹

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http://www.olympic.org/Documents/Host_city_elections/Host-City-Contract-XXIV-Olympic-Winter-Games-in-2022--Beijing-Execution-no-signature.pdf (last accessed August 4, 2015) (“2022 Host City Contract”); “Host City Contract: Games of the XXXII Olympiad in 2020,” IOC, at p. 54, available at http://www.teamusa.org/~media/TeamUSA/Media/Host_City_Contract_2020.pdf (last accessed July 17, 2015) (“2020 Host City Contract”).

³⁷⁶ “Host City Contract: XXIV Olympic Winter Games in 2022,” IOC, at pp. 46-48, available at http://www.olympic.org/Documents/Host_city_elections/Host-City-Contract-XXIV-Olympic-Winter-Games-in-2022--Beijing-Execution-no-signature.pdf (last accessed August 4, 2015) (“2022 Host City Contract”); “Host City Contract: Games of the XXXII Olympiad in 2020,” IOC, at pp. 53-54, available at http://www.teamusa.org/~media/TeamUSA/Media/Host_City_Contract_2020.pdf (last accessed July 17, 2015) (“2020 Host City Contract”).

³⁷⁷ “2022 Host City Contract,” at pp. 46-48; “2020 Host City Contract,” at pp. 53-54; “Host City Contract: Games of the XXX Olympiad in 2012,” IOC, at p. 28, available at <http://www.gamesmonitor.org.uk/files/Host%20City%20Contract.pdf> (last accessed July 17, 2015) (“2012 Host City Contract”).

³⁷⁸ “2020 Host City Contract,” IOC, at pp. 46-47, 56. See also “2022 Candidature Procedure and Questionnaire,” at p. 78, available at http://www.olympic.org/Documents/Host_city_elections/FINAL_2022_Candidature_Procedure_and_Questionnaire-FINAL.pdf (last accessed July 13, 2015).

³⁷⁹ Prior to the 2012 Olympics tax exemptions for individual workers or sponsors were not required. In response to the new provisions of the 2012 Host City Contract, the U.K. Government did enact legislation that exempted non-residents from income tax liability for work related to the Games and which prevented such activities from establishing liability for their employer for corporate tax purposes. See for example, “2010 No. 2913 Income Tax Corporation Tax, The London Olympic Games and Paralympic Games Tax Regulations 2010,” available at http://www.legislation.gov.uk/ukxi/2010/2913/pdfs/ukxi_20102913_en.pdf (last accessed July 23, 2015).

Estimating the value of lost taxes due to the IOC-required tax exemptions is extremely difficult because they would have applied to so many different types of economic activities and such a large number of individuals and organizations. However, because Boston 2024 forecasted that the Olympic Games would have generated billions of dollars in revenues, the foregone corporate income tax on these revenues would clearly have been substantial.³⁸⁰ For some comparison, the total amount of lost tax revenues as a result of the tax concessions for the London 2012 Olympic Games was suggested to be “in the tens of millions of pounds.”³⁸¹

Special tax exemptions are sometimes used, and some can be justified economically, for example, to induce businesses to locate in a specific jurisdiction. In deciding to offer tax exemptions, however, elected officials weigh the relative costs and benefits on a case-by-case basis. The IOC’s requirement would have required an amendment to the tax laws with no such deliberation.

c. Special Treatment of the “Olympic Family”

The IOC requires very specific commitments and services for what it calls the “Olympic Family,” including welcoming receptions, limousines and uniformed chauffeurs, separate airport entrances and exits, and general courtesies for IOC members.³⁸² They have also extended to narrowly prescribed commitments, such as specifying the precise room temperatures, hotel minibars restricted to sponsored brand names, and no street vendors allowed starting two weeks prior to the Olympic Games.³⁸³ The IOC’s Technical Manuals provide many of these minute

³⁸⁰ “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 22.

³⁸¹ Karolina Tetlak. “The taxpayer as the unofficial sponsor of the London 2012 Olympic Games,” *The International Sports Law Journal*, Vol. 13, Issue 1-2, at p. 102. The average quarterly exchange rate through June 2015 was 1 GBP = 1.52 USD.

³⁸² Ben Mathis-Lilley. “The IOC Demands That Helped Push Norway Out of the Winter Olympic Bidding Are Hilarious,” *The Slate*, available at http://www.slate.com/blogs/the_slatest/2014/10/02/ioc_demands_oslo_drops_bid_after_over_the_top_list_of_requirements.html (last accessed July 16, 2015). See also Mike Singer. “IOC demands smiles, ridiculous perks ahead of 2022 Olympic bid,” *CBSSports.com*, available at <http://www.cbssports.com/general/eye-on-sports/24732982/ioc-demands-smiles-ridiculous-perks-ahead-of-2022-olympic-bid> (last accessed July 16, 2015).

³⁸³ Tony Manfred. “Here’s The Absurd List Of Hosting Demands For The 2022 Olympics That No One Wants,” *Business Insider*, available at <http://www.businessinsider.com/ioc-demands-perks-from-2022-olympic-hosts-2014-10> (last accessed July 16, 2015); Ben Mathis-Lilley. “The IOC Demands That Helped Push Norway Out of the Winter Olympic Bidding Are Hilarious,” *The Slate*, available at

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details, including securing all function space in contracted hotels, and prioritizing all ticket distribution to client groups before the public, which impose costs on the Host City.³⁸⁴

Indeed, demands for special treatment for the Olympic Family were among the factors that led to Oslo's withdrawal from the bid process in 2014. Oslo had been a leading contender to host the 2022 Winter Games, but lost the support of local citizens. Among various reasons highlighted in the media, certain demands from the IOC, including special Olympic lanes (discussed below) and a private cocktail reception with the King of Norway at the OCOG's or royal family's expense were listed as contributing factors for lack of support.³⁸⁵

d. Guarantee for the Delivery of Olympic Lanes

While there is no requirement that a Host City provide dedicated Olympic traffic lanes, 23 of the 25 bids to host the Olympic Games between 2008 and 2020 did promise dedicated lanes for "Olympic traffic."³⁸⁶ Should a bid include an Olympic lane traffic system,³⁸⁷ the IOC requires a

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http://www.slate.com/blogs/the_slatest/2014/10/02/ioc_demands_oslo_drops_bid_after_over_the_top_list_of_requirements.html (last accessed July 16, 2015).

³⁸⁴ "Technical Manual on Hospitality," IOC, at p. 29, available at http://www.gamesmonitor.org.uk/files/Technical_Manual_on_Hospitality.pdf (last accessed July 16, 2015); "Technical Manual on Ticketing," IOC, at p. 83, available at http://www.gamesmonitor.org.uk/files/Technical_Manual_on_Ticketing.pdf (last accessed July 16, 2015).

³⁸⁵ Ben Mathis Lilley. "The IOC Demands That Helped Push Norway Out of Winter Olympic Bidding Are Hilarious," *The Slate*, available at http://www.slate.com/blogs/the_slatest/2014/10/02/ioc_demands_oslo_drops_bid_after_over_the_top_list_of_requirements.html (last accessed July 16, 2015).

³⁸⁶ While there is no requirement that a city provides for Olympic Lanes in its bid, in reviewing IOC Bid Evaluations from 2008 through 2022, only two, Salzburg (in 2010) and Vancouver, did not promise dedicated Olympic lanes. Vancouver, however, promised restricted use of the Sea to Sky Highway. See "IOC Evaluation Commission Reports," available at <http://www.olympic.org/host-city-elections/documents-reports-studies-publications> (last accessed August 12, 2015); See also "2022 Candidature Procedure and Questionnaire," IOC, at p. 185, available at http://www.olympic.org/Documents/Host_city_elections/FINAL_2022_Candidature_Procedure_and_Questionnaire-FINAL.pdf (last accessed July 13, 2015); .

³⁸⁷ "2022 Candidature Procedure and Questionnaire," IOC, at p. 185, available at http://www.olympic.org/Documents/Host_city_elections/FINAL_2022_Candidature_Procedure_and_Questionnaire-FINAL.pdf (last accessed July 13, 2015); .

guarantee from relevant authorities that dedicated Olympic lanes be provided.³⁸⁸ The meaning of “Olympic traffic” is not defined but it appears to be limited to Olympic officials, athletes, sponsors, and the media, and excludes spectators. For example, for the 2012 Olympic Games, London initially reserved 30 miles of “Olympic lanes,” for the IOC family and other VIPs, rather than the 250 miles proposed by the IOC.³⁸⁹ This decision was met by public resistance.³⁹⁰ In its bid for the 2016 Summer Olympic Games, Chicago proposed setting aside a few lanes of Lake Shore Drive, which would have significantly reduced the available lanes on this highly-traveled road.³⁹¹

Implementing Olympic Lanes would have certainly generated significant non-monetary costs for residents of Boston and commuters from surrounding areas. Any traffic lanes dedicated to Olympic traffic could not be used by local residents engaged in non-Olympic activities, which would have led to increased travel time for residents throughout the region.

2. Additional Risks to Taxpayers and the Commonwealth

a. Lost Property Taxes Due to Developer Tax Incentives

To attract private developers for the Midtown and Columbia Point development projects, Boston 2024 believed that the City of Boston would have had to provide tax incentives to ensure adequate expected rate of return. For the Columbia Point project, Bid 2.0 proposed that the master developer would have been required to pay only 20 percent of standard real estate taxes for an unspecified number of years.³⁹² For the Midtown project, Bid 2.0 proposed a 40-year four-

³⁸⁸ “2022 Candidature Procedure and Questionnaire,” IOC, at p. 185, available at http://www.olympic.org/Documents/Host_city_elections/FINAL_2022_Candidature_Procedure_and_Questionnaire-FINAL.pdf (last accessed July 13, 2015).

³⁸⁹ Sarah Lyall. “Londoners Dread Traffic as City Plans Olympics,” NY Times, available at <http://www.nytimes.com/2012/05/28/world/europe/london-braces-to-manage-traffic-of-the-olympics.html> (last accessed July 31, 2015); Michael Joseph Gross. “Jumping Through Hoops,” Vanity Fair, available at <http://www.vanityfair.com/culture/2012/06/international-olympic-committee-london-summer-olympics> (last accessed July 31, 2015).

³⁹⁰ “London Taxi Drivers Bring Forward Protest Over Olympic Lanes,” The Guardian, available at <http://www.theguardian.com/uk/2012/jul/27/london-taxi-protest-olympic-lanes> (last accessed August 12, 2015).

³⁹¹ “Inside Chicago’s Olympic Plan,” ABCLocal, available at <http://abclocal.go.com/story?section=news/local&id=6656365> (last accessed August 4, 2015).

³⁹² Athletes’ Village Developer Model provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group.

phase 121A Agreement between the master developer and the City with real estate taxes increasing at each phase, from 15 percent to 75 percent of standard real estate taxes.³⁹³

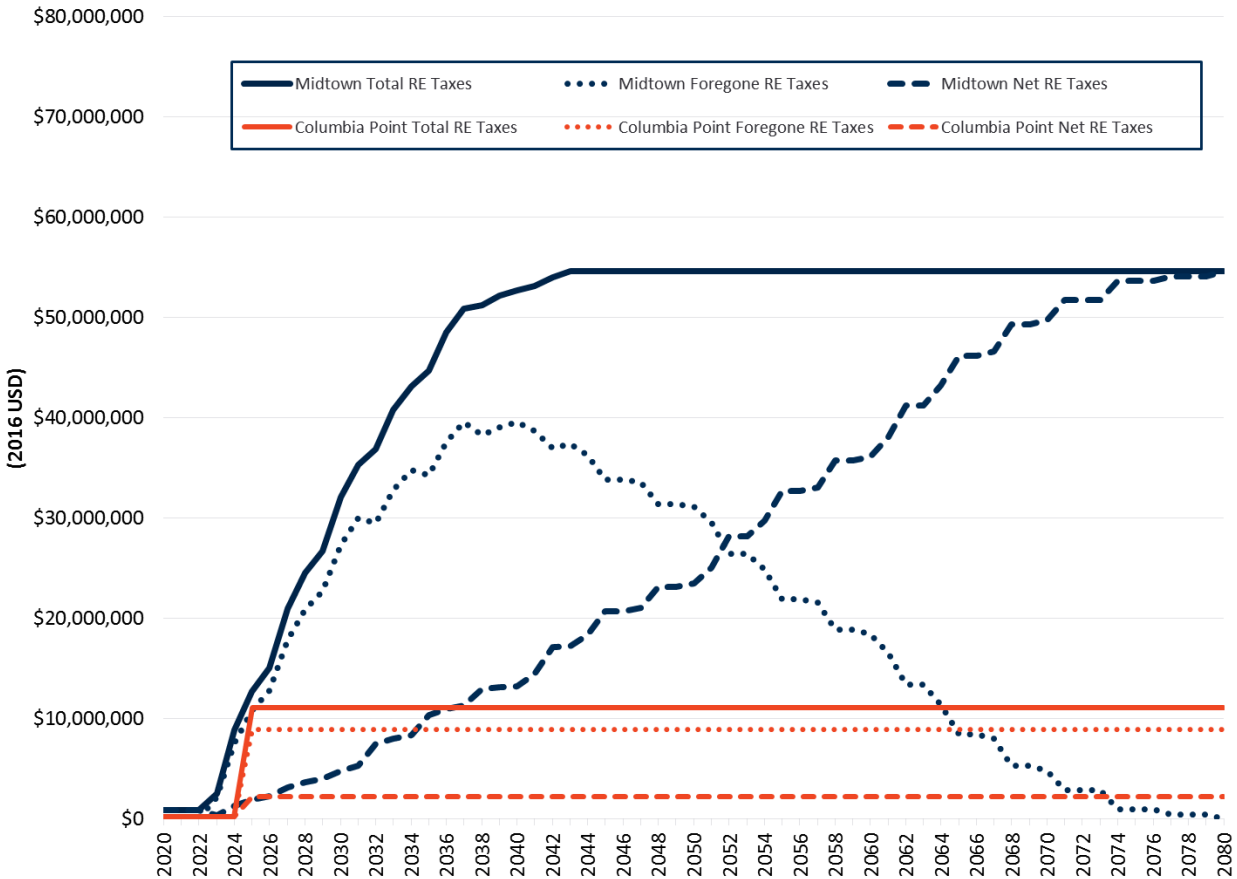
The net impact on the City of Boston of these tax incentives would have depended on the *estimated value of the new developments* and their *opportunity costs*, as discussed below. The opportunity cost to the City of Boston would have included both the foregone taxes paid by current private owners of the land and also the value of other development projects that would occur absent these tax incentives and city funding.

While the City of Boston would have had to forgo some real estate tax revenue under these agreements, Boston 2024 forecasted that *Midtown and Columbia Point would have still generated significant tax revenues*. As shown in Figure 7, as early as 2025, Midtown and Columbia Point were expected to generate nearly \$4.1 million (in 2016 dollars) in combined net tax revenues in a single year. Total net tax revenues, largely driven by the additional construction phases at Midtown, would have continued to increase through 2080, reaching \$15.4 million (in 2016 dollars) in 2040 and \$56.8 million in 2080.

The estimates were necessarily based on assumptions about the value of the real estate and future tax rates. Even though Boston 2024's estimates may have been reasonable, they were naturally subject to variation, adding to the uncertainty surrounding the value of the realized and foregone tax revenues.

³⁹³ "Bid 2.0," Midtown Development Plan, at p. 71.

