

RELOCATION BAY:  
IDENTIFYING A SUITABLE SITE FOR THE TAMPA BAY RAYS

by

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## **DEDICATION**

I dedicate this document to my parents, my sister, and to Leslie for without their everlasting support and motivation, none of this would have been possible.

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I would like to extend my gratitude to my advisor, Dr. Warshawsky, as well as to my family and friends for enduring this process with me. Their guidance and wisdom proved invaluable.

## TABLE OF CONTENTS

DEDICATION	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	ix
ABSTRACT	x
CHAPTER ONE: INTRODUCTION	1
1.1 Initial Stadium Search	2
1.2 Study Objective	4
1.3 Research Significance	5
1.4 Regional Obstacles	6
1.5 Community Impact	7
1.6 Study Area	9
CHAPTER TWO: RELATED WORK	14
2.1 Central Business Districts	15
2.2 The Suburban Exodus	16
2.3 Franchise Relocation	17
2.4 Stadium Design Changes	18
2.5 Downtown Revitalization using Stadiums	19
2.6 Mixed Success	23
2.7 Research Gap	23

CHAPTER THREE: METHODOLOGY	25
3.1 Time/Distance Variable	25
3.2 Population Variable	27
3.3 Critical Infrastructure Variable	28
3.4 Parcel Variable	29
3.5 Scoring System	30
3.5.1 Scoring System Metrics	31
3.5.2 Parameter Scoring Analysis	32
3.6 Targeted Sites vs. Non-Targeted Sites	38
3.7 Limitations	38
CHAPTER FOUR: RESULTS	40
4.1 Control Analysis	41
4.2 Targeted Site Analysis	45
4.2.1 Time/Distance and Population Analysis (50 Points Max)	47
4.2.2 Critical Infrastructure Analysis (25 Points Max)	50
4.2.3 Parcel Analysis (25 Points)	55
4.2.4 Targeted Site Analysis (100 Points Max)	58
4.2.5 In-Depth Targeted Site Analysis	59
4.3 Non-Targeted Site Analysis	64
4.3.1 Time/Distance and Population Analysis (50 Points Max)	66
4.3.2 Critical Infrastructure Analysis (25 Points Max)	67
4.3.3 Parcel Analysis (25 Points)	70
4.3.4 Non-Targeted Site Analysis (100 Points Max)	71

CHAPTER 5: DISCUSSION AND CONCLUSION	74
5.1 Key Observations	74
5.2 Future Research	75
5.2.1 Traffic Flow Analysis	76
5.2.2 Population Analysis	77
5.2.3 Travel Time Analysis	78
5.3 Conclusion	78
REFERENCES	80

## LIST OF TABLES

Table 1 Site Suitability Scoring System	31
Table 2 Burke et al. (2008) Table Showing Time/Population Join	33
Table 3 Time/Distance and Population Scoring Results	42
Table 4 Critical Infrastructure Scoring Results	43
Table 5 Parcels Scoring Results	56
Table 6 Final Site Scores	58
Table 7 Non-Targeted Time/Distance and Population Scoring Results	66
Table 8 Non-Targeted Critical Infrastructure Scoring Results	68
Table 9 Non-Targeted Sites Parcel Scoring Results	71
Table 10 Non-Targeted Sites Total Score	72

## LIST OF FIGURES

Figure 1 Tropicana Field, Current Home of the Tampa Bay Rays	1
Figure 2 Rendering of Rays Proposed Stadium in Downtown St. Petersburg	3
Figure 3 Tampa Bay Area Study Counties	12
Figure 4 Existing Professional Stadiums Within Tampa Bay MSA	13
Figure 5 Amalie Arena with Downtown Tampa Skyline	20
Figure 6 Locations of Targeted Sites	46
Figure 7 NYY Complex Drive Time Impedance Results	48
Figure 8 Channelside Plaza Critical Infrastructure - Close Up	52
Figure 9 Non-Targeted Sites Compared to Tropicana Field Location	65
Figure 10 Tampa Stadium Parcel Site	73



## LIST OF ABBREVIATIONS

BLS	Bureau of Labor Statistics
CBD	Central Business District
CBP	Carillon Business Park
CD	Channelside/Downtown
CI	Critical Infrastructure
CP	Channelside Plaza
DHS	Department of Homeland Security
DL	Derby Lane
FSFG	Florida State Fair Grounds
MLB	Major League Baseball
MSA	Metropolitan Statistical Area
NFL	National Football League
NHL	National Hockey League
NBA	National Basketball Association
NYY	New York Yankees
RJS	Raymond James Stadium
RNC	Republican National Convention
TS	Tampa Stadium
WA	Westshore Area

## **ABSTRACT**

In the world of professional sports, stadium construction is a venture that can cost communities hundreds of millions—sometimes billions—of dollars. While the process of selecting a site based on human or political motivators (i.e.: Quid pro quo, public subsidies, etc.) is dubious at best, the process of selecting a new site based solely on geographic factors (such as ease of accessibility) is even more ambiguous. Historically, new sites were located within a city's limit and closer to population centers, but within the mid to late 20<sup>th</sup> Century, this paradigm was abandoned and new stadiums were placed farther from the cities that the teams represent. To identify a new location for the Tampa Bay Rays within the Tampa Bay area, this study used socioeconomic (population concentrations), traffic (accessibility), and geographic (parcel and land use) data to determine where throughout the region will be the most viable location for a new stadium facility. This research analyzed the population and the geographic construction of the region and identified variables and parameters that determined the locations that could best support the team throughout the region. The findings of this study show that, by applying site suitability methods, the team can be sustainable within the Tampa Bay area and that by selecting a site closer to the population center of the region, success off the field can be achieved.

## CHAPTER ONE: INTRODUCTION

When the Tampa Bay Rays—then known as the Devil Rays—first entered Major League Baseball (MLB) in 1998, their arrival was received with great fanfare and anticipation within the Tampa Bay community. The Tampa Bay area, which over the last 100 years was better known as the Spring Training home for most of the major league clubs and their minor league affiliates, was finally awarded a professional franchise of its own. Fortunately for the newly formed organization, identifying a stadium site was a short-lived process. The area had, in hopes of luring a team away from another city, funded and constructed a domed multi-use facility in downtown St. Petersburg, FL (Figure 1). The domed facility currently known as Tropicana Field, had served as the temporary home for the then expansion Tampa Bay Lightning of the National Hockey League (NHL), and was vacated after the 1996 season when construction of their permanent



**Figure 1 Tropicana Field, Current Home of the Tampa Bay Rays**  
Photo by the Tampa Bay Times

home was completed 23 miles north in the Channel District of downtown Tampa. The dome finally had the permanent tenant for which it was built.

After the initial season, fan interest dwindled as the team struggled to produce a winning product. The consistent losing—coupled with an apathetic fan base—caused the organization to be relegated to the cellar of Major League Baseball’s annual attendance records, win-loss records, and overall organization valuations (Oznian 2013). After an ownership change in 2005, drastic changes were made to the organization—including a name change to their current Rays moniker—in an effort to draw fans to the stadium. These changes had an almost immediate impact to the on-field product but minimal impact to attendance and franchise value. As a result of these ongoing issues, Tampa Bay Rays management and MLB leadership declared that the solution to these problems could be achieved by relocating the franchise from its current location.