**Figure 7: Net Annual Tax Revenues from Midtown and Columbia Point Developments
2016 USD (2020 – 2080)**



Sources & Notes:

Boston 2024 assumed 3% inflation, which we have adjusted out in order to report in 2016 dollars. Midtown and Athletes’ Village Developer Models provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group.

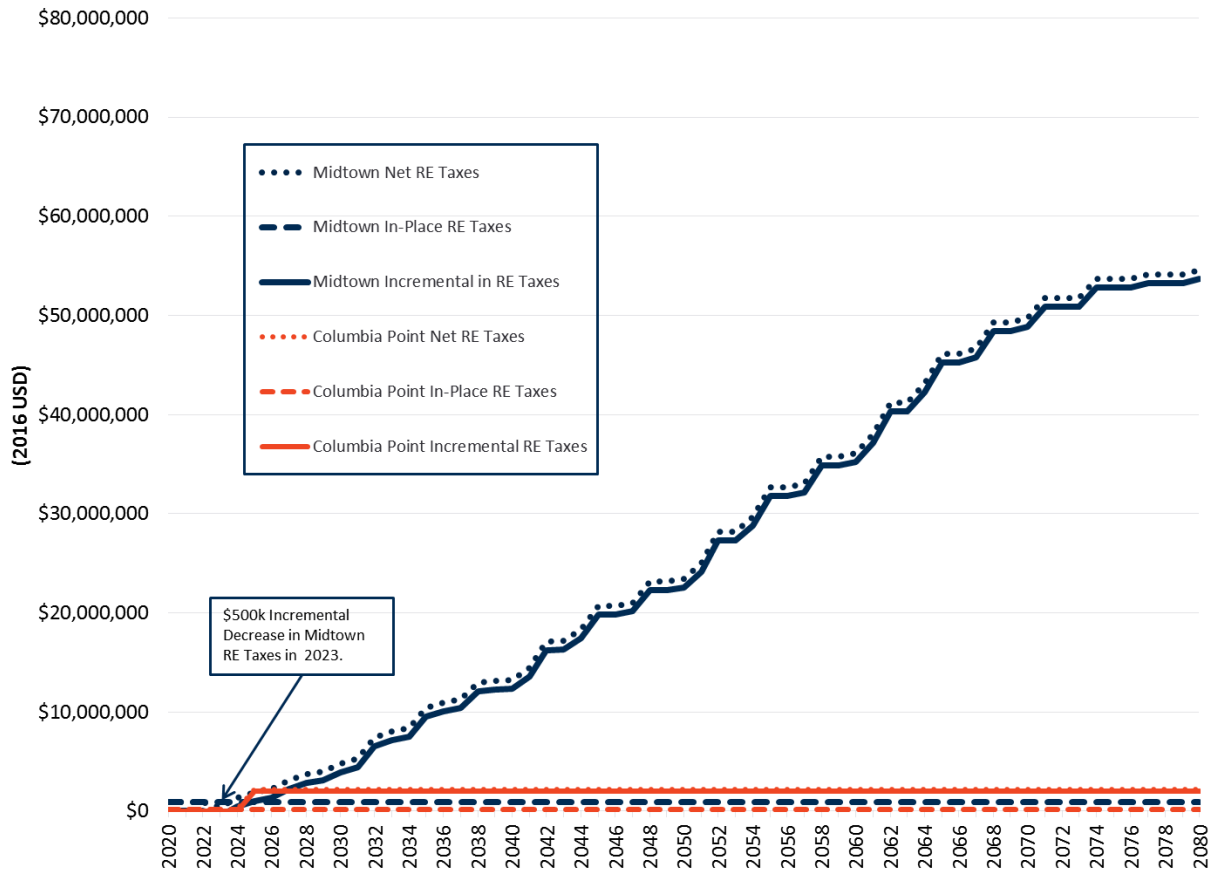
Bid 2.0 did not discuss *potential foregone new development projects* on land occupied by Midtown and Columbia Point, but instead compared the net tax revenue generated from the Midtown and Columbia Point developments with tax revenues from the current private owners of land. The majority of land in Widett Circle and Columbia Point, however, is currently held by public entities that do not pay taxes;³⁹⁴ Boston 2024 estimated that private entities at these locations would pay \$1.04 million in real estate taxes in 2015.³⁹⁵

³⁹⁴ “Bid 2.0,” Midtown Development Plan, at p. 46; “Bid 2.0,” Columbia Point Development Plan, at p. 36.

³⁹⁵ Midtown and Athletes’ Village Developer Models provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group.

Figure 8 illustrates that between 2024 and 2080, Boston 2024 projected that incremental tax revenues would have increased from \$450,000 to \$55.7 million in 2016 dollars, with the majority of the incremental tax revenues generated by the Midtown development.

**Figure 8: Incremental Annual Tax Revenues from Midtown and Columbia Point Developments
2016 USD (2020 – 2080)**



Sources & Notes:

Figure 7 and Midtown and Athletes’ Village Developer Models provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigo Group. Boston 2024 assumed 3% inflation, which we have adjusted out in order to report in 2016 dollars.

Although Boston 2024 estimated that the proposed Midtown and Columbia Point developments would have produced far more tax revenues to the City of Boston than its current owners, providing these tax incentives would have cost the City of Boston insofar as it might not have been able to provide tax benefits to other projects possibly more valuable to the public.

b. Increased Cost Due to Overtime Work

Hosting the Olympic Games would have increased demand for publicly-provided services, and the government employees who provide these services. Because the Olympic Games last a

relatively short period of time, some of these demands would have been met with temporary workers. However, much of the increased demand would likely have been met by requiring existing public employees to work overtime.

Moreover, while the OCOG would have undertaken much of the planning for the Olympic Games, it is inevitable that local and state governments would have been involved. Because, absent the Olympic Games, these employees would have spent time and effort on other potentially more beneficial activities, this also represents another cost of hosting the Olympic Games.

G. Summary and Illustration of Bid 2.0 Financial Risks

The nature of the risks and their implications for the Commonwealth and its taxpayers vary widely. The risks generated by hosting the Olympic Games originate from a number of sources. Cost overruns, from venue construction, the Athletes' Village construction, and construction of related capital projects like roads, rail, and airports, have been endemic in past Games. Unfortunately, a single "smoking gun" that explains the endemic nature of Olympic-related cost overruns cannot be identified. Equally troubling is the idea that most previous OCOGs have known that cost overruns could be a problem, and clearly took steps to avoid them; this was the case in London. Recall that London's bid for the 2012 Summer Olympic Games featured the motto "excellence without extravagance."³⁹⁶ The London Organizing Committee was aware of past cost overruns in other host cities, and the bid motto, and other parts throughout the original bid, included extensive plans to avoid cost overruns. Despite these carefully laid plans, large cost overruns still occurred. The enduring persistence of cost overruns, despite the best intentions of past OCOGs, suggests that Boston 2024 should have expected to experience some degree of cost overruns as well.

Risks associated with revenue shortfalls appear to be idiosyncratic and difficult to predict. Most past Olympic Games have experienced unexpected increases in revenues from ticket sales and domestic sponsorship. If shortfalls in revenue occur, they would likely stem from completely unpredictable sources such as international boycotts of the Olympic Games due to political tensions, or scandals that reduce world-wide demand for elite athletic competition. In a similar vein, risks due to security concerns, like terrorism, are unpredictable, but potentially catastrophic if they occur.

³⁹⁶ "London 2012 Bid," Vol. 1, at p. 19.

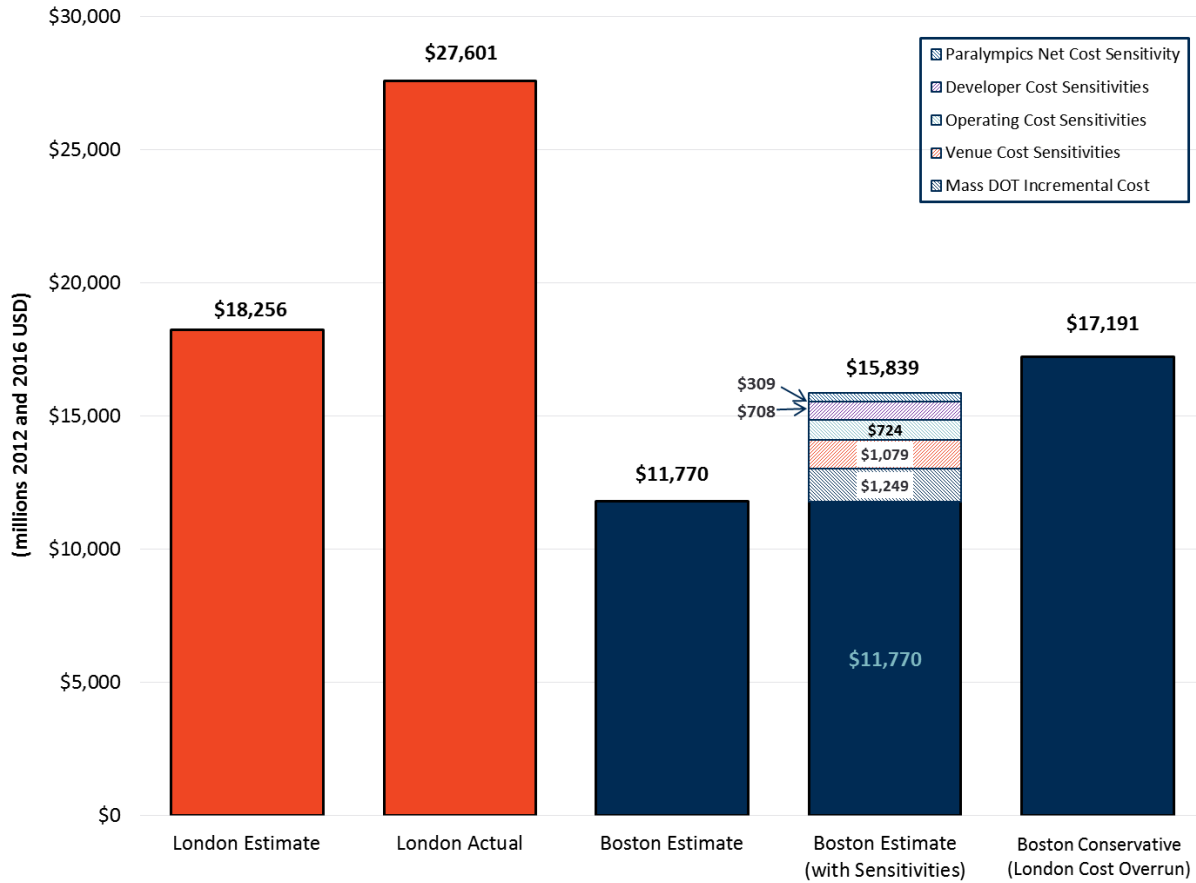
In terms of the implications of these risks, as discussed above, public infrastructure spending was already the Commonwealth's responsibility, and security risks were expected to be covered by the Federal government. OCOG-related risks would have been "first dollar" risks in that any shortfall in OCOG revenues over OCOG expenditures would have had to be met by the Commonwealth. The IOC-required Letters of Guarantee would have made sure this would occur. Non-OCOG risks have different characteristics; smaller adverse events, including venue-specific events, would have been expected to be covered by the master developers and their insurance policies, but larger adverse events that push the master developers into insolvency could have created significant cost shifting to the Commonwealth.

To illustrate these potential risks, it is helpful to compare the Boston 2024 bid to the London 2012 bid and its actual costs. Figure 9 below shows that Boston 2024's estimated cost was 36 percent lower than London 2012's estimated costs, despite inflation; Boston's estimated cost was 57 percent lower than the actual cost realized at London.³⁹⁷ If Boston were to have experienced the same percentage overrun as London 2012, Bid 2.0 would be underestimating costs by 34 percent.³⁹⁸

³⁹⁷ London 2012 incurred a 51 percent cost overrun per Table 8.

³⁹⁸ The average historical cost overrun for Summer Olympic Games is 231 percent per Table 7.

Figure 9: Boston 2024 vs. London 2012 (2012 and 2016 USD millions)



Sources & Notes:

“Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at p. 45; MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 3. Boston 2024 estimated cost from Figure 4 of Section III; London 2012 estimated and actual cost from Table 8 [7][c]. Boston estimate with the MassDOT’s adjustment includes \$1.249 billion in projected additional costs for nine of the seventeen proposed projects and the lower bounds of all cost sensitivity adjustments from Table 5 in Section IV. The Kosciuszko Circle Improvements were estimated to cost between \$120 million and \$220 million. Bid 2.0 estimated the cost at \$160 million, which we have used in the estimate above. MassDOT estimates that the project could cost between \$174 million and \$240 million depending on the project’s scope. For the figure above, the MassDOT adjustment for the Kosciuszko Circle estimate is \$14 million, which is lower than the range of \$20 to \$54 million in Table 27 in Section VI. For London’s 51% cost overrun, see Table 8 above.

VI. Evaluation of Infrastructure Investments

In this section we evaluate the infrastructure investments necessary to host the 2024 Olympic Games in Boston. We will evaluate the expenditures that would have occurred specifically to support the Olympic Games, as well as expenditures that were likely to have been required even if Boston did not host the 2024 Olympic Games. To the extent that this second category of investments would have occurred earlier because of the Olympic Games, we analyze the benefits and costs resulting from committing to these projects earlier than would otherwise have been done.

We will also identify long-term benefits to the public as a result of the infrastructure investments, including improved roads or rail lines, use of venues after the Olympic Games, and more park land. We will address not only the construction costs associated with the investments, but also any ongoing costs following the Games (e.g., operating and maintenance costs), as well as non-financial costs such as the opportunity cost associated with foregoing other projects. One important cost that is difficult to quantify stems from the use of limited Commonwealth resources such as personnel time that would have been necessary to oversee the many projects necessary to host the Olympic Games rather than other projects that might be more important otherwise.

A. Venues

1. Evaluation of Cost Estimates and Legacy Benefits

In its Bid 2.0, Boston 2024 estimated that the cost of constructing event venues and the IBC/MPC, would be \$918 million.³⁹⁹ Table 22 presents the breakdown of these estimated costs, which for the event venues includes post-Olympic legacy conversion costs.

³⁹⁹ In addition, to the total venue construction, Boston 2024 anticipated spending \$62 million for building other non-competition venues and extending the Emerald Necklace. See “Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 22, 32.

Table 22: Projected Expenses Related to Venues (millions 2016 USD)

| Sport/Venue | Venue Status/Proposal | Proposed Venue | Estimated Cost | Legacy Use |
|---|------------------------------|-------------------------------|-----------------------|--|
| [1] Archery | Pre-Existing | Harvard Stadium | \$9.2 | Prior Use |
| [2] Badminton | Pre-Existing | Agganis Arena (BU) | \$5.2 | Prior Use |
| [3] Basketball - Regionals | Pre-Existing | TBD | \$32.4 | TBD |
| [4] Basketball - Finals | Pre-Existing | TD Garden | \$6.4 | Prior Use |
| [5] Boxing | Pre-Existing | BCEC | \$12.2 | Prior Use |
| [6] Cycling - Road/Marathon | Pre-Existing | Copley | \$10.2 | Public streetscape |
| [7] Fencing/Taekwondo | Pre-Existing | Tsongas Center (UMass Lowell) | \$7.5 | Prior Use |
| [8] Soccer - Finals/Rugby | Pre-Existing | Gillette Stadium | \$13.9 | Prior Use |
| [9] Gymnastics - Artistic & Trampoline | Pre-Existing | TD Garden | \$6.1 | Prior Use |
| [10] Gymnastics - Rhythmic | Pre-Existing | Agganis Arena (BU) | \$1.1 | Prior Use |
| [11] Handball | Pre-Existing | DCU Center | \$5.1 | Prior Use |
| [12] Weightlifting | Pre-Existing | Matthews Arena (Northeastern) | \$7.9 | Prior Use |
| [13] Judo/Wrestling | Pre-Existing | Conte forum (BC) | \$6.3 | Prior Use |
| [14] Sailing | Pre-Existing | New Bedford | \$26.8 | Investment in Fort Taber Park |
| [15] Shooting | Pre-Existing | BillERICA | \$26.5 | Legacy training center |
| [16] Table Tennis | Pre-Existing | BCEC | \$15.1 | Prior Use |
| [17] Volleyball - Indoor | Pre-Existing | BCEC | \$21.8 | Prior Use |
| [18] Hockey | Pre-Existing | Alumni Stadium (BC) | \$13.5 | Prior Use |
| [19] Cycling - Mountain Biking | Pre-Existing | TBD | \$15.7 | Permanent mountain biking course |
| [20] Equestrian - Jumping & Dressage | Pre-Existing | White Stadium | \$37.8 | Revitalized public stadium and track |
| [21] Equestrian - Cross Country | Pre-Existing | Franklin Park | \$26.1 | Refurbished golf course and park lands |
| [22] Modern Pentathlon | Pre-Existing | White Stadium | \$6.7 | Revitalized public stadium and track |
| [23] Aquatics - Diving | Pre-Existing | TBD | \$11.7 | TBD |
| [24] Triathlon/Aquatics - Marathon | Pre-Existing | Herter Park | \$11.9 | Reinvestment in park lands |
| [25] Olympic Stadium | Temporary | Widett Circle | \$175.5 | Midtown Development |
| [26] Volleyball - Beach | Temporary | Squantum | \$28.3 | New park lands |
| [27] Tennis | Permanent | Harambee Park | \$37.5 | Tennis stadium, park land court upgrades |
| [28] Canoe - Slalom | Permanent | Deerfield River | \$30.8 | Legacy training center |
| [29] Canoe - Sprint/Rowing | Permanent | Merrimack River | \$44.6 | Public recreation center |
| [30] Aquatics Center - Swimming & Synchro | TBD | TBD | \$69.5 | TBD |
| [31] Water Polo | TBD | TBD | \$37.1 | TBD |
| [32] Golf | TBD | TBD | \$24.5 | TBD |
| [33] Cycling - BMX | TBD | TBD | \$18.5 | TBD |
| [34] Cycling - Track (Velodrome) | TBD | TBD | \$64.1 | TBD |
| [35] Total Athletic Venues | | | \$867.5 | |
| [36] IBC/MPC | TBD | TBD | \$50.5 | TBD |
| [37] Total Venues | | | \$918.0 | |

Sources & Notes:

“Bid 2.0,” Planning Process, Benefits, Risks, Opportunities, at pp. 30-32. Categorization of venue status/proposal was based on the proposed venue site and legacy use. Costs were reported in 2016 dollars. Although the proposed venues for the basketball regionals had not been determined, we understand that they planned on using pre-existing facilities. Venues do not include venues for preliminary soccer regionals. Projected expenses related to venues did not include \$50 million in construction costs for non-competition venues and \$12 million for Emerald Necklace legacy plan.

The projected cost of each venue was derived by Boston 2024 by estimating the cost of specific construction components in consultation with local construction experts and others with experience in construction of properties for past Olympic Games. For each venue, Boston 2024 added between 10 and 15 percent to the estimate for indirect costs and an additional five percent for design contingency provisions for unforeseen circumstances and no stated construction contingency.⁴⁰⁰

For the purposes of our analysis, we will focus on the investments related to four major venues that would require new construction: the Olympic Stadium, Aquatics Center, Velodrome, and IBC/MPC. As shown in Table 22, above, these venues make up \$360 million, or 39 percent of the total cost shown in the table. Although we will not discuss the other venues in detail, a number of the issues raised would apply to those venues as well.

a. Olympic Stadium

Boston 2024's plan for the Olympic Stadium was to construct a 69,000-seat temporary stadium that would have been built specifically for the Olympic Games and then removed to allow for post-Olympic development in Midtown.⁴⁰¹ If built, it would have been larger than any temporary stadium built to date. Its expected construction cost was \$175.5 million, which included only construction costs specific to the stadium, as the cost of the platform would have been borne by the private developer.⁴⁰² Prior Olympic Games have built permanent structures for their Olympic Stadiums, so comparing the projected cost of Boston's Olympic Stadium with those of past Olympic Games may not be a meaningful comparison. However, it is still instructive to compare the original estimated cost for London's stadium with its final realized cost. In its 2004 bid, the organizers of the London Games estimated that the Olympic Stadium would cost \$465 million, and its final cost in 2012 was \$686 million (\$724 million in 2016 dollars), approximately more than 1.5 times its estimated cost.⁴⁰³

⁴⁰⁰ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 24. The Olympic Stadium had a design contingency of 17 percent. Olympic Stadium construction cost estimates provided by Boston 2024.

⁴⁰¹ "Bid 2.0," Midtown Development Plan, at p. 43.

⁴⁰² "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 32; "Bid 2.0," Midtown Development Plan, at p. 66.

⁴⁰³ See Table 10 in Section V for details. To inflate the 2012 actual cost to 2016 dollars, we apply a 1.054 U.S. GDP deflator. It is possible that the proposed use of temporary venues may have limited the

We were advised that Boston 2024 arrived at its cost estimate for the Olympic Stadium following discussions with potential contractors who could construct the temporary stadium. However, it should be noted that this estimate is significantly lower than Chicago's estimate for its temporary stadium. In its bid for the Olympic Games, Chicago 2016 estimated its cost for an 80,000-seat temporary stadium to be \$351 million (or \$392 million in 2016 dollars).⁴⁰⁴ It is unclear how Boston 2024 believed that the 2024 stadium would have cost half of the proposed Chicago stadium.

In addition to the estimated costs, construction of the Olympic Stadium would have come with sequencing risks. For example, construction would not have been able to begin until after the platform was completed. As discussed elsewhere, construction of a platform would have been subject to its own risks, which could have increased the likelihood of construction delays. This would have increased the risk of higher costs for labor and raw materials as contractors rush to meet a firm construction deadline.

b. Aquatics Center and Velodrome

Bid 2.0's plans for the Aquatics Center and Velodrome remained at a preliminary state and would have been refined as the Bid evolved. As shown in Table 22, Boston 2024 had estimated the cost of those venues to be \$133.6 million,⁴⁰⁵ although Boston 2024 provided relatively little additional detail, such as whether the venues were likely to be permanent or temporary or where they would be located. As discussed in Section IV, uncertainty around the location caused

Continued from previous page

likelihood of certain causes of cost overruns. However, because scope changes can occur with temporary stadiums as well, temporary structures are still at risk for overruns due to scope changes.

⁴⁰⁴ "Chicago 2016 Bid," Vol. 2 at p. 19. Chicago's bid did not specify if this cost included both construction and acquisition costs or not. This calculation was made by using Chicago's estimated cost from its bid in 2008 dollars and adjusting using a 1.117 US GDP Deflator from 2008 through 2016.

The proposed Olympic Stadium in Chicago included a 10,000-seat permanent facility. However, the cost estimate in the text is for the temporary cost of the stadium. In addition, Chicago's Olympic Stadium had another \$47 million in permanent costs, which are not included in the discussion here. (See "Chicago 2016 Bid," Vol. 1, at pp. 39 and 111; "IOC Evaluation 2016," at p. 18; and "Chicago 2016 Bid," Vol. 2, at p. 19.)

⁴⁰⁵ Throughout this section, the discussion about the Aquatics Center relates to the costs that Boston 2024 had estimated for the venue where the swimming and synchronized swimming events were to take place. It does not refer to the venue where the diving events were to take place, which appears to have been a separate venue.

uncertainty in the cost estimates. Such uncertainty also created risk that the venues might not be completed on time.

Boston 2024's cost estimates for the Aquatics Center and Velodrome were substantially lower than London's cost for constructing those venues. Boston 2024 estimated that the cost of the Aquatics Center would have been \$69.5 million (in 2016 dollars), compared with London's cost of \$423 million (also in 2016 dollars). Likewise, Boston 2024 projected that the Velodrome would cost \$64.1 million, less than half the \$148 million (in 2016 dollars) cost of London's Velodrome. Notably, London's Aquatics Center cost more than three times its original estimate, and its Velodrome cost almost three times its original estimate.⁴⁰⁶

Because Boston 2024's plans for these venues contained little detail when Boston withdrew from consideration, we cannot estimate the post-Olympic legacy costs. The legacy costs and benefits of the Aquatic Centers would have depended on such factors as its location and its expected use. However, it was unlikely that the Velodrome would have generated meaningful legacy benefits, and would have run the risk of becoming a "white elephant" as has happened following past Olympic Games when facilities did not have meaningful legacy use. We discuss post-Olympic costs of permanent venues below.

c. International Broadcast Center/Main Press Center

The bid document budgeted \$50.5 million for the IBC/MPC, but did not list a location for it. This estimate was approximately 90 percent below the estimated cost in the documents Boston 2024 presented to the USOC in December 2014.⁴⁰⁷ It was also significantly lower than the cost of the IBC/MPC in London, which was \$501 million (in 2016 dollars). Boston 2024 provided little detail on how it expected it could reduce the cost of the IBC/MPC. It is our understanding that Boston 2024 believed London's 900,000 square-foot IBC/MPC may have been larger than necessary. In addition, it is possible that technological improvements would reduce the need for space in future Olympic Games. However, we were not provided with sufficient information to know how Boston 2024 arrived at this cost estimate.

⁴⁰⁶ See Section V for more details on London venue costs.

⁴⁰⁷ Bid 1.0 budgeted approximately \$500 million to the Non-OCOG budget for the IBC/MPC. "Bid 1.0," Bid + Games Budgets, at p. 16.

d. Other Venues

In addition to the four venues discussed above, Table 22 shows that Boston 2024 envisioned using 31 other venues to host the Olympic events. Twenty-four of those venues would have been pre-existing facilities, which means that the costs associated with preparing for the Olympic Games would have primarily involved upgrades to bring them up to IOC standards. We cannot evaluate whether the cost to upgrade the existing venues would have likely led to significant cost overruns, as the age and condition of the existing facilities, as well as the upgrades needed to meet IOC requirements had not been evaluated.

As shown in Table 22, one of the remaining venues, Squantum (Beach Volleyball) was envisioned to be a temporary facility, and three, Harambee Park (Tennis), Deerfield River (Canoe Slalom), and the Merrimack River (Canoe Sprint and Rowing), were envisioned to be permanent new facilities. The cost for these facilities was estimated to be \$141.1 million. Boston 2024's cost estimates contained contingencies that were low by industry standards. As noted above in Section IV, Boston 2024 included five to ten percent contingencies, whereas it is our understanding that it is not unusual for projects at a conceptual stage to have contingencies of 20 to 30 percent. Bid 2.0 did not explain why it was so optimistic in developing its cost estimates and contingencies.

2. Operating Deficits Resulting from Permanent Venues

Although Bid 2.0 included in its estimates the cost of converting temporary venues to their post-Olympic uses, it did not include estimates of post-Olympic legacy costs associated with permanent venues. Existing facilities might not have incurred significant incremental maintenance costs resulting from the Olympic Games. However, permanent facilities would have required ongoing maintenance and upkeep.

For the temporary venues, Boston 2024's cost estimates included post-Olympic conversion costs. Those facilities would also likely have required ongoing maintenance costs as park land for which the public would be responsible.⁴⁰⁸ Those costs were not estimated in Bid 2.0.

⁴⁰⁸ It is our understanding that Boston 2024 had discussed the possibility that the United States Tennis Association might take responsibility for some portion of the maintenance expenses for the tennis courts at Harambee Park.

The benefits for the existing venues would have been upgraded facilities. For permanent venues, the legacy benefits would have included a legacy training center on the Deerfield River site and improved facilities on the Merrimack River site near the UMass Lowell campus. Harambee Park would have seen improved park land and upgraded facilities at the Sportman's Tennis and Enrichment Center.

If these venues turned out to be underutilized after the Olympic Games and failed to generate revenues sufficient to cover their operating and maintenance costs, Local or State governments, and ultimately the taxpayers, would have borne the responsibility for the deficits from operating and/or maintaining the venues.

Hosts of past Olympic Games have experienced this "white elephant" problem. For example, Greece built or upgraded 36 venues for the 2004 Athens Olympic Games at an estimated cost of more than \$14.8 billion in 2004 dollars.⁴⁰⁹ Almost all are now in poor condition after repeated failure to lease them out.⁴¹⁰ Maintenance costs on these venues, a continuing expense, were reportedly \$124 million in 2005.⁴¹¹

Even if a host city has a detailed plan for permanent venues after the Olympic Games, the transformation to permanent use can sometimes be costly. In the case of London 2012, the Olympic Stadium became the permanent home of West Ham United Football Club. The final transformation cost was \$420 million in 2016 dollars, significantly higher than the \$238 million in 2016 dollars originally announced when the deal with West Ham was struck.⁴¹²

⁴⁰⁹ Conversion from approximately €12 billion euros is taken directly from the article. Brenda Goh. "Olympics-London 2012 signals end of white elephant curse," Reuters, available at <http://www.reuters.com/article/2012/08/13/oly-end-hostcities-idUSL6E8JB1HG20120813> (last accessed July 16, 2015).

⁴¹⁰ Brenda Goh. "Olympics-London 2012 signals end of white elephant curse," Reuters, available at <http://www.reuters.com/article/2012/08/13/oly-end-hostcities-idUSL6E8JB1HG20120813> (last accessed July 16, 2015).

⁴¹¹ Brenda Goh. "Olympics-London 2012 signals end of white elephant curse," Reuters, available at <http://www.reuters.com/article/2012/08/13/oly-end-hostcities-idUSL6E8JB1HG20120813> (last accessed July 16, 2015).

⁴¹² "Olympic Stadium cost rises to £701m from Initial £280m Estimate," The Guardian, available at <http://www.theguardian.com/sport/2015/jun/19/olympic-stadium-cost-rises-west-ham> (last accessed July 16, 2015). Amounts converted from £272 million and £154 million at 2015 average midpoint exchange rate of 1.5229 USD per GBP. See "Historical Exchange Rates," Oanda, available at <http://www.oanda.com/currency/historical-rates/> (last accessed July 16, 2015). 2015 dollars were then

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Nevertheless, some Host Cities of past Olympic Games have been able to turn newly-built Olympic facilities into profitable venues. For instance, the Palau Sant Jordi (St. George's Palace) was one of the main venues built for the Barcelona 1992 Summer Games, and hosted the artistic gymnastics, handball final, and volleyball final events.⁴¹³ After the 1992 Games, Palau Sant Jordi was turned into a multi-purpose venue and, since then, has hosted a stream of sports, cultural, business, and entertainment events. As a result, Palau Sant Jordi reportedly made a profit every year between the 1992 Olympic Games and 2001.⁴¹⁴

Boston 2024 also planned to make use of a number of existing university-based venues.⁴¹⁵ As may be true for any upgrade, local universities would have been responsible for higher operating and maintenance costs after the Olympic Games due to the venues' renovation or upgrade before the Olympic Games. In Bid 2.0, university-based venues included Harvard Stadium (Harvard University), Conte Forum and Alumni Stadium (Boston College), Agganis Arena (Boston University), Tsongas Center (UMass Lowell), and Matthews Arena (Northeastern University).⁴¹⁶ There would have also been opportunity costs associated with using these university venues because the universities and their students would not have been able to use the facilities during, and for a period before, the Olympic Games.