### **1.1 Initial Stadium Search**

Following the 2007 season, the search for a new site that would serve the purpose of increasing attendance at home games began. The search area was confined to the St. Petersburg city limits and yielded handful of ideal sites that were proposed to local leadership. The most promising site—seen in Figure 2—was an open-air, single-use waterfront facility that was to be constructed on the current location of the historic Al Lang Field in downtown St. Petersburg. As the process advanced, it was evident that the community would not be willing to support the proposed project, even with owner Stuart Sternberg covering over one third of the cost. Ultimately, the lack of public support caused the project to be cancelled indefinitely. The Rays have since abandoned site



**Figure 2 Rendering of Rays Proposed Stadium in Downtown St. Petersburg  
Rendering by The Tampa Bay Rays**

selection processes within the City of St. Petersburg, which has left the organization facing the same issues it has since their inception.

In the 2008 season, the Rays experienced on-field success of an unprecedented level. After finishing the 2007 season with the worst record in all of major league baseball—just 66 wins to 96 losses—the Rays stormed through the league, finishing with the third best win/loss record in all of baseball’s regular season (97-65), and ultimately making it to the World Series but losing to the Philadelphia Phillies 4 games to 1 (Baseball-Reference.com 2014).

While the Rays vastly outperformed their expectations for the season, the same could not be said for their attendance numbers throughout the season. The Rays finished 26<sup>th</sup> out of 30 teams with an average of 22,259 fans per game for the 2008 season. Although this was an improvement over the 2007 season when they finished second to

last with an average of 17,130 fans per game (ESPN.com 2014), it was not enough to sustain consistent fan attendance over the coming seasons. Since the 2008 season, the Rays have averaged 20,887 fans per game (Baseball-Reference.com 2014) and have been steadily towards the bottom of the league in attendance records while winning close to 77% of their games during the same time span. The disparity between wins and attendance has called into question the suitability of the organizations current location for the region and has driven team ownership and MLB leadership to evaluate if relocating the team to another location within the Tampa Bay area—and outside of St. Petersburg—would boost attendance. The lack of local support within the region, even with the successes achieved after the 2008 season, has been detrimental to the organization and has limited its abilities to draw and retain high value players, sponsors, and television contracts along with casting doubt on the Rays solvency within the region.

## **1.2 Study Objective**

The objective of this research is to facilitate the identification of a new stadium site for the Tampa Bay Rays within the defined borders of the Tampa Bay area and that will accommodate the organization and help counteract the issues facing the team. To accomplish this goal the research analyzed historical stadium construction locations in order to identify patterns that have emerged in stadium placements since the beginning of the 20<sup>th</sup> century. This historical reference acted as a starting point for all site assessments made and will assisted in limiting sites within the region to those that warranted further analysis.

The most important criteria for this research is the distance factor. According to Nelson, the farther away the stadium is, the less likely it is to attract fans (2002). By using this as the foundation for initial site identification, an end-goal criterion for successful sites was set. In previous stadium accessibility studies, a 45-minute ‘door-to-door’ window of travel time was identified to establish high population accessibility (Burke, Evans, and Hatfield 2008). To this end, population throughout the Tampa Bay area is just as important to the study and further enabled the selection of the best site for the Rays.

### **1.3 Research Significance**

Throughout the initial research processes for this study, a consistent research gap presented itself. As has been stated in numerous studies (Nelson 2000; Nelson 2002; etc.), most research on the topic of stadium location pertains to the financial dynamics surrounding the stadiums. This oversight has caused the process of site selection to take a backseat to the financial ramifications of professional stadiums and has caused the two topics to be synonymous to each other in existing research. The overall goal of this research is to locate a successful site for the Rays and, contrary to most of the existing research, place less emphasis on the financial aspects of stadium construction.

To fill this research gap, this study incorporated data sourced from the U.S. Census Bureau along with local infrastructure data to identify a site based on population metrics and the previously discussed criteria. The existing infrastructure datasets ensured that the future site will have adequate support for the population influx and can sustain future improvements. The data also served to suggest enhancements for future stadium

selections and ways to incorporate a stadium into a regions master plan. While the overall structure of this research is that of a site suitability analysis, this research differs from existing stadium studies—such as Burke et al.—in that locations have not been identified in any official capacity. This difference allows for the research to establish a rubric for identifying possible locations based solely on repeatable geographic factors rather than being an afterthought during the initial processes of site selection.

#### **1.4 Regional Obstacles**

Unfortunately for the Rays, the process of locating a site outside of the St. Petersburg city limits faces a seemingly insurmountable obstacle in the form of the lease contract the organization has with the city of St. Petersburg. The contract—which binds the organization to Tropicana Field and St. Petersburg until 2027—also prohibits the Rays from speaking to any other cities under the threat of a lawsuit that would extend to both the organization and the negotiating city (Nohlgren and Puente 2012). The issue of the lease agreement and its verbiage has become so divisive that it was a hotly debated topic during the 2013 Mayoral elections for the city of St. Petersburg (Pransky 2013) and has been stated to be the city’s biggest issue facing the incoming administration (Puente 2013).

Overshadowing the legal obstacles with the city of St. Petersburg are the socioeconomic issues that plague the Tampa Bay area. Not unlike many other cities within the state and country, the Tampa Bay area was impacted unusually hard by the economic downturn of the early 2000’s. In 2013, the Bureau of Labor Statistics (BLS) indicated Florida’s unemployment rate to be 6.3% and the Tampa Bay Metro area as



having an unemployment rate of 5.9% (2014). The region is also frequented by seasonal residents who don't claim unemployment, but make up a portion of the unemployed population within the region.

Accordingly, the rise in unemployment brought upon a rise in home foreclosures within the Tampa Bay area. As of January 2014, the state of Florida ranks number one in the country with 1 out of every 346 housing units filling for foreclosure and puts Florida well below the national average of 1 in every 1058 units (RealtyTrac.com 2014). The combination of these statistics could indicate that even if the new stadium were constructed in a different part of the Tampa Bay area, the population wouldn't have the discretionary income—defined as the amount of an individual's income that is left for spending, investing or saving after taxes and personal necessities have been paid (Investopedia.com 2014)—to support the organization more than they already have.

### **1.5 Community Impact**

Having a professional sports franchise anchored within a community can impact the community in a variety of ways. Beyond the economic impact that an organization can bring to a region, a professional sports franchise can bring the people of a community together, acting as a social network of interacting individuals (Bale 2000). In the Tampa Bay area, the region has been the beneficiary of the direct and indirect impacts that accompany having multiple successful franchises within the region. The area has hosted four Super Bowls, the Stanley Cup Finals, two World Series games, and numerous other national and global sporting events. Though these events are rare in frequency, they have the beneficial effect of drawing billions of dollars, putting the region on the grandest of

stages, and also fostering a sense of pride within the community. In many instances, these championship events would not be possible without having the associated sports franchise within the region and can be seen as a motivating factor when communities attempt to lure or obtain a franchise for their area.