B. Public Infrastructure Investments Identified in Bid

1. Description of Public Infrastructure Investments for Olympic Games

In addition to the required real estate investments, hosting the Olympic Games would also have required investments in public infrastructure. The largest category of these investments would have been related to the region's transportation infrastructure. In its Bid 2.0, Boston 2024

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inflated to 2016 dollars using a 1.015 US GDP deflator. See *International Monetary Fund* website, "World Economic Outlook database – by Countries," available at <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/download.aspx> (last accessed August 10, 2015).

⁴¹³ "1992 Summer Olympics Official Report, Volume 2," at pp. 168-176, available at <http://library.la84.org/6oic/OfficialReports/1992/1992s2.pdf>, (last accessed July 23, 2015).

⁴¹⁴ Bruce Schoenfeld. "Barcelona's Games sites still shining," *SportsBusiness Journal*, available at <http://www.sportsbusinessdaily.com/Journal/Issues/2001/12/20011203/Special-Report/Barcelona146s-Games-Sites-Still-Shining.aspx> (last accessed July 23, 2015).

⁴¹⁵ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at pp. 30-31.

⁴¹⁶ "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at pp. 30-31.

identified 17 such projects: 11 to have been completed by 2023 in order to support the Olympic Games and an additional six to support post-Olympic development.

As a guiding principle, public infrastructure projects, like any other project requiring the commitment of resources, should be undertaken only if the expected benefits (broadly defined) outweigh the associated costs. Benefits from transportation projects can include better roads resulting in reduced commuting times, or higher quality train or bus service. Costs include not only the actual financial cost of construction, but other costs that the public incurs as a result of the projects, such as inconvenience from increased noise or travel times during road and rail construction and environmental costs. The opportunity cost of a given project is another important consideration: Whether that project is the best use of the limited financial, personnel, and other resources, or whether an alternative project should be designated as a higher priority because it would generate greater net benefits to the public. Although these benefits and costs are not always precisely quantifiable, it is nonetheless instructive to identify them in evaluating projects.

In evaluating infrastructure investments that would have been needed to host the Olympic Games, we must consider the timing of critical events. The 2024 Olympic Games will take place in nine years. The IOC will award the 2024 Olympic Games to the host city in September 2017, so a host city will have nearly seven years to complete any necessary infrastructure projects. One question is whether there are any projects that would need to begin (or significant commitment be made) before the IOC's final decision, and, if so, whether those investments should be made even without the Olympic Games. To the extent any such projects would not take place in the absence of the Games, the true cost of becoming an applicant city may include unnecessary infrastructure investments.

To evaluate the benefits and costs associated with these infrastructure investments, we consulted with the Massachusetts Department of Transportation and the MBTA (which we collectively refer to as "MassDOT") to understand whether such projects would have been a priority for the Commonwealth absent the Olympic Games and to evaluate whether the estimated costs of the projects listed were reasonable. MassDOT's review of the investments identified by Boston 2024 was necessarily a preliminary evaluation of the potential costs and risks. It was preliminary because MassDOT was provided with Boston 2024's identified list of necessary investments when Bid 2.0 was released, and each project proposed by Boston 2024 was still at a conceptual, or even pre-conceptual, stage and lacked the level of detail needed for a full assessment. Such

evaluations by MassDOT typically require months of review after receiving plans considerably more detailed than those provided to date.

2. Benefits and Costs Associated with Public Infrastructure Investments

The public infrastructure improvements identified by Boston 2024 are generally valuable projects that would likely generate long-term benefits for the public. Several of them had previously been identified by MassDOT as priorities, and some have been funded in full or in part and are currently underway. Others, although not funded, have been identified as priorities and could be completed before 2024, whether or not Boston will host the Olympic Games. However, several of the transportation projects identified in the Bid are not viewed by MassDOT as high priorities and have not been through MassDOT's typical planning and prioritization processes. If undertaken in order to support the Olympic Games, these projects might have delayed or displaced other projects that might otherwise be a higher priority to the State.

Moreover, the Bid appeared to assume that these projects could have been completed in time for the Olympic Games. Even if true, the Commonwealth has limited resources; managing these projects to host the Olympic Games might have caused other beneficial projects to be delayed due to limited funding and other resources. It is not known what projects would have been postponed in favor of those identified. Some of those other projects might have been more important to support the overall transportation infrastructure of Massachusetts, yet not critical to hosting the Olympic Games. It should be noted that even assuming that funding would not have been an issue (for example, because \$121 million, including \$71 for MBTA projects and \$50 million in road improvement projects, of the \$2.7 billion in transportation projects to support the Olympic Games was expected to be funded by a private developer), those projects still would have had an opportunity cost to the Commonwealth in that they would have required oversight from MassDOT.

In addition, it is possible that the overall cost of these projects would have been higher if the Commonwealth had to complete all of them prior to the 2024 Summer Olympic Games than if they were completed under a different timeline. An accelerated timeline could have strained employee resources at the MassDOT and MBTA; contractors might have needed to pay their workers increased overtime; and an increase in construction activity could have led to increased prices for materials and traffic details. One should consider both the cost estimates of each

individual project and how so many simultaneous projects could have increased the cost of each project when assessing Boston 2024's proposal.

As noted above, one uncertainty surrounding the proposed investments related to the level of detail provided in the description of the projects. Although it is not unusual for a project years away from its beginning to be described in a general way, the level of detail provided makes it almost impossible to evaluate the scope, schedule, and estimated costs of the projects with the level of rigor normally used in determining whether a project has been adequately budgeted or to commit to it. As a result, *it is difficult to evaluate with a reasonable degree of confidence whether the cost estimates associated with each investment accurately described the full cost of the proposed project.*

3. MBTA Investment Projects

Boston 2024 identified 11 MBTA projects that either would have been necessary for the Olympics or that would have supported post-Olympic legacy development around Midtown or the Athletes' Village. Boston 2024 estimated that these projects would have cost a total of \$2.76 billion: \$2.59 billion of that total would have been funded by the Commonwealth (\$2.43 billion to support the Olympic Games and \$160 million to support future development) and \$167 million would have been funded by private developers (\$71 million to support the Olympic Games and \$96 million to support future development). According to MassDOT, the three projects that Boston 2024 estimated would have cost nearly \$1.66 billion, have already been funded and are underway.⁴¹⁷ The Commonwealth or private developer would have been required to commit to funding the remaining projects.

We have been advised that in order to complete these additional upgrades by 2023, the Commonwealth would have had to provide funding to the MBTA at a higher level and at an earlier time than currently projected. While such funding would have caused the benefits associated with these improvements to be enjoyed earlier than without the Olympic Games, accelerated construction and funding for these projects might have caused other valuable projects to be delayed. In addition, the more aggressive schedule might have increased the cost of these and other MBTA projects than if they were completed over a longer period of time.

⁴¹⁷ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 1-2.

a. Projects to Support the Olympic Games

Boston 2024 identified eight MBTA projects that would have supported the Olympic Games as identified in Table 23. These projects primarily relate to vehicle procurement, power and signal upgrades to rail lines, and relocation of the Cabot Bus Facility. Boston 2024 expected that, upon completion, these system improvements would have generated long-term benefits. Not only would they have helped the MBTA meet capacity needs during the Olympic Games, but they also would have increased the MBTA's capacity to meet projected increases in ridership and decreased commute times.

i. Vehicle Procurement

The vehicle procurement projects identified by Boston 2024 are valuable investments that were expected to bring significant benefits to the public. These benefits would have included newer trains and buses leading to more frequent and more reliable MBTA and commuter rail service. Procurement of new Red and Orange Line cars are currently underway.

To support the projected increase in MBTA ridership for the Olympic Games, Boston 2024 expected that the MBTA would procure a total of 152 Orange Line vehicles and 132 Red Line vehicles by 2023. The new Orange Line vehicles would replace the entire fleet, which is currently 120 cars. We have been advised by MassDOT that the procurement would increase the number of Orange Line cars from its current 120 by 32 cars. The procurement for the Red Line would be a one-for-one replacement of cars, leaving the number of Red Line cars at its current 218. As described in Table 23, Boston 2024 estimated the cost of these vehicles at \$801 million. Coupled with additional power and signal upgrades described below, Boston 2024 believed these additional vehicles would have allowed the Orange Line to operate with four-minute headways (intervals between trains) and the Red Line to operate with three-minute headways.⁴¹⁸

⁴¹⁸ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 1.

Table 23: MBTA Investment Projects for the Olympics Identified in Bid 2.0 (2016 USD)

| Project | Estimated Cost (\$ Million)* | Funding Entity | Funding Status | Notes |
|---|-------------------------------------|-----------------------|---------------------------------------|--|
| Red Line and Orange Line Vehicle Procurement | \$801 | Commonwealth | \$729 Million Funded for Procurements | Additional vehicle procurement to reduce Red and Orange Line headway time. The Orange Line fleet is expected to increase from 130 to 152 vehicles; the Red Line fleet is expected to remain at 218 vehicles. |
| Commuter Rail Vehicle Procurement | \$499 | Commonwealth | \$483 Million Funded for Procurements | Procurement of bi-level vehicles to replace existing single-level vehicles. |
| Local Bus Vehicle Procurement | \$356 | Commonwealth | \$222 Million Funded for Procurements | Replacement of 392 of the MBTA's 1076 bus fleet. |
| Transit System Power and Signal Upgrades for Green Line, Orange Line, and Red Lines | \$321 | Commonwealth | Unfunded | Signal and power upgrades to help reduce Green Line, Red Line, and Orange Line headway time. |
| Additional Green Line Power and Signal Upgrades | \$350 | Commonwealth | Unfunded | Modify existing Green Line power distribution systems and install new display panels and tracking transmitters. |
| Additional Red Line Power and Signal Upgrades | \$105 | Commonwealth | Unfunded | Modify existing Red Line power distribution systems and install new display panels and tracking transmitters. |
| Amtrak Wash Facility Modification | \$10 | Private Developer | Included in Master Developer cost | Allowance for possible modification to the existing Amtrak structure and its ventilation systems. |
| Cabot Bus Facility Relocation | \$61 | Private Developer | Included in Master Developer cost | Relocation of the Cabot bus facility to the second level of the elevated platform at Midtown Cost includes fit-out only |
| Total | \$2,503 | | | |

Sources & Notes:

MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB.

* Bid 2.0 did not specify the year basis for its estimates. For the purpose of this analysis, we will assume that all figures are in 2016 dollars.

Based on Boston 2024's current plan, the MBTA believed the Red Line would have continued to operate with 4.5 minutes headways, rather than the three-minute headways projected by Boston

2024. Boston 2024's plan would have required the MBTA to increase its fleet, by 2023.⁴¹⁹ However, we have been advised that the MBTA plans to retire this generation of cars in 2021. Continued operation of these vehicles would have required that they be overhauled and that additional storage and maintenance facilities be provided for them.⁴²⁰ The MBTA estimates that these additional considerations could have cost up to \$100 million not accounted for in Bid 2.0.⁴²¹

In addition to procurements for the Red and Orange Lines, Boston 2024's plan reflected MassDOT's plan to purchase commuter rail and local bus vehicles, which is underway. Boston 2024 had expected the MBTA to spend \$499 million for 75 bi-level Commuter Rail coaches, with 177 seats in each coach, before the 2024 Olympic Games.⁴²² These coaches would replace 75 existing single-level coaches, with 93 seats each, and increase Commuter Rail capacity by 84 seats on each coach. In addition, Boston 2024 had expected the MBTA to procure 392 buses, which would replace existing ones, leaving the overall size of the fleet unchanged at 1,076.⁴²³

The estimated cost of these projects was \$1.656 billion (as seen in the first three rows of Table 23). These projects have already been funded by the MBTA, and several are underway. The current funding for these projects is \$1.47 billion.⁴²⁴ Because the MBTA has already funded and begun these projects, the benefits and costs associated with them should not properly be considered in evaluating the infrastructure projects associated with hosting the Olympic Games. It is appropriate, however, to evaluate the benefits associated with the \$100 million estimated cost of extending the life of the Red Line cars to achieve three-minute headways.

⁴¹⁹ Operating under three-minute headways would also have required power and signal upgrades proposed by Boston 2024. Those projects will be discussed below.

⁴²⁰ Alternatively, achieving three-minute headways would have required the MBTA to operate with fewer spare cars than it has budgeted.

⁴²¹ MassDOT estimates that vehicle overhauls would have cost between \$20 million and \$40 million total while the additional storage and maintenance facilities would cost between \$40 million and \$60 million total. MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 1. All MassDOT estimates are in current dollars. Because Bid 2.0 did not specify the year basis for its estimates, we do not make any adjustments to account for potential differences in timing in this section.

⁴²² MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 1-2.

⁴²³ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 2.

⁴²⁴ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 1-2.

ii. Power and Signal Upgrades

Boston 2024 identified power improvements and signal upgrades for certain MBTA lines as necessary to support the Olympic Games. As shown in Table 23, Boston 2024 expected the MBTA to spend \$776 million for power and signal upgrades to the Orange, Red, and Green Lines (see Rows 4 through 6 of Table 23). The proposed upgrades included replacing or upgrading power substations, adding new cabling to the power distribution system, and installing new signaling equipment. These improvements were expected to allow for consistent 3-car service on the B and D branches of the Green Line.⁴²⁵

These upgrades would have provided benefits to the public by improving the service on those lines. However, the MBTA believes that Boston 2024 did not take into account certain technical considerations, which could have added to the cost and schedule of the projects. For example, although the MBTA acknowledges that upgrading the system to allow for consistent three-car service would have been an important improvement that would have provided significant public benefits, it believes that running a consistent three-car service would have required replacing the current vehicles on those lines and purchasing an additional 40 to 60 vehicles. The MBTA expects that the cost of these additional train cars would have been \$1.05 billion (\$900 million to replace the existing cars, and \$150 million for the additional cars).⁴²⁶ Boston 2024's estimate did not account for the cost of a facility to store and maintain these cars.

Furthermore, the MBTA believes that reducing headways on the Red Line would have required additional signal improvements, such as a Communications-Based Train Control system. The estimated cost of such a system is between \$500 million and \$750 million.⁴²⁷ Between these two additional considerations alone, *the MBTA believes Boston 2024 did not account for between \$1.1 billion and \$1.3 billion in upgrades needed to achieve three-minute headways for the Red Line and consistent 3-car service for the Green Line.* In addition, technical challenges associated with implementation could have pushed the project beyond 2023.

Another consideration in assessing these projects is that these investments have not been funded yet. Securing funding would have caused other projects to be displaced. Moreover, because

⁴²⁵ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 2-3.

⁴²⁶ These figures are MBTA estimates. The actual cost of such purchases would have to be verified through a procurement process. MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 2-3.

⁴²⁷ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 3.

these projects are at an early stage within the MBTA, the cost estimates associated with these projects cannot be verified with confidence.

iii. Cabot Yard Bus Facility Relocation

In order to build the platform above Widett Circle on which the Olympic Stadium would have been located, the private developer of the Midtown project would have been required to move the MBTA's Cabot Yard bus facility.⁴²⁸ Because MBTA bus facilities must operate continuously and because finding a location that fits the needs of the MBTA is difficult, Bid 2.0 expected the Cabot Yard bus facility to be moved to the second level of the elevated platform, below the plaza level housing the Olympic Stadium.⁴²⁹ The cost of building the elevated platform, including its structural foundation and roofs, and the cost of relocating the existing bus facility to the platform would have been the responsibility of the developer. As such, the cost of the relocation was included in the budget attributed to the private developer; however, no specific estimate had been provided for this move. Boston 2024 estimated the incremental cost for fitting out the new location of the MBTA bus facility to be \$61 million.⁴³⁰ This figure did not include other costs to the private developer, such as those for the structural foundation or roof, or to acquire a site that would have been suitable for the relocated facility and to make a land swap with the MBTA; these costs were included elsewhere in the development costs for the Midtown site.⁴³¹

Boston 2024 assumed that it would have been able to find a suitable site on the platform and make a land swap with the MBTA. However, because of the MBTA's technical and operational requirements for this facility, it may not have been appropriate to make such an assumption. And failure to find a suitable relocation site for current uses could have jeopardized the entire Midtown plan. Unless and until this could have been resolved, it was a critical "Go/No Go" decision point.

Boston 2024's plan did not include funds to purchase the air rights from the MBTA. It is possible that Boston 2024 had assumed that the value of the facility the MBTA would have received would have incorporated the value of the current facility, including the air rights. Another possibility is that Boston 2024 did not believe that the air rights over the Cabot Yard, as it stands

⁴²⁸ "Bid 2.0," Midtown Development Plan, at pp. 2, 66-69.

⁴²⁹ "Bid 2.0," Midtown Development Plan, at pp. 31, 39.

⁴³⁰ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 7.

⁴³¹ See, e.g., costs for plaza construction. "Bid 2.0," Midtown Development Plan, at p. 66.

today, have much value. Even if this belief had been correct, the air rights would have been more valuable in the event that the land would have been developed following the Olympic Games. How much of that value would have been captured by the current owner of the land (the MBTA) or the new owner (Boston 2024 before selling the development rights to a master developer) would have been the result of a negotiation.⁴³² It appears, however, that the Bid 2.0 assumed that Boston 2024 and/or the private developer would have captured virtually all of that value, with no financial benefit for the Commonwealth.

The plan to relocate the Cabot Yard Bus facility, as it had been articulated, presented critical technical and operational risk that would have needed to be adequately addressed to make the Midtown project possible. The MBTA could have chosen not to agree to a proposed trade if it did not believe Boston 2024's plans adequately met its operating requirements. Exacerbating the evaluation of this risk was the fact that Boston 2024 had provided limited detail on its plans to relocate the Cabot Yard.

One of the largest concerns was uncertainty as to whether the MBTA would have been able to store fuel in the facility. If storing fuel were prohibited, the MBTA would not have been able to accept the bus facility as described in Boston 2024's plans. However, *because the MBTA believes that the bus facility must be located near its present location, another solution would have been required; it is not known at this time what the cost of such a solution would have been, or if one even exists.* It would have been impossible to move forward with the Midtown site as envisioned by Boston 2024 without resolving this uncertainty.

MassDOT believes that the Cabot Yard facility would have to have been temporarily relocated during construction of the platform and during the Olympic Games so that it could operate continuously. Therefore, another critical question was where would it have been relocated during those periods. It is therefore impossible to know whether the overall plan for relocating Cabot Yard was even feasible.

Beyond these threshold issues, the MBTA had additional concerns about Boston 2024's current plan for relocating the Cabot Yard. One such concern relates to whether the relocation would have allowed for the MBTA to expand its existing bus fleet in the future. Boston 2024 had said

⁴³² In addition to the relocation of the Cabot bus facility, Boston 2024 budgeted \$10 million for the modification or relocation of the Amtrak train car washing facility that is currently located at Widett Circle. "Bid 2.0," Midtown Development Plan, at pp. 50-51, 66.

that the new facility could have provided the benefit of additional space for up to 80 vehicles over the current site.⁴³³ However, this does not appear to be the case according to the design requirements, and the MBTA expressed concerns about whether the proposed space would, in fact, have allowed for additional vehicle storage.⁴³⁴ We also have been advised that the MBTA had questions about how the design of the platform might have affected its daily operations; the design could have slowed entry, exit, and bus inspection. Another concern was that the platform would have required enhanced ventilation systems in order to comply with regulatory and safety standards.

The MBTA also expressed concerns over Boston 2024's cost estimate associated with relocating Cabot Yard. First, the MBTA estimates that the actual construction costs would have been significantly higher than Boston 2024's \$61 million estimate: The MBTA believes the cost of the Cabot Yard Bus facility could have been between \$200 million and \$300 million.⁴³⁵ Moreover, the MBTA noted that the ongoing operating costs of the new facility would have been greater than current levels. It is not possible to estimate this cost with the detail provided.

The MBTA acknowledges that a portion of its higher estimated cost may have been included in the build-out of the elevated platform. However, Boston 2024 did not provide sufficient detail to determine which costs were specifically related to relocating the Cabot Yard facility and which costs related to other parts of the platform.

b. Projects to Support Post-Olympic Development

Table 24 lists the three MBTA projects that Boston 2024 believed would provide legacy benefits for post-Olympic development, but that would not have been necessary for hosting the Olympic Games. In total, these projects were expected to cost \$256 million.

⁴³³ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 7-8.

⁴³⁴ Based on discussions with MassDOT.

⁴³⁵ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 7-8. In addition, the MBTA recently relocated the Arborway Bus Depot, which is smaller than Cabot Yards. The Arborway Bus Depot houses 115 buses, compared with 225 at Cabot Yards. The cost of relocating Arborway exceeded \$200 million, based on discussions with MassDOT.

Table 24: MBTA Investment Projects to Support Legacy Development (2016 USD)

| Project | Estimated Cost (\$ Million) | Funding Entity | Funding Status | Notes |
|--|------------------------------------|-----------------------|-----------------------------------|---|
| New Broadway T Station Entrance and Exit | \$100 | Commonwealth | Unfunded | Build out of a second headhouse for new entrance and exit. |
| New Commuter Rail Station at Widett Circle | \$96 | Private Developer | Included in Master Developer Cost | Includes hard and soft cost of constructing new station. |
| JFK Station Improvements | \$60 | Commonwealth | Unfunded | Construction of a new bus deck and modifications to the existing headhouse. |
| Total | \$256 | | | |

Sources & Notes:

MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 11-13, 17-18.

Each of the MBTA projects identified by Boston 2024 was expected to increase the value of the Midtown or Columbia Point Developments.⁴³⁶ The two MBTA projects in support of the Midtown Development were a new headhouse for an entrance and exit at the Broadway T Station and a new commuter rail station in Midtown.⁴³⁷ Based on recent projects at Maverick Square, Arlington/Copley Station, and Government Center Station, Boston 2024 estimated the cost of a second headhouse to be \$100 million, including what was described as a 75 percent contingency.⁴³⁸ Construction of the Widett Circle Commuter Rail Station was estimated by Boston 2024 to cost \$96 million.⁴³⁹ Because of the short time the MBTA had to evaluate the proposed investment and the limited detail provided by Boston 2024, the MBTA was not able to evaluate Boston 2024’s \$100 million cost estimate for the Broadway headhouse. We have been

⁴³⁶ According to Boston 2024, “[t]he Games and the Midtown Legacy development plan [could] be the catalyst for significant infrastructure improvements.” “Bid 2.0,” Midtown Development Plan, at p. 59. See also, “Bid 2.0,” Columbia Point Development Plan, at pp. 1-2.

⁴³⁷ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 11-12, 17-18.

⁴³⁸ The average cost of the three projects is \$53.7 million. Boston 2024 said that it had built in a 75 percent contingency to account for the uncertainty of its estimate. MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 11-12.

⁴³⁹ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 17.

advised that the MBTA also estimated additional operation and maintenance costs of an expanded Broadway Station to be approximately \$280,000 per year.⁴⁴⁰

Similarly, Boston 2024 provided limited detail on a new Commuter Rail station at Widett Circle following the Olympic Games. Although the MBTA did not have sufficient detail to fully evaluate Boston 2024's plans, it believes that, depending on the final design, Boston 2024's \$96 million cost estimate for the Commuter Rail station might have been slightly higher than the actual cost of such a project.⁴⁴¹

In support of the development of Columbia Point, Boston 2024 proposed making improvements to JFK Station bus operations and connectivity between the Red Line and Commuter Rail. The improvements included construction of a new bus deck to facilitate bus movements in and out of the station and construction of new passenger waiting areas and canopies.⁴⁴² Boston 2024 expected that these improvements would have allowed JFK Station to provide additional bus and shuttle services to the developing Columbia Point area. Boston 2024 estimated that these upgrades would have cost \$60 million.⁴⁴³ Based on the limited information provided by Boston 2024, the MBTA believes that the upgrades recommended by Boston 2024 would have been insufficient to provide the full benefits, and that an additional \$40 million to \$50 million in upgrades would have been necessary for the MBTA to comply with all codes.⁴⁴⁴ In addition, we have been advised that the MBTA estimates additional operation and maintenance costs of an upgraded JFK Station to be approximately \$500,000 per year.

Given the limited time that the MBTA has had to evaluate Boston 2024's plans, the MBTA did not conduct an independent study to determine whether the projects discussed above were the best projects to meet the needs of the Olympic Games and post-Olympic development. Nor was the MBTA able to determine whether other projects could have provided the same benefits at a lower cost. Additionally, because Boston 2024 provided only limited detail on these projects, it was not known whether these projects would have been sufficient to meet the needs for the Olympic Games or post-Olympic development; if they would not have been sufficient, additional

⁴⁴⁰ Based on discussions with MassDOT.

⁴⁴¹ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 17.

⁴⁴² MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 12-13. "Bid 2.0," Columbia Point Development Plan, at p. 47.

⁴⁴³ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 12-13.

⁴⁴⁴ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 12-13.

projects might have been necessary to support the Olympic Games. It is not possible at this time to estimate the cost of such additional MBTA projects.

4. Road Investment Projects

In its Bid 2.0, Boston 2024 identified six road investment projects that either would have been necessary for the Olympic Games or would have supported post-Olympic legacy development around Midtown or the Athletes' Village. Boston 2024 estimated that these projects would have cost a total of \$220 million to \$320 million: \$120 million to \$220 million to be funded by the Commonwealth and \$100 million to be funded by the private developers. These projects were either new projects discussed in the context of the Olympic Games, or if they had been identified earlier, were at the conceptual stage.

a. Projects to Support the Olympic Games

Boston 2024 identified three road projects that would have supported the Olympic Games around the Midtown and the Athletes' Village Developments, as listed in Table 25. Table 25 shows that, depending on the scale of the improvements, between \$160 million and \$260 million was expected to be spent on improving the Kosciuszko Circle and roads in the Athletes' Village, and \$10 million was expected to be spent on roads surrounding the temporary stadium at the Midtown Development. Improvements to these roads would have provided the benefit of reduced traffic congestion and better pedestrian walkways in these areas.

Table 25: Road Investment Projects for the Olympics (2016 USD)

| Project | Estimated Cost (\$ Million) | Funding Entity | Funding Status | Notes |
|---------------------------------------|--|-----------------------|-----------------------------------|---|
| Kosciuszko Circle Improvements | \$120 - \$220 | Commonwealth | Unfunded | Improvements to Kosciuszko Circle to reduce traffic based on the Columbia Point Master Plan: add signage, create new lanes, and add an underpass or overpass to separate traffic. |
| Columbia Point Village Interior Roads | \$40 | Private Developer | Included in Master Developer cost | General road improvements consistent with the Boston Redevelopment Authority's 2011 Columbia Point Master Plan. |
| Roads around Olympic Stadium | \$10 | Private Developer | Included in Master Developer cost | Allowance for new signalized intersections and curb cuts. |
| Total | \$170-270 | | | |

Sources & Notes:

MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 3-7, 9-10; "Bid 2.0," Columbia Point Development Plan, at pp. 51-53.

i. Kosciuszko Circle Reconfiguration

The largest road improvement project identified in Bid 2.0 involved improvements to Kosciuszko Circle, near the Columbia Point location proposed for the Athletes' Village. In its 2011 Columbia Point Master Plan, the Boston Redevelopment Authority also proposed reconfiguring Kosciuszko Circle.⁴⁴⁵ Boston 2024 proposed two alternative plans. Both plans would have involved reconfiguring what is currently a traffic circle into a standard intersection by straightening the road and adding a traffic signal, extending certain roads, and constructing a new connector to Mount Vernon Street.⁴⁴⁶ One plan, which Boston 2024 estimated to cost \$120 million, would have had Mount Vernon Street (below the new connector) follow its existing path and current access to the JFK/UMass Red Line T Station. The alternate plan, estimated to cost \$220 million,

⁴⁴⁵ Boston Redevelopment Authority, "Columbia Point Master Plan," June 2011, at pp. 65-66, available at <http://www.bostonredevelopmentauthority.org/getattachment/3dbb6601-3336-492e-bc69-cc4ef07f8dd1> (last accessed August 11, 2015).

⁴⁴⁶ "Bid 2.0," Columbia Point Development Plan, at p. 51.

proposed new bypass roads and ramps to provide access to the JFK/UMass Station.⁴⁴⁷ Boston 2024 believed that improvements to Kosciuszko Circle are needed now and stated that the Olympic Games would have served as a catalyst for the project and would have provided the region the benefit of reduced traffic congestion and incidents.⁴⁴⁸

MassDOT's review indicates that the plans associated with this project were the most developed of the road projects proposed by Boston 2024; however, the plans still lacked sufficient detail for a full evaluation to estimate the cost and possible contingencies and risks. The plan did not address issues such as permitting, utilities, and environmental mitigation. In addition, because MassDOT had only a few weeks to review the preliminary plans provided, it was unable to assess whether the proposed project would have met the transportation needs of the Olympic Games or whether additional projects would have been required. Nevertheless, given the information provided, MassDOT's preliminary conclusion is that Boston 2024's cost estimates were understated for the scope of the project described. Based on the limited nature of the information provided, MassDOT estimates the project would have cost between \$174 million and \$240 million.⁴⁴⁹ MassDOT also expressed concern as to whether the project could have been completed on this budget prior to the Olympic Games. Even if the project could have been completed in time, residents and local businesses would have been inconvenienced over an extended period throughout the various construction phases and multiple construction seasons.

ii. Other Road Projects

The two other proposed road projects would have been privately funded projects relating to general interior road improvements at Columbia Point and road improvements around Olympic Stadium.

Boston 2024 stated that the general interior road improvements it outlined were consistent with the Boston Redevelopment Authority's 2011 Columbia Point Master Plan.⁴⁵⁰ Streets were expected to be organized in an urban grid with wide sidewalks, bike lanes, and street side

⁴⁴⁷ "Bid 2.0," Columbia Point Development Plan, at p. 53; MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 3-4.

⁴⁴⁸ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 3-4.

⁴⁴⁹ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 3-4.