Though financial impact figures are known for high profile sporting events, the economic impacts of a professional franchise rooted within a region are more difficult to calculate. Franchise and league officials have notoriously denied access to documents that would serve to establish the financial vitality of an organization and the impact it has on the local community. In the case of the Rays, rough estimates show the economic impact on the Tampa Bay region being anywhere between \$50-100 million annually (Nohlgren 2013). Even though the direct community impact figures are difficult to associate to the Rays, indirect figures can be substantiated through tourism studies completed within the region. In a study completed by Research Data Services, it was reported that baseball tourism brought in an estimated \$70 million to the Tampa Bay area within one baseball season (Nohlgren 2013).

Conversely, research shows that it can be difficult to establish direct positive economic impacts that professional sports franchises have on a region. Though the Rays generate up to \$100 million in economic impact, the franchise simultaneously takes full advantage of tax breaks—such as reductions on property taxes—issued by the city (Nohlgren 2013). Regardless of what economic impact a franchise may have on a community, it is a common connection that no region wants to lose a franchise. The ramifications of losing a team to another city stretch beyond any financial gains that a team may bring to a community. Professional sports have the ability to bring a

community together for one common cause and create a sense of pride within the community. While there may not be any tangible way to calculate it, research done among football fans in England showed an increased work rate when their home team is successful (Bale 2000). On the other hand, in New York City there are some residents who are still bitter at the city leadership for not placating the demands of the New York Giants and Brooklyn Dodgers, which ultimately led to the teams leaving the area (Chanayil 2002). Given the right circumstances, the overall shock of a team leaving a region could be immense and could possibly cripple a region that may have more than money invested in a franchise. The integration of a team into a local system and the psychological influence they have on the population can be best summarized by former Pittsburgh Mayor Tom Murphy (2005), who stated the following during a forum at New School University, "... it's hard to imagine a Pittsburgh without the Pittsburgh Steelers or the Pittsburgh Pirates ... you get two messages from the voters: Don't use public money for ball parks to pay for the greedy owners, but don't you dare let these teams leave".

## **1.6 Study Area**

One of the features that makes the Tampa Bay area unique, and therefore worthy of such a complex study, is the layout of the region. The area that is defined as the Metropolitan Statistical Area (MSA) by the U.S. Census Bureau encompasses three cities—Tampa, St. Petersburg, and Clearwater—that are population dense and very diverse in their overall composition. As of July 1, 2012, the U.S. Census Bureau estimates the population of the MSA to be roughly 2,842,878 people (2013). While it should be simple enough to classify the Tampa Bay area within the MSA, the classification 'Tampa Bay Area' is one

that is contested by the many different entities. The U.S. Census Bureau defines the ‘Tampa Bay Area’ as consisting of Hillsborough, Pinellas, Pasco, and Hernando counties (2012) while Enterprise Florida—the state of Florida’s economic development organization—lists Hillsborough, Pinellas, Pasco, Hernando, Citrus, Polk, Manatee, and Sarasota as the representative counties (2014). As a direct result of this confusion and lack of a specified identity, the study focused on the three counties that have recognized themselves as being suitable locations for the Tampa Bay Rays: Hillsborough, Pinellas, and Pasco County.

The study area seen in Figure 3 resides on the western coast of central Florida and the three counties account for just four percent of Florida’s area at 2,741 square miles. Although the area is relatively small in comparison to other MSAs qualified by the U.S. Census Bureau, the area has been fortunate enough to draw and maintain three professional sports franchises: the Tampa Bay Buccaneers representing the National Football League (NFL), the Tampa Bay Lightning representing the National Hockey League (NHL), and the Tampa Bay Rays representing Major League Baseball (MLB). Each franchise has its own dedicated stadium within the study area that can be seen in Figure 4—the Buccaneers and the Lightning play in stadiums located within Tampa city limits located in Hillsborough County whereas the Rays play inside St. Petersburg city limits in Pinellas County—and each team has seen its fair share of success. Both the Lightning and Buccaneers have won the championships for their respective leagues, while the Rays lost in the World Series.

The remaining portions of this thesis are organized in a fashion that serves to reinforce the prevailing issues facing the Tampa Bay Rays organization. Where Chapter

One established a reference point for the problem the Rays organization is enduring with the location of their stadium, Chapter Two analyzes the historical significances of stadium placements since the turn of the 20<sup>th</sup> century and the dramatic changes that have occurred in the last 100 years of stadium locations and design. Since the root of the issue with Tropicana Field has been narrowed to its location within St. Petersburg, the chapter's main focus surrounds issues of professional sports franchise locations and how they interact with the community. The chapter also discusses the mixed results from stadium projects acknowledged in existing research and also identifies the scientific research gaps. Chapter Three focuses on establishing the methodology for this thesis and highlights the procedures that are used to identify locations that could possibly be replacement sites. This chapter introduces the scoring methods derived for this thesis that are crucial to identifying the best location. Chapter Four analyzes the results of the study and deduces the best site for a new stadium. The thesis concludes with Chapter Five, which is a summary of the findings identified in the previous chapters, identifies key observations made throughout the research, and indicates what areas of the results could benefit from more in-depth research.