⁴⁵⁰ "Bid 2.0," Columbia Point Development Plan, at p. 2.

parking.⁴⁵¹ Boston 2024 estimated the cost of improving the roads would have been \$40 million, with an additional \$10 million for landscaping.⁴⁵² Boston 2024 expected these improvements to have provided the benefit of increased connectivity to Columbia Point and easier pedestrian access to the surrounding waterfront and public parks.⁴⁵³

As with the Kosciuszko Circle reconfiguration plan, MassDOT has expressed uncertainty over the preliminary nature of Boston 2024's plans. Specifically, MassDOT has expressed concern about a lack of comparable projects and the limited information provided, particularly with respect to permitting, utilities, and environmental mitigation. Given the lack of information provided, MassDOT could not fully evaluate Boston 2024's cost estimates or whether this project would have met the transportation needs of the Olympic Games. However, based on its review of the information that was provided, MassDOT has developed a preliminary cost estimate of \$91 million.⁴⁵⁴

Boston 2024 expected minimal improvements would have been required on roads surrounding Olympic Stadium. It estimated that additional curb cuts and traffic signals as part of the first phase of the Midtown Development could have cost \$10 million.⁴⁵⁵ MassDOT does not believe that these limited improvements would have been sufficient to service Olympic Stadium, especially given the current limited access to the area. MassDOT again noted that Boston 2024's plan for road improvements around Olympic Stadium lacked detail on permitting, utilities, and environmental mitigation strategies. As such, MassDOT was not able to provide an evaluation of the \$10 million cost estimate.⁴⁵⁶

As with the other projects discussed, given the limited time that it had to evaluate Boston 2024's plans, MassDOT notes that it was not able to conduct a study to determine whether the road projects identified by Boston 2024 would have been the most appropriate projects to meet the needs of the Olympic Games. Nor was MassDOT able to undertake a study to determine whether other projects could have supported the Olympic Games at a lower cost. *If these projects would not have been sufficient to meet the transportation needs for the Olympic Games,*

⁴⁵¹ "Bid 2.0," Columbia Point Development Plan, at p. 2.

⁴⁵² MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 9-10.

⁴⁵³ "Bid 2.0," Columbia Point Development Plan, at p. 2.

⁴⁵⁴ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 9-10.

⁴⁵⁵ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 6-7.

⁴⁵⁶ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 6-7.

additional projects might have been necessary to support the Olympic Games. It is not possible at this time to estimate the scope or cost of any additional transportation projects that would have been necessary to support the Olympic Games.

b. Projects to Support Future Development

Table 26 lists the three road projects that Boston 2024 identified as not necessary for hosting the Olympic Games, but that would have provided legacy benefits by supporting the development of Midtown. In total, Boston 2024 expected these projects would cost \$50 million.

The three projects, which would have been funded by a private developer, included reconfiguration of the Haul Road and extensions to both A Street and Massachusetts Avenue. Boston 2024 provided little detail concerning the scope or goals of these projects, except that these costs included allowances for road extensions and curb cuts and signalization.⁴⁵⁷ Given the lack of information provided, MassDOT was not able to evaluate the appropriateness of these projects or whether the cost estimates were reasonable. Furthermore, given the lack of detail provided, it is difficult to determine what legacy benefits these improvements would have provided. As a result, we are unable to comment on those projects.

Table 26: Road Projects to Support Legacy Development (2016 USD)

| Project | Estimated Cost (\$ Million) | Funding Entity | Funding Status | Notes |
|--------------------------------|------------------------------------|-----------------------|-----------------------------------|--|
| Haul Road Reconfiguration | \$30 | Private Developer | Included in Master Developer Cost | Allowance to adjust 30,000 square feet of roadway. |
| A Street Connection/Extension | \$10 | Private Developer | Included in Master Developer Cost | Allowance for signaling intersections and curb cuts. |
| Mass. Ave. Connector/Extension | \$10 | Private Developer | Included in Master Developer Cost | Allowance to extend Mass Ave. 100 feet. |
| Total | \$50 | | | |

Sources & Notes:

MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 14-16.

⁴⁵⁷ MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at pp. 14-16.

5. Summary

Apart from the technical uncertainties and risks with respect to completing these infrastructure projects on time, the overall cost estimates that were contained in Bid 2.0 were significantly underestimated. Table 27 provides a summary of the costs that Boston 2024 estimated for the MBTA and road projects in its Bid compared with MassDOT's preliminary estimates of those projects. Since receiving Boston 2024's estimates in the Bid, MassDOT was able to develop preliminary estimates for six projects. Boston 2024 estimated that those projects would cost \$736 to \$836 million. However, MassDOT has estimated that they could cost an additional \$1.3 to \$1.7 billion more, roughly three times Boston 2024's original estimates. Three projects have already been funded but may have required additional costs based on Boston 2024's proposal. Boston 2024 had estimated that the remaining projects would cost an additional \$587 million. Those projects did not contain sufficient information for MassDOT to provide its own cost estimates.

**Table 27: Boston 2024 Infrastructure Cost Estimates and MassDOT Preliminary Evaluation
(2016 USD)**

| Project | Estimated Cost (\$ Million) | MassDOT Preliminary Estimate of Additional Cost (\$ Million) |
|--|--|---|
| Projects Underway: | | |
| Red and Orange Line Vehicle Procurement | \$801 | \$60-\$100 |
| Commuter Rail Vehicle Procurement | \$499 | Actual Cost was \$16 Million Less* |
| Local Bus Vehicle Procurement | \$356 | Actual Cost was \$134 Million Less |
| Total | \$1,656 | (\$50) – (\$90)* |
| Projects for Which MassDOT Has Estimated Costs: | | |
| Additional Green Line Power and Signal Upgrades | \$350 | \$700 |
| Additional Red Line Power and Signal Upgrades | \$105 | \$395 - \$595 |
| Cabot Bus Facility Relocation | \$61 | \$139 - \$239 |
| JFK Station Improvements | \$60 | \$40 - \$50 |
| Kosciuszko Circle Improvements** | \$120 - \$220 | \$20 - \$54 |
| Columbia Point Village Interior Roads | \$40 | \$51 |
| Total | \$736 - \$836 | \$1,345 - \$1,689 |
| Projects for Which MassDOT Does NOT Have Estimated Costs: | | |
| Power and Signal Upgrades for Green, Orange, and Red Lines | \$321 | |
| Amtrak Wash Facility Modification | \$10 | |
| New Broadway T Station Entrance and Exit | \$100 | |
| New Commuter Rail Station at Widett Circle | \$96 | Cost may be Overestimated |
| Roads around Olympic Stadium | \$10 | |
| Haul Road Reconfiguration | \$30 | |
| A Street Connection/Extension | \$10 | |
| Mass. Ave. Extension | \$10 | |
| Total | \$587 | N.A. |

Sources & Notes:

MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB. Discussions with MassDOT. See also Table 23 through Table 26. Because Bid 2.0 does not specify the year basis for its estimates, we do not make any adjustments to account for potential differences in timing in this section.

* The MBTA's purchase of Commuter Rail coaches cost \$483 million for both coaches and locomotives. It is not clear whether Boston 2024's plan included locomotives or was only for coaches.

** The Kosciuszko Circle Improvements were estimated to cost between \$120 million and \$220 million. Bid 2.0 estimated the cost at \$160 million. MassDOT estimates that the project could have cost between \$174 million and \$240 million depending on the project's scope. "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 45; MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB, at p. 3.

VII. The Economic Impacts of Bid 2.0

Estimating the economic impacts of complex major undertakings like the Olympic Games is challenging. Although it is relatively straightforward to estimate the number of construction and operating jobs that can be directly attributed to the construction and operations of the event, almost every other impact component comes with significant uncertainty and is subject to interpretation and definition.⁴⁵⁸ Estimating many of these components requires assumptions that cannot be readily tested. Others, including legacy impacts, require projections subject to high levels of uncertainty. In this section, we present our preliminary estimates of economic impacts accounting for the importance of key assumptions and uncertainties. Finally, we want to stress that economic impacts should not be confused with economic benefits. A large project may result in large and positive impacts, in the form of employment and economic activity, but may not generate benefits in the form of social gains such as better public transit, reduced congestion, and accelerated economic development that exceed costs. Furthermore, those benefits may come at the expense of other benefit-generating economic activities. Choosing among proposed government projects involves a cost-benefit analysis, not an economic impact analysis. No proponent or opponent of the Boston 2024 Olympic Games, that we are aware of, has conducted such an analysis.

A. Summary of Findings

Based on estimates of Olympic Games-related expenditures, adjusted to account for spending source and the proportion of services provided locally, we estimate separately the economic impacts of pre-Olympic Games (“pre-Games”) and during-Olympic Games (“during-Games”) activities using IMPLAN.⁴⁵⁹ We estimate that pre-Games spending would have generated approximately 29,250 job-years and \$5.67 billion of output over the six years leading up to the

⁴⁵⁸ Even the number of construction and operating jobs are subject to uncertainty because they are tied to the size and cost of the Olympics related facilities and related infrastructure.

⁴⁵⁹ For more information on IMPLAN see www.implan.com. The University of Massachusetts Donahue Institute also used IMPLAN in its study of the Boston 2024 Bid 1.0 for the Boston Foundation. See “Assessing the Olympics – Preliminary Economic Analysis of a Boston 2024 Games – Impacts, Opportunities, and Risks,” UMass Donahue Institute, Economic and Public Policy Research, March 2015, available at <http://www.tbf.org/~media/TBFOrg/Files/Reports/Boston%20Olympics%20Report.pdf> (last accessed August 12, 2015).

Olympic Games (an average of roughly 4,875 jobs per year). During-Games spending would have generated approximately 30,300 temporary jobs and \$4.63 billion of output during the year of the Olympic Games. These jobs are not unlike temporary positions created during the holiday season when retailers, the post office, and other employers create a brief period of high demand for moderately skilled labor.

These estimates are very sensitive to certain key assumptions including the share of employment opportunities that would have been filled by local firms and the local labor pool and whether project funding was local or out of region. Local funding may foreclose other projects that would have been funded absent the Olympic Games. Information to make these assumptions is limited. Consequently we have conducted several sensitivity analyses using a range of assumptions to provide a plausible range of employment outcomes. Given the range of those assumptions, pre-Games employment could have been between 3,200 and 5,000 jobs per year (during each of the six years prior to the games). These figures include between 1,500 and 2,400 construction jobs per year. During-Games employment could have been between 25,900 and 35,000. We have not modeled post-Olympic Games (“post-Games”) impacts due to a lack of data regarding post-Games conversion of the Midtown and Athletes’ Village developments.

It is important to put these numbers in context. As of June 2015, Massachusetts’ employment figures show that 3.5 million Massachusetts residents were employed and 169,000 were unemployed.⁴⁶⁰ In the construction sector, there were 132,800 workers employed.⁴⁶¹ This represents an increase of 4,800 construction employees from one year prior in June 2014. Massachusetts’ non-farm employment increased by 72,700 net new jobs between June 2014 and June 2015.⁴⁶² Consequently, should Boston have hosted the Olympic Games in 2024, Olympics jobs during the construction phase would have represented less than one percent of the current Massachusetts workforce. Olympic Games-related construction jobs would have represented about 1.5 percent of current construction jobs in the Commonwealth. Employment during the Olympic Games would have been considerably higher, but only temporary, lasting at most

⁴⁶⁰ “Unemployment Rate Remains at 4.6 Percent in June,” Commonwealth of Massachusetts Executive Office of Labor and Workforce Development (EOLWD), July 16, 2015, available at http://lmi2.detma.org/lmi/News_release_state.asp (last accessed August 12, 2015).

⁴⁶¹ “Current Employment Statistics (CES-790),” EOLWD, available at http://lmi2.detma.org/lmi/lmi_ces_a.asp#aIndustry (last accessed August 11, 2015).

⁴⁶² “Current Employment Statistics (CES-790),” EOLWD, available at http://lmi2.detma.org/lmi/lmi_ces_a.asp#aIndustry (last accessed August 11, 2015).

several months. Thus, these jobs would not have reflected any permanent additional positions in the Commonwealth.

The effect of the Olympic Games on the Commonwealth's gross domestic product ("GDP") would have been very modest. The increase in GDP attributable to the Games during both the construction and operating phases would have been less than one percent of the Commonwealth's GDP.

B. Defining Economic Impacts

Economic impacts typically include a project's contribution to local economic activity measured by gross domestic product, gross output, employment, and tax revenues. These contributions should be measured by comparing the economy with the Olympic Games against the economy without the Olympic Games. This can be accomplished by accounting for several factors. First, the analysis must account for activities that would have taken place in the absence of the Olympic Games. In this case, care must be taken to include only projects that would have been undertaken because of the Olympic Games or undertaken earlier than would have been the case absent the Olympic Games.

Second, the source and location of funding (public versus private, in jurisdiction versus out of jurisdiction) must be accounted for. Should state and local funds be used on Olympics related investment and operations, other projects may be deferred or cancelled.⁴⁶³ Some private or federal funding, however, might not be available absent the Olympic Games and should be included as a net inflow of funds to the Commonwealth.

Third, the likely source for employees must be considered. During all phases of the Olympic Games, employees would be drawn from three sources: 1) local unemployed workers; 2) local currently employed workers; and 3) out-of-jurisdiction labor. Only those positions filled by the first group can be considered new jobs that reduce Massachusetts' unemployment.⁴⁶⁴ Positions

⁴⁶³ Edwin Mills. "The Misuse of Regional Models," *Cato Journal*, Vol.13, No.1, Spring/Summer 1993, at pp. 29-39, available at <http://object.cato.org/sites/cato.org/files/serials/files/cato-journal/1993/5/cj13n1-2.pdf> (last accessed August 17, 2015).

⁴⁶⁴ Many of these jobs will also be temporary such that their effect on unemployment is temporary as well.

filled from the other sources represent transfers between existing jobs, although some of the payroll tax benefits may still be realized with out-of-jurisdiction labor.⁴⁶⁵

Fourth, special tax treatment resulting in forgone tax revenues must be addressed. Fifth, to the extent that expected impacts are in the future, forecast uncertainty must be acknowledged and addressed. This is especially important for legacy impacts.

Finally, it is important to recognize that economic impacts are not by definition economic benefits. There can be positive economic impacts from a negative event, say a flood or earthquake, in the form of jobs and infrastructure replacement, but clearly these events do not benefit the affected citizens and governments. Evaluating the proposed Olympic Games in cost-benefits terms involves consideration of benefits in terms of net revenue gains to state and local government and whether positive externalities (for example, legacy improvements such as new and modern housing stock, faster and more frequent public transit, better air quality, etc.) exceed negative externalities (for example, disruption during construction and operations and congestion during the games).

C. Baseline Development

The most transparent means of developing a baseline absent the Olympic Games is by reference to a well-regarded long-term regional economic development plan. The Metropolitan Area Planning Council (“MAPC”) has, in fact, reviewed the initial Boston 2024 Olympics plan in the context of existing regional plans.⁴⁶⁶ The MAPC review determined that the proposed Midtown project—the temporary stadium located at Widett Circle/Cabot Yards—is not currently part of any long-term development plan. Consequently, it can be considered an incremental project for impact assessment.⁴⁶⁷ The MAPC also identified legacy potential at the site in the form of improved transportation which could complement planned housing development. In contrast, the MAPC determined the proposed Athletes’ Village located at Columbia Point does overlap

⁴⁶⁵ This would not be true for IOC employees and other individuals exempt from local taxation under IOC guidelines.

⁴⁶⁶ “Putting Legacy First, Planning for the Boston 2024 Olympics.” Metropolitan Area Planning Council, June 9, 2015, available at http://ma-smartgrowth.org/wp-content/uploads/MAPC-PuttingLegacyFirst_FINAL060915.pdf, (last accessed at August 12, 2015).

⁴⁶⁷ However, to the extent that this project would attract private investment that would otherwise be made elsewhere in Boston or Massachusetts, it does impose an opportunity cost.

with an existing plan, the Columbia Point Master Plan approved by the Boston Redevelopment Authority. No specific project described in this plan is currently underway, however, and no project is currently being actively considered. Consequently, the Athletes’ Village project can also be considered incremental for impact assessment.⁴⁶⁸ MAPC did note that UMass does not have a current plan for dormitory space at this site. Consequently, the University might benefit from privately funded dorm development if additional dorm capacity is required.

Boston 2024 identified 17 infrastructure projects related to the Olympic Games (see Table 28). See Section VI for a detailed discussion of these projects. We have taken this list of projects and identified those which should be included in our economic impact estimates. As a general rule, we do not include Commonwealth-funded projects, as these do not represent “new dollars” to the Commonwealth. We exclude several projects which are already planned and funded, as these are happening separately from the Olympic Games. It is important to note that the reported cost estimates come from Boston 2024, and in some cases are lower than estimates provided by MassDOT.

Table 28: Infrastructure Projects related to the Olympic Games

| Project | Estimated Cost (millions 2016 USD) | Timeline | Included in Economic Impacts | Reason |
|---|--|----------|------------------------------------|--|
| [1] Red Line & Orange Line Vehicle Procurement | \$801 | Pre | No | Already funded and planned |
| [2] Commuter Rail Vehicle Procurement | \$499 | Pre | No | Already funded and planned |
| [3] Local Bus Vehicle Procurement | \$356 | Pre | No | Already funded and planned |
| [4] Transit System Power/Signal Upgrade (Green, Orange, Red, Lines) | \$321 | Pre | No | Already funded and planned |
| [5] Additional Green Line Improvements (Power/Signal Upgrades) | \$350 | Pre | No | Commonwealth funded |
| [6] Additional Red Line Improvements (Power/Signal Upgrades) | \$105 | Pre | No | Commonwealth funded |
| [7] Kosciuszko Circle Improvements | \$120-\$220 | Pre | No | Commonwealth funded |
| [8] Amtrak Wash Facility Modification | \$10 | Pre | Yes | Privately funded, in Master Developer cost |
| [9] Roads Around Olympic Stadium | \$10 | Pre | Yes | Privately funded, in Master Developer cost |
| [10] Cabot Bus Facility Relocation | \$61 | Pre | Yes | Privately funded, in Master Developer cost |
| [11] Columbia Point Village Interior Roads | \$40 | Pre | Yes | Privately funded, in Master Developer cost |
| [12] New Broadway T Station Entrance and Exit | \$100 | Post | No | Commonwealth funded |
| [13] JFK Station Improvements | \$60 | Post | No | Commonwealth funded |
| [14] Haul Road Reconfiguration | \$30 | Post | Yes | Privately funded |
| [15] A Street Connection/Extension | \$10 | Post | Yes | Privately funded |
| [16] Mass Avenue Connector Extension | \$10 | Post | Yes | Privately funded |
| [17] New Commuter Rail Station at Widett Circle | \$96 | Post | Yes | Privately funded |

Sources & Notes:

Cost estimates are from Boston 2024. MassDOT estimates exceed Boston 2024 estimates in several cases.

Costs are in millions of 2016 USD.

Projects from MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB.

⁴⁶⁸ Since Columbia Point is under consideration and part of a long-term Boston Redevelopment Authority plan, it may be more appropriate to credit this as accelerated development, rather than fully incremental development. This distinction, however, does not change the magnitude of measured impacts.

D. Description of Revenues and Relevant Project Spending

In order to estimate economic impacts, we have identified Olympic Games-related revenues and project spending separately. We have also separated project spending into three time periods: pre-Games, during-Games, and post-Games. These breakdowns provide greater transparency regarding the drivers behind the impacts we estimate.

1. Revenues

Table 29 summarizes expected revenues to OCOG from the Olympic Games. Local sources contribute in different proportions to each revenue type, as shown in column [c].⁴⁶⁹ This is relevant because the share of funds from local sources determines that amount of “new money” flowing into Massachusetts’ economy. With ticketing, for instance, local residents who choose to attend the Olympics may simply shift their spending away from other local sporting events or other forms of entertainment. The true share of OCOG revenues from local sources is difficult to predict, as it depends in particular on ticket sales and sponsorships, both of which could vary widely. In our base model, we rely on estimates used in the UMass Study.⁴⁷⁰ Recognizing that the true share could be larger or smaller than shown below, we test alternative estimates in Section VII.E.2.

⁴⁶⁹ For the purpose of economic impacts, we define “local” as coming from within Massachusetts, not just Boston or the surrounding area.

⁴⁷⁰ “Assessing the Olympics—Preliminary Economic Analysis of a Boston 2024 Games—Impacts, Opportunities, and Risks,” UMass Donahue Institute, Economic and Public Policy Research, March 2015, available at <http://www.tbf.org/~media/TBFOrg/Files/Reports/Boston%20Olympics%20Report.pdf> (last accessed August 12, 2015) (“UMass Study”).

Table 29: Estimated OCOG Revenues and Sources (millions 2016 USD)

| Input | Original Amount | Estimated Local Share | Local Revenue Sources | Non-local Revenue Sources |
|---|------------------------|------------------------------|------------------------------|----------------------------------|
| [a] | [b] | [c] | [d] = [b] x [c] | [e] = [b] - [d] |
| [1] Broadcast & TOP Sponsors (IOC Contribution) | \$1,500 | 0% | \$0 | \$1,500 |
| [2] Tickets | \$1,250 | 20% | \$250 | \$1,000 |
| [3] Domestic Sponsors | \$1,520 | 70% | \$1,064 | \$456 |
| [4] Licensing, torch relay, premium packages, other | \$535 | 15% | \$80 | \$455 |
| [5] Total Revenues | \$4,805 | 29% | \$1,394 | \$3,411 |

Sources & Notes:

[a],[b]: "Bid 2.0," Planning, Planning Process, Benefits, Risks, Opportunities, at p. 20.

[c]: UMass Study, p. 20. Local is defined as coming from within Massachusetts.

2. Project Spending

a. Pre-Olympic Games

Table 30 summarizes pre-Games spending for Olympic Games-related facilities. Facility expenditures to prepare for the Olympic Games total \$4.294 billion excluding land acquisition.⁴⁷¹ Of this, we include \$3.023 billion in our model as "new dollars" paid to Massachusetts firms. For the Midtown and Athletes' Village costs, we exclude land acquisition costs.⁴⁷²

⁴⁷¹ This reflects Boston 2024 estimates for project costs. All dollars are reported as 2016 dollars unless otherwise designated.

⁴⁷² For both projects, the land acquisition costs reflect a transfer of ownership. For the Midtown development, the creation of the platform is included as a construction cost in our model.

Table 30: Estimated Pre-Games Project Spending (millions 2016 USD)

| Input | Initial Amount | Amount Funded Locally | Amount Funded Externally | Net Increase to MA Firms |
|---|-----------------------|------------------------------|---------------------------------|---------------------------------|
| [a] | [b] | [c] | [d] | [e] = [d] x 75% |
| [1] Midtown (including temporary stadium) | \$1,051 | \$51 | \$999 | \$750 |
| [2] Athletes' Village | \$2,511 | \$0 | \$2,511 | \$1,883 |
| [3] IBC/MPC Construction | \$51 | \$15 | \$36 | \$27 |
| [4] Other Sports Venues Construction | \$682 | \$198 | \$484 | \$363 |
| [5] Total Pre-Games | \$4,294 | \$264 | \$4,030 | \$3,023 |

Sources & Notes:

Private developer infrastructure costs are included in the Midtown and Village development costs.

Land acquisition costs are excluded.

[a]: Projects as identified in bid and concept documents.

[b]: The total project cost.

[c]: The portion of [b] funded through local sources of the OCOG budget. In our base model we assume 29% of OCOG revenues are from local sources.

[d]: The portion of [b] funded by private developers or through external sources of funding to the OCOG budget.

[1]: "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22 and Midtown Development Plan, at p. 66. The Midtown Developer Model was provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigio Group.

[2]: Athletes' Village Developer Model provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigio Group.

[3], [4]: "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22

[5]: The sum of [1] through [4].

For pre-Games expenditures, we assume in our base model that 75 percent of new dollars would be paid to Massachusetts firms (as opposed to out of state firms brought in to provide construction and other services). This is consistent with the UMass Study, though this number does not appear to be based on any carefully done study of the use of local versus out-of-region firms. We test the sensitivity of the model results to this assumption in Section VII.E.2 below.

b. During-Olympic Games

Table 31 shows estimated spending on operations during the Olympic Games. Column [c] shows the estimated share of each line item that would have been paid to firms in Massachusetts. These estimates are subject to varying degrees of uncertainty. Venue Rental/Ops, for instance, would likely have been entirely local because the venues would have been physically located in the Commonwealth. Other line items could have a greater or smaller share of local expenditures depending on the economic conditions in 2024. For our base model, we rely on estimates used in the UMass Study. We test the sensitivity of the results to these estimates in Section VII.E.2

Table 31: Estimated During-Games Operations Spending (millions 2016 USD)

| Input | Initial Amount | Local Estimate | Local Expenditures | % of Money from Outside MA | Net Increase to MA Firms |
|------------------------------|----------------|----------------|--------------------|----------------------------|--------------------------|
| [a] | [b] | [c] | [d] = [b] x [c] | [e] | [f] = [d] x [e] |
| [1] Athletes' Village | \$90 | 75% | \$68 | 71% | \$48 |
| [2] Venue Rental/Ops | \$132 | 100% | \$132 | 71% | \$94 |
| [3] Games - Technology | \$537 | 63% | \$336 | 71% | \$238 |
| [4] Games - Services | \$442 | 50% | \$221 | 71% | \$157 |
| [5] Games - Workforce | \$576 | 75% | \$432 | 71% | \$307 |
| [6] Games - Support Services | \$921 | 90% | \$829 | 71% | \$588 |
| [7] USOC Joint Venture | \$413 | 50% | \$207 | 71% | \$147 |
| [8] Municipal Operations | \$375 | 100% | \$375 | 71% | \$266 |
| [9] Security | \$1,000 | 65% | \$650 | 100% | \$650 |
| [10] Total During-Games | \$4,486 | | \$3,249 | | \$2,495 |

Sources & Notes:

[a], [b]: "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 22 for all but Security.

UMass Donahue, "Assessing the Olympics, Preliminary Economic Analysis of a Boston 2024 Games Impacts, Opportunities, and Risks, March 2015, pp. 12 and 19. Boston 2024 anticipated that the Federal Government would oversee Games security operations and would provide the necessary funding as a National Special Security Event, but Bid 2.0 provided no estimate of the security operations cost. See "Bid 2.0," Planning Process, Benefits, Risks, Opportunities, at p. 50.

[c]: UMass Study, at p. 21, Table 5.

[e]: Based on estimates of local sources of revenues during Games. See Table 29.

We do not include the impact of visitor expenditures during the Olympic Games. This impact is controversial because it is difficult to estimate the share of visitors from out-of-state who would not be visiting but for the Olympic Games. For economic impact purposes, revenues generated during the Olympic Games must account for the displacement of revenues from other entertainment and recreation activities that the Olympic Games replace and to account for tourists who would have chosen to avoid Boston during the Olympic Games because of congestion and higher prices. The UMass Study assumes that only 25 percent of tourist spending would have been attributable to the Olympic Games largely because Boston's hotel vacancy rate is typically low (ten percent) in the summer months. While this does not seem unreasonable, it is not based on any empirical evidence or rigorous analysis. This share may be low if services like Airbnb are accounted for and Olympic Games visitors are willing to stay outside Greater Boston, but within Massachusetts.

c. Post-Olympic Games

Post-Games spending would have resulted from the conversion of Olympic Games facilities to other uses. Estimates for these expenditures can be found in the cash flow analysis provided for the Athletes' Village conversion, but not for the Midtown project. Although these costs are assumed to be covered by private sources, there are tax concessions associated with these projects that will reflect costs to local governments in the form of lost tax revenue. Table 32 reports the estimated post-Games spending.

Table 32: Estimated Post-Games Spending (millions 2016 USD)

| Input | Initial Amount | Amount | | Net Increase to MA Firms |
|--|---|----------------|-------------------|--------------------------|
| | | Funded Locally | Funded Externally | |
| [a] | [b] | [c] | [d] | [e] = [d] x 75% |
| <i>Facilities</i> | | | | |
| [1] Midtown Development - Phase 2+ | Costs for developing post-games not available | | | |
| [2] Athletes' Village - Conversion | Conversion costs not modeled | | | |
| <i>Infrastructure</i> | | | | |
| [3] Legacy Venue Improvements | \$72 | \$0 | \$72 | \$54 |
| [4] New Broadway T Station Entrance and Exit | \$100 | \$100 | \$0 | \$0 |
| [5] JFK Station Improvements | \$60 | \$60 | \$0 | \$0 |
| [6] Haul Road Reconfiguration | \$30 | \$0 | \$30 | \$23 |
| [7] A Street Connection/Extension | \$10 | \$0 | \$10 | \$8 |
| [8] Mass Avenue Connector Extension | \$10 | \$0 | \$10 | \$8 |
| [9] New Commuter Rail Station at Widett Circle | \$96 | \$0 | \$96 | \$72 |
| [10] Total Infrastructure | \$378 | \$160 | \$218 | \$164 |

Sources & Notes:

[a]: Infrastructure projects from MassDOT Review of Boston 2024 Transportation Plan developed with the help of VHB. [1] and [2] rely on the Midtown Developer Model and Athletes' Village Developer Model provided by Boston 2024 with the help of National Development, Leggat McCall Properties, New England Market, JLL, and Dirigio Group.

[b]: The total cost as identified by Boston 2024.

[c]: The portion of [b] funded by state or local governments.

[d]: The portion of [b] funded privately.

E. Preliminary Results

1. Base Model

Based on the expenditures identified above, we estimate separately the economic impacts of pre-Games and during-Games activities using IMPLAN. As shown in Table 33, we estimate that pre-Games spending would have generated approximately 29,250 job-years and \$5.67 billion of output over the six years leading up to the Olympic Games (roughly 4,875 jobs per year, or about

one-tenth of one percent of the Massachusetts workforce).⁴⁷³ Table 34 shows the economic impact resulting from estimated during-Games activities: approximately 30,300 job-years and \$4.63 billion of output during the year of the Games.⁴⁷⁴ These tables also present impacts on labor income, value added and output. Value added is also referred to as gross domestic product and can be compared to a state or region's GDP. Massachusetts' GDP in 2014 was about \$459 billion.⁴⁷⁵ The pre-Games impact across six years represents less than one percent of annual Commonwealth GDP. The contribution each year on average would have been about 0.11 percent. The impact in 2024 would also have been substantially less than one percent assuming Massachusetts continues to grow.

Table 33: Economic Impact of Pre-Games Expenditures (millions 2016 USD)

| Impact Type | Job-Years | Labor Income | Value Added | Output |
|---------------------|------------------|---------------------|--------------------|----------------|
| Direct Effect | 13,815 | \$1,154 | \$1,336 | \$3,100 |
| Indirect Effect | 7,871 | \$494 | \$772 | \$1,277 |
| Induced Effect | 7,562 | \$491 | \$806 | \$1,292 |
| Total Effect | 29,248 | \$2,139 | \$2,914 | \$5,668 |

Sources & Notes:

For a description of Direct, Indirect, and Induced effects, see footnote 473.
Results from MIG, Inc. IMPLAN System.