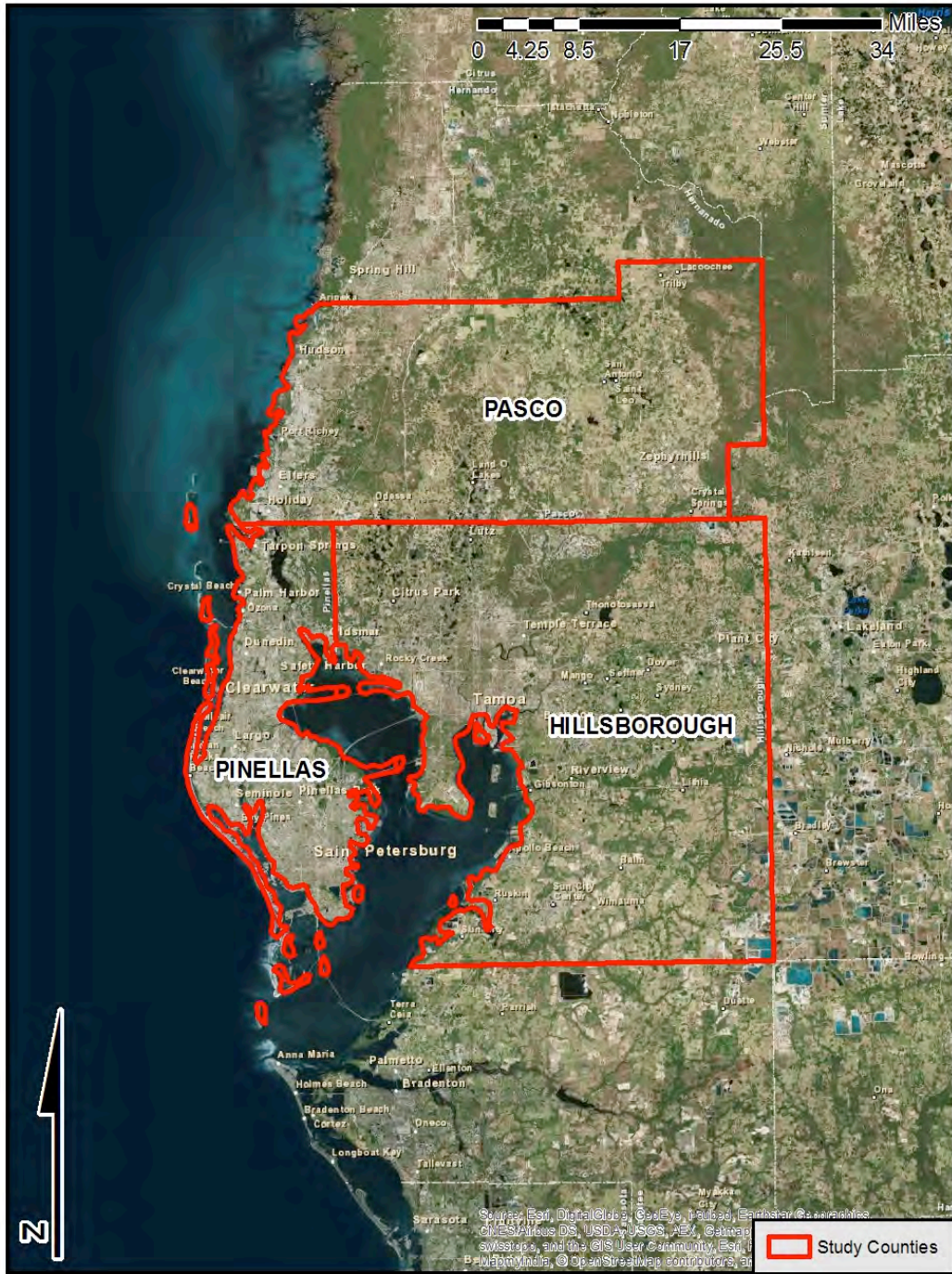


Figure 3 Tampa Bay Area Study Counties



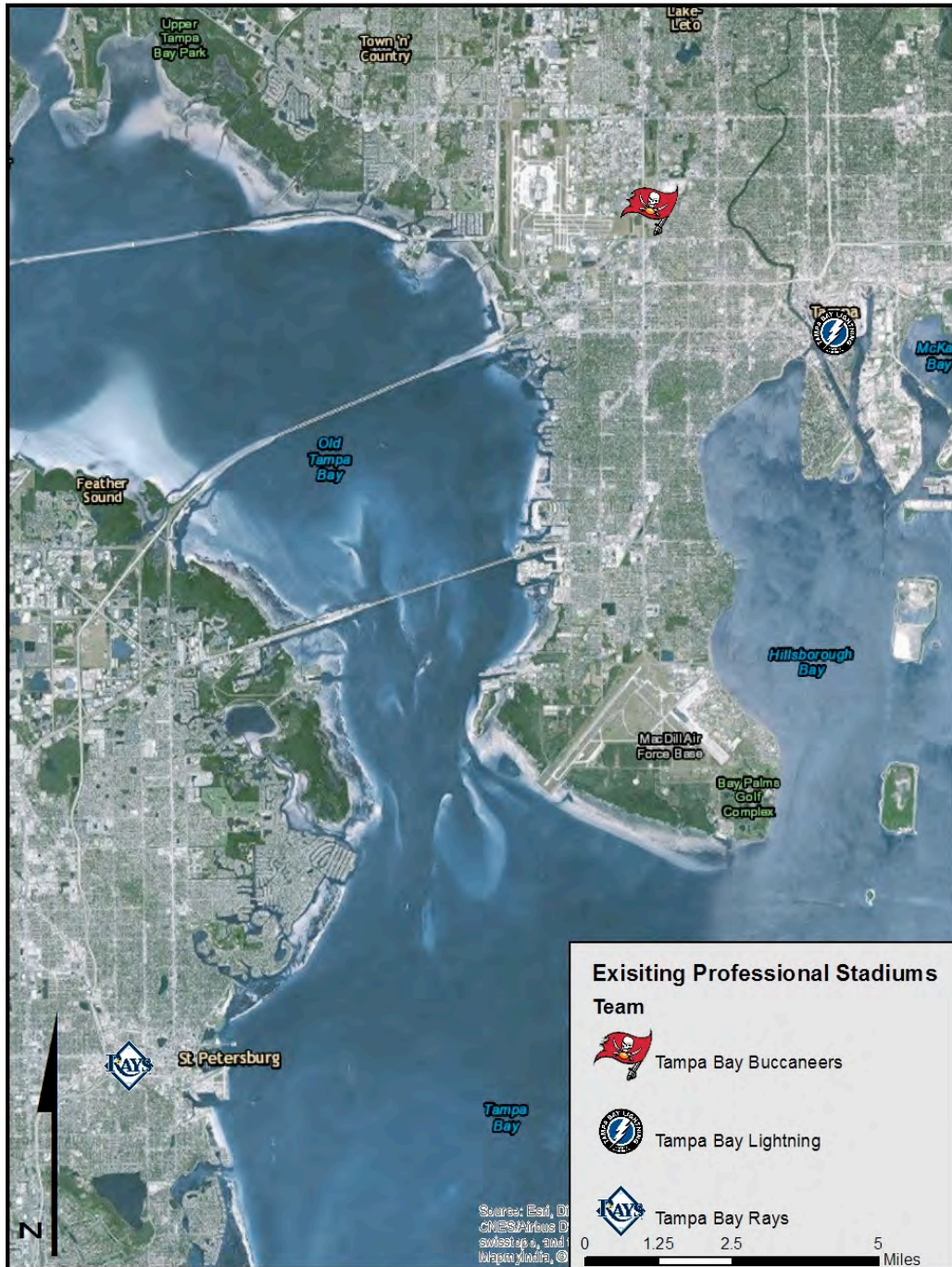


Figure 4 Existing Professional Stadiums Within Tampa Bay MSA

## CHAPTER TWO: RELATED WORK

To attempt to understand why stadiums are placed where they are within a region, it would be unwise to not address the historical impacts that professional sports stadiums had on the formation of cities throughout the United States. When modern professional sports gained popularity over 100 years ago, cities without a sports franchise thought themselves to be inferior to those cities with teams (Nelson 2002). During the foundation of these cities across the country, stadiums were being constructed in the regions where the bulk of the population resided—meaning close to the heart of the city. As the popularity of the teams increased, so did the desire—or possibly the necessity—for the construction of larger facilities for the teams to play in. Because of this, the issues of stadium funding were born. Invariably, the issues of public funding for stadiums and stadium construction have been married since the first professional sports stadium was funded using public dollars in 1953. Because of this marriage, identifying key research on the subject of stadium placement has proved rather difficult and seemingly, the subject has been rather ignored in favor of understanding the economic impacts of the stadium. Nelson said it best in his research on the processes involved with major league stadium locations:

“Research to date has been limited to generally evaluating whether major league teams and associated stadiums contribute meaningfully to the national or regional economies. With few exceptions, little attention has been given to where they play within the metropolitan area.” (2002:100)



This research aimed to fill that gap by using scientific GIS methods and by understanding the historical significance of stadium placement within the 20<sup>th</sup> century.

## **2.1 Central Business Districts**

At the beginning of the 20<sup>th</sup> century, the typical design of a city revolved around a central core. The core of a city, often referred to as downtown, was the figurative and literal heart of a city. It provided the city's residents their places of employment, places to purchase their wares, as well as their recreation/entertainment. Before the advent of the private automobile, downtown areas were designed mainly for pedestrian traffic and almost everything was within walking distance (Robertson 1995). As the bulk of middle class Americans lived and worked within these downtowns—also referred to as Central Business Districts (CBDs)—professional sports franchises constructed their stadiums within the boundaries of the CBD allowing fans to walk from their homes to the games.

In the earlier years of the 20<sup>th</sup> century, mass transit systems—typically streetcars—were added to the CBDs to allow for city expansion. This allowed the average resident to not be confined to specific portions of the city, and gave them the freedom to move freely over greater distances in order to fulfill their daily needs. The expansion of the cities coupled with mass transit options facilitated the boom in major retail department stores within the CBDs. Rather than a few fragmented “corner stores” for the residents to make their purchases, they now had the option of traveling to a major department store and completing their purchases in one location. These stores became fixtures throughout the downtown districts and were often seen as centerpieces to the downtown environment (Robertson 1995). Similarly, professional sports stadiums were

just as iconic to the skylines and the CBDs identity. Teams such as the Brooklyn Dodgers and the New York Yankees had created city identities with their stadiums in Ebbets Field and Yankee Stadium respectively. These types of stadiums solidified the franchise's place and established a community of fans within the city.

## **2.2 The Suburban Exodus**

Unfortunately for the downtown districts, the onset of World War II and the expanding popularity of the private automobile changed the mindset of those that lived within the city boundaries. Upon returning from World War II, the United States entered an era of unprecedented economic growth. Sometimes referred to as the Golden Age of Capitalism, this growth—along with other societal factors—brought about the shift in mindset of where people needed and wanted to live. Commuting to work was now beginning to replace walking to work and more and more people began using private vehicles and mass transit to get to and from work. The dramatic change in living situations decimated the downtown environments throughout the economic expansion years—estimated to be between the mid 1940s to the mid 1970s—as residents fled the chaos of the downtown core for suburban living (Cardwell 1999).

With the populations leaving the CBDs in favor of the suburban communities that were sprouting throughout the outlying areas of cities, downtowns became more of a scar on the landscape rather than the epicenter that they once were. The downtown neighborhoods changed to the extent that people no longer cared to visit them for a variety of reasons. For the major retail stores and the professional teams entrenched in the CBDs, the loss of patronage caused them to make efforts to be closer to the paying

customers. By the mid-to-late 40's many large department stores had built their first stores outside of the CBD and in 1956, the first suburban enclosed shopping center—called Southdale Mall—opened outside the CBD of Minneapolis (Eppli and Benjamin 1994). Professional sports teams followed the lead of the major retailers and looked for stadium sites closer to suburban neighborhoods.

### **2.3 Franchise Relocation**

In 1953, the Boston Braves decided to relocate out of downtown Boston to the suburbs of Milwaukee and moved to a stadium that was closer to the residential population (Cardwell 1999). The new stadium brought about change in the way that stadiums were both architecturally designed and located in relation to the city that the team represented. Milwaukee County Stadium was situated on the site of a former stone quarry and was not considered to be within the CBD of Milwaukee, but was within easy access to the interstate system that ran from the suburbs to the CBD. The success of the Braves in Milwaukee ushered in a new era for professional sports, as teams were now looking to venture out of the CBD to a more suburban environment or to an area with easy access to those within the suburban population. The Brooklyn Dodgers and the New York Giants followed suit not long after the Braves and made their homes in the relative ex-urban areas of Los Angeles and San Francisco. While the new stadiums in Los Angeles and San Francisco weren't in suburban areas, they were close to the interstate system that would allow suburbanites to travel to and from the games in their own private vehicles without issue (Cardwell 1999). The successful relocations of such high profile teams from the CBDs of major cities to suburban environments initiated a flurry of movement

across all four major sports leagues in the United States with a total of 23 relocations occurring in between the 1960 and 1979.

## **2.4 Stadium Design Changes**

The relocations of these teams also spawned the boom in stadium constructions that occurred across the country, and also introduced unique applications for stadium construction and design. During the 60's and 70's, single use facilities were being rejected in favor of more economically sound multi-use facilities. These facilities would house more than one professional sports team, and would also be able to be used by the city for special events when not in use by its tenants (Cardwell 1999). The multi-use stadiums were typically not designed to be aesthetically appealing structures and are often drab and utilitarian. Because of this, communities began to resist the construction of these types of stadiums for fear of creating blight (Nelson 2001). While stadium architecture is not the main focus of this research, ideally a stadium should fit in with the neighborhood that it will be sharing. An environment that evokes nostalgia or has some established historical significance is seen as a positive draw even for teams without the best win-loss record (Nelson 2001).

Towards the late 70's, stadium design began to evolve once again from simple multi-use facilities to domed facilities. This was due in part to the success of the Astrodome—constructed in 1965—in Houston, TX. The dome was constructed far from the CBD yet close to accessible highways for the population to flow in and out. The stadium also introduced the world to artificial grass that will be forever known as Astroturf (Cardwell 1999). The success of the domed facility as well as the success of

the far off locations confirmed that if a stadium is constructed in a location with easy in and out access, the people will come. One such domed multi-use facility constructed within the 1980's and finished in 1990 was the Florida Suncoast Dome in St. Petersburg, FL. This dome, which at the time had no tenant, was constructed within the Tampa Bay Region in hopes that it would attract a professional sports franchise. Before finally obtaining a permanent resident in the mid 90's, the dome was used as a bargaining tool for teams that were demanding a new stadium in their region. The most famous case occurred when the Chicago White Sox demanded a new ballpark within the downtown confines of Chicago. New Comiskey Park—now known as Cellular Field—was approved and constructed in the shadow of the outgoing Comiskey Park in the downtown area of Chicago. One unintended consequence of the demand to remain in the same location was that the New Comiskey Park became the first of the modern age stadiums to be constructed in a downtown environment close to the CBD yet still be accessible to those within both the suburbs and downtown residential areas (Cardwell 1999).