⁴⁷³ These figures include direct jobs at Olympic Games and related facilities, indirect jobs at firms that supply goods and services to the Olympic Games during construction and operations, and induced jobs servicing demands related to spending by households of direct and indirect workers.

⁴⁷⁴ As discussed above, we do not include the impact of visitor expenditures. The UMass Study estimates that visitor expenditures attributable to the Olympic Games would total \$300 million, across food, transportation, and accommodations. Including these estimated expenditures in the during-Games cost estimates results in an additional 4,000 temporary jobs and total output effect of \$544 million. These jobs are temporary, lasting no more than a few months around the time of the Olympic Games.

⁴⁷⁵ Federal Reserve, St. Louis, available at <https://research.stlouisfed.org/fred/series/MANGSP>, (last accessed at August 12, 2015).

Table 34: Economic Impact of During-Games Expenditures (millions 2016 USD)

| Impact Type | Job-Years | Labor Income | Value Added | Output |
|---------------------|------------------|---------------------|--------------------|----------------|
| Direct Effect | 19,462 | \$1,048 | \$1,779 | \$2,635 |
| Indirect Effect | 4,389 | \$363 | \$535 | \$889 |
| Induced Effect | 6,461 | \$420 | \$689 | \$1,104 |
| Total Effect | 30,312 | \$1,830 | \$3,004 | \$4,628 |

Sources & Notes:

For a description of Direct, Indirect, and Induced effects, see footnote 473.
Results from MIG, Inc. IMPLAN System.

2. Sensitivity Analysis

As noted at the beginning of this section, there are many uncertainties associated with Olympic Games bids that make providing firm estimates of economic impacts difficult.⁴⁷⁶

We have conducted several sensitivity analyses to address two key assumptions. First, we address how the share of spending on local firms and employees affects economic impacts. Second we address how the share of local OCOG funding affects economic impacts.

The first assumption is the percentage of expenditures which are paid to in-state firms. In the original model, we assumed that 75 percent of pre-Games expenditures would be paid to in-state firms. Unfortunately, there is no strong basis for determining this share. The recent UMass Study and a frequently referenced study completed for Chicago do not rely on values based on other studies or any rigorous original research.⁴⁷⁷ Data on this value from prior Olympics are

⁴⁷⁶ In other sections of this report, we have addressed two key uncertainties—cost overruns and understated revenues. These can have important effects on economic impacts. Cost overruns means that more funds will flow into the Olympics projects. While this can result in increased job demands and higher compensation (overtime pay for example), the local labor supply may be inadequate and additional labor will be supplied (temporarily) from outside Massachusetts. Should construction start with labor conditions similar to those currently observed (the current unemployment rate in Massachusetts is slightly over four percent) outside labor would likely be needed. Overruns can also have a negative impact because more local funds will be required to meet the higher costs that reflect opportunity costs for other projects and government programs and services. We have not quantified these uncertainties here.

⁴⁷⁷ Scott D. Watkins and Patrick L. Anderson. “The Likely Economic Impact of a Chicago 2016 Summer Olympics,” AEG Working Paper 2009, September 24, 2009, available at

Continued on next page

hard to come by. Thus, a sensitivity analysis is a useful exercise to determine how important this assumption is to the impact estimates.

The second assumption that has an impact on the results is the share of OCOG revenues that comes from local sources. As this share decreases, the economic impact increases, because more external dollars flow into Massachusetts' economy. Again, there is no reliable study or resource to establish this share, which makes the sensitivity analysis a useful exercise.

a. Pre-Olympic Games

Table 35 shows estimated total output impacts from pre-Games spending under nine scenarios. Each scenario represents a pair of assumptions of the share of spending paid to local firms and the share of local OCOG funding. For instance, under our base assumption of 75 percent spending on local firms and 29 percent local OCOG funding, we estimate total output impact of \$5.67 billion.

Output increases as the share of expenditures paid to Massachusetts firms increases and as the share of OCOG revenues from local sources decreases. Thus, for the sensitivities analyzed the largest impact is seen when spending on local firms is 75 percent and local OCOG revenue is 19 percent. Note that we did not have sufficient information to determine the most likely percentages employed in this sensitivity analysis.

Table 35: Pre-Games Total Output Impacts Under Nine Scenarios (millions 2016 USD)

| Percent of OCOG Revenues from Local Sources | Percent of Expenditures Paid to MA Firms | | |
|---|--|---------|---------|
| | 50.0% | 62.5% | 75.0% |
| 19% | \$3,860 | \$4,825 | \$5,789 |
| 29% | \$3,779 | \$4,724 | \$5,668 |
| 39% | \$3,698 | \$4,623 | \$5,547 |

Table 36 shows the estimated employment impacts under the same set of nine scenarios.

Continued from previous page

http://www.andersoneconomicgroup.com/Portals/0/upload/AEG_chicago_olympics_final.pdf (last accessed August 17, 2015).

Table 36: Pre-Games Employment Impacts Under Nine Scenarios (total job-years)

| Percent of OCOG Revenues from Local Sources | Percent of Expenditures Paid to MA Firms | | |
|---|--|--------|--------|
| | 50.0% | 62.5% | 75.0% |
| 19% | 19,949 | 24,938 | 29,923 |
| 29% | 19,498 | 24,375 | 29,248 |
| 39% | 19,047 | 23,810 | 28,573 |

Since we have not adjusted for any spending mix change that may accompany a shift in spending on local firms (e.g., specialized labor may be available in-state while a specialized material is not) the results are proportional. For example, holding local OCOG funding constant and reducing spending on local firms from 75 percent to 50 percent reduces employment and output by 33 percent ($25/75 = .33$). Thus, as shown in Table 36, with local OCOG funding at 29 percent, total job-years fall from 29,248 to 19,498 (a fall of 9,750 or 33 percent). Despite this limitation, the example clearly shows that the share of expenditures paid to local firms has a sizable effect on economic impacts.

The share of OCOG revenue from local sources has a less pronounced effect on pre-Games impacts. This is because only a portion of pre-Games expenditures depend on OCOG revenues: stadium, venue, and IBC/MPC construction. The remainder of the pre-Games expenditures (Midtown and Village construction costs) is expected to be paid by the developer, and thus represent new dollars to the Massachusetts economy. As a result of this muting effect, an increase of ten percent in local OCOG revenue share only decreases the total output impact by about two percent.⁴⁷⁸

b. During-Olympic Games

We test sensitivities to the during-Games results in a similar way. Local sources of OCOG revenue are tested at the same three levels as for pre-Games spending.

Spending on local firms is tested in a slightly different way. Our base model for during-Games spending included assumptions for the shares of spending on local firms that were specific to each line item. For instance, Security Services were assumed to be 65 percent local, while Games

⁴⁷⁸ For example, with the share of spending on local firms held constant at 75 percent, increasing local OCOG revenue share from 19 percent to 29 percent decreases total output impact from \$5.79 billion to \$5.67 billion, a drop of \$0.12 billion or 2 percent.

Support Services were assumed to be 90 percent local. These numbers relied on the UMass study and are again subject to uncertainty. We have tested the sensitivity of results to these assumptions by increasing and decreasing the base assumptions by ten percent (e.g., we tested the share of local Security Services at 58.5 percent, 65.0 percent, and 71.5 percent).

Table 37 shows estimated total output impacts from during-Games spending under nine scenarios. Each scenario represents a pair of assumptions of the share of spending paid to local firms and the share of local OCOG funding. For instance, under our base assumption spending on local firms and 29 percent local OCOG funding, we estimate total output impact of \$4.63 billion.

Table 37: During-Games Total Output Impacts Under Nine Scenarios (millions 2016 USD)

| Percent of OCOG Revenues from Local Sources | Percent of Expenditures Paid to MA Firms | | |
|---|--|------------|----------|
| | minus 10% | base model | plus 10% |
| 19% | \$4,686 | \$5,101 | \$5,516 |
| 29% | \$4,248 | \$4,628 | \$5,007 |
| 39% | \$3,811 | \$4,155 | \$4,499 |

Table 38 shows the estimated employment impacts under the same set of nine scenarios. The share of local OCOG revenue has a larger effect on during-Games impacts than it does on pre-Games impacts. For instance, under our base model of local spending, increasing local OCOG revenue from 19 percent to 29 percent decreases the employment impact from 32,240 to 30,312, a fall of six percent. The equivalent change of local OCOG revenue share in the pre-Games model caused a fall in employment impact of only two percent.

Table 38: During-Games Employment Impacts Under Nine Scenarios (total job-years)

| Percent of OCOG Revenues from Local Sources | Percent of Expenditures Paid to MA Firms | | |
|---|--|------------|----------|
| | minus 10% | base model | plus 10% |
| 19% | 29,481 | 32,240 | 34,997 |
| 29% | 27,688 | 30,312 | 32,935 |
| 39% | 25,897 | 28,385 | 30,873 |

3. Comparison to Other Estimates

Table 39 compares the results of our preliminary economic impact analysis for Bid 2.0 to the UMass analysis for Bid 1.0. Both analyses rely on IMPLAN. The differences are largely due to

the changes in expenditures between Bid 1.0 and Bid 2.0. Note that output multipliers are similar, but that there are notable differences with respect to employment multipliers.⁴⁷⁹ These differences may be explained by different choices regarding the affected industries in pre-Olympic Games construction and operations during the Olympic Games. We do not have access to the specific industry breakdown assumed in the UMass study to investigate this further at this time.

Table 39: Comparison of Estimated Economic Impacts (millions 2016 USD)

| | Pre-Games | | During-Games | |
|--|-----------|---------|--------------|---------|
| | Brattle | UMass | Brattle | UMass |
| Output | | | | |
| Direct | \$3,100 | \$2,127 | \$2,635 | \$2,586 |
| Indirect | \$1,277 | \$938 | \$889 | \$770 |
| Induced | \$1,292 | \$922 | \$1,104 | \$1,720 |
| Total | \$5,668 | \$3,987 | \$4,628 | \$5,076 |
| Job-Years | | | | |
| Direct | 13,815 | 10,998 | 19,462 | 33,581 |
| Indirect | 7,871 | 7,004 | 4,389 | 4,687 |
| Induced | 7,562 | 6,383 | 6,461 | 11,887 |
| Total | 29,248 | 24,385 | 30,312 | 50,156 |
| Multipliers (per million dollars) | | | | |
| Total Output | 1.828 | 1.874 | 1.757 | 1.963 |
| Job-Years | 9.434 | 11.465 | 11.505 | 19.395 |

Sources & Notes:

For a description of Direct, Indirect, and Induced effects, see footnote 473.

Results from MIG, Inc. IMPLAN System.

Pre-Games UMass results from UMass Study, at p. 18, Table 3.

During-Games UMass results from UMass Study, at p. 22, Table 6.

Other large-scale projects in the region (primarily transportation) provide comparable employment and output multipliers. For instance, the Environmental Impact Report for MDOT's

⁴⁷⁹ "An output multiplier is the ratio of the direct, indirect, and induced effects to the initial spending alone." ... "Thus, for example, if a government agency were trying to determine in which sector of the economy to spend an additional dollar ... a comparison of output multipliers would show where the spending would have the greatest impact in terms of total dollar value of output generated throughout the economy." See Ronald E. Miller and Peter D. Blair, *Input-Output Analysis: Foundations and Extensions, Second Edition*, at pp. 245-246.

West Station expansion includes an output multiplier of 2.3 and an employment multiplier of 10.5.⁴⁸⁰ A Chicago Olympic bid analysis provided an output multiplier of 1.7 (every \$1 of direct expenditure) results in \$0.70 in additional economic activity.⁴⁸¹

F. Legacy Impacts

Legacy impacts are difficult to quantify. The transportation infrastructure improvements associated with the Midtown project were expected to spur additional redevelopment nearby. The housing structures at the Athletes' Village were expected to spur more housing and may have reduced the costs of providing additional housing at UMass. The social benefits attributable to these projects were not quantified. There are no estimates of whether the redevelopment projects would have reduced housing shortages or provided more low income housing or increased the tax base net of additional services. Similarly, there are no estimates as to whether the proposed transportation projects would have reduced congestion or improved service. This reflects the fact that these projects are not part of the Commonwealth's existing priorities.

It is also important to recognize the potential impact of tax breaks proposed for developers of the Midtown and Columbia Point projects as described in Section V. No comparison of the social benefits attributable to these projects was made to those from other projects that could have benefitted from these tax incentives.

⁴⁸⁰ "Revised Draft Environmental Impact Report/Draft Environmental Impact Statement (RDEIR/DEIS): Urban Ring Phase 2," Massachusetts Executive Office of Transportation, November 2008, at pp. 5-8 and 5-9 available at <http://massdot.state.ma.us/theurbanring/documents.html#deir>.

⁴⁸¹ Scott D. Watkins and Patrick L. Anderson. "The Likely Economic Impact of a Chicago 2016 Summer Olympics," AEG Working Paper 2009, September 24, 2009, at p. 7, available at http://www.andersoneconomicgroup.com/Portals/0/upload/AEG_chicago_olympics_final.pdf (last accessed August 17, 2015).

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About Allen R. Sanderson

Professor Sanderson is a senior lecturer in economics at the University of Chicago. He has previously served eight years as associate provost of the University of Chicago; and has also been a senior research scientist at NORC. He is an oft-cited authority on sports economics issues, a contributor to op-ed pages on sports and non-sports topics in newspapers around the country and a frequent guest on national and Chicago-area television and radio programs. His recent professional journal articles and book chapters are on the economic impact of colleges and universities on their communities; the political economy of Chicago’s unsuccessful bid to host the 2016 Olympic Games; and an article in the Winter 2015 *Journal of Economic Perspectives* on “The Case for Paying College Athletes.” Professor Sanderson has also evaluated and consulted on matters involving the economics of sports infrastructure, such as the 2004 New York Jets proposed stadium in the Hudson Woods area on Manhattan; the 2016 Chicago bid; and the 2015 NFL Draft on Chicago.

About Brad Humphreys

Professor Humphreys is a professor in the College of Business and Economics, Department of Economics at West Virginia University. He holds a Ph.D. in economics from the Johns Hopkins University. He previously held positions at the University of Illinois at Urbana-Champaign and the University of Alberta. His research on the economics and financing of professional sports, the economics of gambling, and the economics of higher education has been published in academic journals in economics and policy analysis, including the Journal of Urban Economics, the Journal of Monetary Economics, the Journal of Policy Analysis and Management, the Journal of Economic Behavior and Organization, Empirical Economics, Public Finance Review, and Regional Science and Urban Economics. He has published more than 80 papers in peer-reviewed journals in economics and public policy. He twice testified before the United States Congress on the economic impact of professional sports teams and facilities.

About Floyd Advisory

Floyd Advisory LLC (“Floyd”) has offices in Boston and New York. Founded in 2009, Floyd is a consulting firm providing financial and accounting expertise in business strategy, valuation, SEC reporting, and transaction analysis. The firm consists of approximately 25 professionals, including Certified Public Accountants, financial analysts, and transaction and valuation experts. Floyd’s clients include law firms, private equity firms, Fortune 500 companies, SEC Registrants, boards of directors, corporate officers and closely held companies.

As financial reporting experts, Floyd has significant experience in preparing financial projections and forecasts and developing the underlying models to support them. They are experienced in testing the assumptions supporting these models while also providing the appropriate financial due diligence thereof. Further, the firm is recognized in the business community for providing independent and objective analyses while adhering to best practices and relevant guidance.

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