## **2.5 Downtown Revitalization using Stadiums**

When it comes to placing stadiums in any specific location, economic impact in an important factor to ensure that public dollars are not being wasted. While there are a plethora of studies that focus on this subject, there has yet to be a convincing tie-in to downtown or CBD revitalization being directed by the placement of stadiums. In some of the existing research, there have been claims that the economic impact of placing a stadium is rather a negative instead of a positive. Unfortunately, there is no one right answer when it comes to economic impact. There are entirely too many variables—some

more permanent than others—that can either positively or adversely affect the results of any economic studies. With that being the case, downtown revitalization using stadiums is the current trend in new stadium construction. While the New Comerica Park is seen by some to be the trendsetter in revitalization efforts, it is by no means the best example of aiding a community with a new stadium.

In 1992, the single-use facility known as Oriole Park at Camden Yard opened in the CBD of Baltimore, MD. This construction is arguably one of the best examples of stadium designers and planners taking into account their surroundings. Instead of the stadium being an eyesore around the existing community, it was designed to fit in with its surroundings and in an area that is accessible by those with private vehicles as well as mass transit. It also was placed within a district that was easily accessible to those that



**Figure 5 Amalie Arena with Downtown Tampa Skyline**  
**Photo by Matthew Paulson**

lived within the CBD and chose to walk to the games (Cardwell 1999). Oriole Park was now the standard to be met when it came to stadium placements in downtown environments.

Equally as important was the massive undertaking in Cleveland known as the Gateway Project. The area was named as such due to its proximity to the interstates and its general proximity to the entrance of the downtown area. The project went through various iterations before construction actually began, but once completed, the area housed a single-use baseball park for the Cleveland Indians and a multi-use arena for the Cleveland Cavaliers of the National Basketball Association (NBA) (Chapin 2004). Where the Gateway Project differs from the Camden Yard project is the severity of the revitalization efforts. The neighborhoods surrounding Camden Yard were already established before construction of the new stadium took hold. Contrary to this, the area surrounding the Gateway project site required extensive restoration and buildup. The Gateway project was seen as the rebirth of the area as existing infrastructure was being reused, new restaurants and bars opened, and residential and hotel projects were completed throughout the area (Chapin 2004). The Gateway area—which is now known as the Gateway District—was the catalyst that the region needed and is recognized as a successful redevelopment project where stadiums were at the center of revitalization efforts.

The benefits of this type of project are not unique to Baltimore and Cleveland, as other cities have used these types of projects for the revitalization of their downtown environments. The city of Tampa started the process of revitalizing the downtown district with the construction of the Ice Palace—now known as the Amalie Arena—in

1996 (Figure 5). The site is a multi-use facility that is in the core of the downtown district. As was seen in the Gateway project, the construction of the arena in downtown Tampa has brought about great change within the area. Following construction of the arena, the area received a vast influx of patrons. This spurred the area surrounding the area to have a demand for bars, restaurants, entertainment venues, and residential projects. The area is currently known as the Channel District and is considered to be one of the more popular areas in Tampa's downtown. The area has also been a key catalyst in the success of the Riverfront projects throughout the downtown region.

Along with the successes that are derived from the revitalization of downtown districts using sports franchises, the national exposure can secure events that extend outside the sports world. In 2012, downtown Tampa hosted the Republican National Convention (RNC) within its downtown district. At the center of the events were the Tampa Bay Times Forum—now known as Amalie Arena—and the Channel District. For an entire week the nation was focused on the Tampa Bay area and, ultimately, downtown Tampa. Apart from the national recognition obtained from the RNC, the financial impact on the city was more than was predicted by economists. In a Tampa Bay Host Committee study produced by the University of Tampa, researchers estimated the economic impact of the event to be over \$400 million in just one week. By comparison, the annual estimation for a sports franchise within a city is over \$100 million per year (Chanayil 2002).



## **2.6 Mixed Success**

Unfortunately, not every project that surrounds a successful revitalization project shares in the windfall of these projects. The Gateway District in Cleveland had its fair share of failures and has also seen some regression from the rapid growth experienced upon completion of the projects (Chapin 2004). Tampa has also experienced issues with its Channel District including poor structural designs and retaining tenants within the Channelside Bay Plaza. Some of these problems may be explained by the collapse of the economy within the early 2000s, while others demonstrate the volatility surrounding these types of projects.

Regardless of the issues surrounding some of these types of redevelopment projects, downtown revitalization using stadiums is the current trend in the professional sports world and will continue to be as long as the successes outweigh the drawbacks. Ultimately, the success of these projects revolves around the simple principle of keeping or attracting people to the downtown areas for longer than just the workweek (Cardwell 1999).

## **2.7 Research Gap**

One repeating trend in the existing literature has been the lack of research completed solely on the subject of site selection and stadium placement. In numerous studies completed on subjects revolving around stadium location, this gap has been mentioned by their respective authors (Nelson 2001, Nelson 2002, Chapin 2004, Noll and Zimbalist 1997, etc.). While there is no definitive reasoning behind this oversight and lack of focus, it is understandable that the economic results would take more of a primary focus on

research topics. Unfortunately for almost all research that pertains to the subject of stadium placement or construction, the economics aspect is not one that can be ignored, overlooked, or omitted. Ultimately stadiums and the economics that drive them should be a win-win for the cities they call home (Cardwell 1999). If placed correctly, and planned responsibly, a stadium can be the economic windfall that so many regions desperately need.

## **CHAPTER THREE: METHODOLOGY**

To facilitate the process of viable site identification, a workable methodology needed to be established to accommodate the requirements of this project. The methodology used by Burke, Evans, and Hatfield (2008) served as the foundation and guided the establishment of processes and procedures for stadium site identification. Their research, which is similar in structure and goal to this research, spatially calculates the accessibility of existing stadium sites within the Gold Coast area of Australia and determines the most accessible site based on criteria set forth in their study.

Similar to the Burke et al. research, this research focused on a series of variables that will enable the narrowing of viable sites. The variables to be used in determining a proper stadium location for the Tampa Bay Rays are as follows: (1) Time/Distance Variable; (2) Population Variable; (3) Existing Infrastructure Variable; and (4) Parcel Variable. Individually the listed variables cannot identify the best site, but using refined data and implementing it into the measured scoring system created for this research a suitable site can be identified.

### **3.1 Time/Distance Variable**

As previous research has indicated, a centrally located stadium facility is critical to the viability of a sports franchise. As such, the variable with the greatest significance to this research is time/distance component. As was stated in the Burke et al. research, 45 minutes of travel time to the stadium is considered to be “highly accessible”, travel time over 75 minutes is deemed to be “reasonably accessible”, and anything surpassing 75 minutes of commute are said to be “unsatisfactory” (2008). Due to the make up of the

Tampa Bay area, following this standard would prove to be problematic, as it will encompass to broad of an area. For the purposes of this research, the drive time parameters are modified slightly: 30 minutes is considered “ideal”; 45 minutes is considered “reasonable”, and 60 minutes being the allowable limit. Drive time beyond the 60-minute threshold is excluded. This is not to say that fans will not travel beyond the 60-minute window to arrive to the stadium, but for the scope of this research, those patrons will be considered “unlikely to attend.”

To establish drive times, possible stadium locations need to be identified as a starting point for proper analysis within the Network Analyst extension of ArcGIS. To facilitate this, possible sites established in a 2010 *Tampa Bay Times* online database were used to begin the process of traffic time analysis. Outside of the short information section contained within the database, the sites depicted have not been verified as being official candidates for a possible stadium. Instead, the locations are those that have been discussed by pundits within the region as being possible suitors for a new facility. To accompany the existing stadium locations, existing road and traffic data for the Tampa Bay area expedited the extraction of drive times throughout the region.

To determine where throughout the study area the travel impedances extend to, the Network Analyst extension was used to identify the service areas for each site. This was accomplished by combining the location of each site with the road network data layer and creating boundary levels that correlate to the travel time. As has been established previously, the travel impedances for this study are less than 30 minutes, 30-45 minutes, and 45-60 minutes. By creating these boundary layers a template was created which would later be used in calculating the population percentages. For the

purposes of this research, physical drive distance was not calculated. This is in an effort to negate any potential expediency issues as well as any complications that could arise from attempting to determine physical distance traveled (i.e. farthest from the site, path chosen, etc.).

### **3.2 Population Variable**

Similar to the Time/Distance Variable, the Population Variable is crucial to the overall success of a stadium site. In order to calculate the required figures, 2010 Census data was analyzed at the block level to analyze the population density of the established Tampa-St. Petersburg-Clearwater MSA. To determine the population figures for the region, the templates created during the creation of the service area boundaries were used to ‘cut’ away any areas that were outside of the impedances. By using the block level Census data, a more realistic representation could be made of those homes that reside within our outside of the impedance boundary. If at any time the impedance template intersected a census block and the block was not completely contained within the impedance, the block was omitted from the analysis as it would have proven difficult to establish where the population resided. Defining where the greatest percentage of the population resides throughout the Tampa Bay area ensured that the stadium site would serve the majority of the population within the region.

In conjunction with determining population dispersion, it is equally as important to identify where throughout the region the CBD is located. With CBD revitalization efforts taking precedence in many communities, it is foreseeable that a suitable site can be identified within the CBD of the Tampa Bay MSA. Over the years, the Census

Bureau has modified the definition of a CBD to reflect the trends within cities. In 1925, a CBD was defined as a city's principal commercial and retail district and formed the nucleus of the city (Marlay and Gardner 2010). Throughout the 20<sup>th</sup> century, the definition of a true CBD has become fuzzier, ultimately leaving the standing definition as a relatively small area with high land values (Hendrickson 1986). The lack of a firm definition will make the process of identifying the CBD rather tricky. In order to identify the Tampa Bay MSAs CBD, a thorough analysis of existing commercial properties was completed using property zoning data, business employment data, and property tax data from the counties that make up the research area. The resulting data was related to the population data to identify where the CBD is in comparison to the population center.

### **3.3 Critical Infrastructure Variable**

For a facility as large as a professional sports stadium to succeed, there needs to be supporting infrastructure in place not only to ensure the facility runs smoothly and efficiently but also entices patrons to spend money within the immediate area in places such as stores, restaurants, and hotels (Nelson 2001). Critical infrastructure, as defined by the Department of Homeland Security (DHS) are the assets, systems, and networks, whether physical or virtual, so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof (2014). While this definition is sufficient and deserved for a government organization, for the purposes of this research, the term critical infrastructure (CI) will be defined as any infrastructure that is vital to support the success of the stadium with minimal impact on the system. This definition is

broad enough to ensure that all supporting infrastructure throughout the region is analyzed to verify their existence, placement, and capacity to support a stadium facility.

To ensure that there is sufficient infrastructure currently in place to support a stadium, the analysis of datasets containing public services (such as police, fire, and hospitals), traffic (such as major road/highway access and speed limits), ancillary recreation (such as restaurants and clubs), and accommodations (such as hotels) is necessary. To guarantee the utmost accuracy, the datasets—which were sourced from the Florida Geographic Data Library—were routinely recertified to confirm that the most up-to-date file was used. In the majority of the datasets used, the last update had been completed within the last 5 years. Buffer zones were created around the proposed stadium sites and by accounting for the CI within the zones, a determination was made as to how capable the immediate surrounding area is to sustain a stadium. As all location studies are inherently different based on geographic layout and requirements for the site, the buffer zones can be adjusted to fit the needs of any study area. For this research, the buffer zones will be as follows: traffic – 5 miles; public services – 3 miles; accommodations – 2 miles; and ancillary recreation – 1 mile.

### **3.4 Parcel Variable**

The final component to assessing a suitable site is focuses on the parcel, and more specifically, parcels large enough to contain a stadium and its supporting structures. A common point of resistance for a development project of this nature is the location of the stadium and its impact on the surrounding community. A stadium being constructed within a community usually signaled the arrival of blight and reductions in property value.

Consequently, communities have typically been resistant to allowing stadium projects to proceed for fear of allowing blight to enter their communities and can make finding an available site problematic (Nelson 2001). For this portion of the project, assumptions were made in order to facilitate the identification of probable parcels. Currently, the assumptions are as follows: (1) every parcel is available for purchase; (2) stadium design will tie into the community negating ‘eye sores’; (3) and the restructuring/redirecting of public roads is approved. These assumptions are simply to enable the process of parcel identification and did not sway the results in any way. Every effort will be made to ensure that the results and findings are not detrimentally impacted by any assumptions made in this portion of the research. To accommodate these findings, the most recent property parcel data from the county tax collectors was scrutinized to identify available parcels that meet size criteria for the stadium site.

### **3.5 Scoring System**

Once the data was refined using the variables listed above, the resulting data was individually scored to determine which of the sites would have the most success. The scoring system is based on a 100-point scale with differing values for the different variables and parameters. Given that no two cities are exactly alike, the parameters of the Scoring System are capable of being adjusted to accommodate different site studies.



Table 1 Site Suitability Scoring System

Site Suitability Scoring System		
Variable	Parameter	Points (100 Max)
Time/Distance	< 30 minutes	25
	30-45 minutes	15
	45-60 minutes	5
	> 60 minutes	0
Population	> 80%	25
	60-80%	15
	40-60%	5
	< 40%	0
Critical Infrastructure	Traffic	10
	Recreation	8
	Accommodations	4
	Public Services	3
Parcel	County/City Owned	10
	Fits Stadium	8
	Occupied	7

### 3.5.1 Scoring System Metrics

To combat the problems of ambiguity when attempting to identify a suitable site for a professional sports stadium, the Scoring System depicted in Table 1 was developed. The system categorizes the variables and subsequently subcategorizes the containing parameters for the purposes of attaching a total sum score to each possible site. While the variables of the system are modeled after those found in the Burke et al. study, the system devised for this research applies a value to each of the parameters within the system. The system is based on maximum possible score of 100 points and will rank the possible sites based on the location's score.

The system is subdivided into four equal sections that each total 25 points with no category outweighing the other. The rationale behind this is simple: no two cities are exactly the same, and therefore no two cities will put the same amount of emphasis on the same variables. By keeping the categories even, it permits a true score to be based exclusively on the variables and their corresponding parameters and allows different cities to weigh variables or parameters as they see fit.

Within each variable are a series of parameters that comprise the scoring for the associated variable. The parameters identified are those that are believed to best quantify an ideal stadium site and are those that can be measured for the purposes of this project. Within each variable, individual parameters have been assigned a value up to 25 points. In the case of the Time/Distance and Population Variables, the point totals are based on a singular value and are scored only once (e.g., travel time is less than 45 minutes to the proposed site will receive 15 points) whereas the remaining variables are scored on each parameter to compile the remaining score.

### ***3.5.2 Parameter Scoring Analysis***

#### **Time/Distance**

The parameters set for the Time/Distance Variable are modeled after the Burke et al. (2008) study with respects to the time portion of the variable and where ease of accessibility is the primary factor. This variable is the cornerstone of the study and is necessary to analyze the remaining data. The analysis of the road networks throughout the Tampa Bay area yielded results based solely on travel time. The resulting time was used to score the site drive time using the rubric set forth in the Scoring System table.

This process was repeated for the Targeted Sites at the inception of the process and was repeated for any Non-Targeted sites that were located afterwards.

## Population

The Population Variable, in conjunction with the Time/Distance Variable, identified the percentage of the population within the driving times obtained from the Time/Distance Variable. By joining these two variables, a clearer understanding of the population dispersion within the Tampa Bay area is depicted. As a result of the combination of these variables, a precise line was drawn around the maximum population percentages along with the maximum travel time. Similar to the Burke et al. (2008) study, a table identified the percentage of the population that falls within each parameter level and was scored accordingly. In essence, the ultimate goal of this portion of the research is to yield 50 percent or greater population within 30 minutes travel time. The example table shown below in Table 2 depicts the results from joining the two variables and was sourced from the Burke et al. (2008) study.

**Table 2 Burke et al. (2008) Table Showing Time/Population Join**

Location	High Accessibility		Reasonable Accessibility	
	Population within 45 minutes	% Total population	Population within 75 minutes	% Total population
Carrara	229840	48.7	388797	82.5
Nerang	251216	53.3	434793	92.2
Helensvale (a)	138510	29.4	413933	87.8
Helensvale (b)	140810	29.9	423055	89.8
Coomera	169986	36.0	424660	90.0
Robina	172006	36.5	388620	82.4

## **Critical Infrastructure**

Once a score was determined using the two previous variables, specific data drill downs proceeded starting with the Critical Infrastructure Variable. For the purposes of this project, this variable analyzed the various structural components of the region and determined a score based on the combination of the contained parameters. Contrary to the standard definition of critical infrastructure, for the purposes of this project, the definition was changed slightly to simply encompass all the features surrounding a site that could support a stadium.

## *Traffic*

This parameter has the greatest value for this variable with 10 possible points. As the data contained within this parameter are vital to the subsequent analysis, this portion receives the most scrutiny and therefore the greatest value. This parameter encompasses all the elements of available traffic and transit data and will be mined to draw out as much information as possible. In order to score this parameter, traffic data will be analyzed on both a high and low-level within a 5-mile boundary. Traffic flow before, during, and after a game is a crucial component to ensuring success to a stadium site. As such, major road proximities were the starting point in determining viability of any stadium site. Ideally, a stadium should be close to major roads in order to allow for quick ingress and egress of the site. The sites were analyzed based on their proximity to the major roads. A close proximity from the site to the major road returned a favorable result. This is the extent of the high-level analysis and led the way to the beginning of the low-level analysis. The low-level analysis consisted of further data mining to extract

information that aided in the site selection such as (but not limited to) traffic crashes, stop light locations, monitored intersections, speed limits, tractor-trailer routes, evacuation routes, etc. The goal of this low-level analysis is to indicate impact on the roads and determine if an increase in vehicle population during an event would dramatically impact the site in question. The combined results from the high and low-level analysis were then used to determine a final score for this parameter.

### *Public Services*

The public services parameter focused on obtaining the locations of structures that will assist the public and the influx of population at a stadium site. Stadiums, by their very nature, require an immense amount of support from police, fire, and emergency services. Proximity to these services is vital to ensure that proper emergency services are available if needed. A 3-mile inclusion zone was established allowing all existing and future services to be accounted for using a simple point counting method.

### *Accommodations*

The accommodations parameter for this variable is simply to understand if a site is capable of supporting the stadium and any tourism that may result. Not all fans that attend an event are from the local area, and as such, hotel accommodations within a 2-mile boundary were analyzed. This analysis produced a better understanding of the area surrounding the stadium and determined if the site is currently capable of sustaining an influx in visitors throughout a season. This parameter was measured and scored by

indicating how many hotels fall within the 2-mile buffer and defining the number of beds within the zone.

### *Ancillary Recreation*

As has been noted in previous research, revitalization efforts center on attracting and maintaining people to an area. If a stadium site is to be the attracting force, the maintaining force will have to be ancillary recreation outside of the stadium. To achieve this, an analysis was completed to determine how many bars, nightclubs, restaurants, or other entertainment zones are located within a 1-mile buffer surrounding each site. This will determine how likely people would be to visit the area before or after an event at the stadium site.

### *Parcel Availability*

The Parcel Availability Variable is the final scoring measure for the Scoring System. This variable consists on factors that would allow a proposed to be considered as 'available'. This is defined by three parameters: County/City Owned, Fits Stadium, and Occupancy. These parameters were scored based on the findings of the parcel analysis and the sites were ranked accordingly.

### *County/City Owned*

Ideally, the simplest way to acquire land for a stadium would be by having the least amount of resistance in its purchase. Because of this, sites that are owned by the county or city are favorable for purchase. This would not exclude non-government

owned properties, but for the sake of expediency and to remove any human factors related to real estate transactions, local government owned land would be advantageous.

### *Fits Stadium*

The next parameter of interest for the Scoring System is the Fits Stadium parameter. The purpose of this parameter is to seek out parcels that would fit the stadium within their confines with minimal impact on the surrounding features (water front, existing roads, buildings, etc.). This parameter will receive the next to lowest priority for this analysis, as it may not be possible to determine what parcels or features can be acquired with minimal issue. Also, depending on the location, it may be the case that some of the supporting structures—such as parking lots—may not be required and subsequently reducing the footprint of the stadium.

### *Occupancy*

The final parameter analyzed is to determine if the parcel is occupied. While identifying a site that is vacant is ideal, not all parcels are entirely vacant or may have issues with the surrounding infrastructure. To this end, this parameter receives the lowest scoring priority and has the least amount of impact on the parameter score. Also, since occupancy can change rather quickly along with intent of use after purchase, identified lots may not be available upon completion of the analysis. Because of this possible fluctuation, a vacant site will receive full points, a partially vacant site will receive half points, and a non-vacant site will receive no points. By ensuring that the parameter

receives a lower priority allows all sites to be considered without fear of skewing the results based solely on availability.

### **3.6 Targeted Sites vs. Non-Targeted Sites**

To identify which sites best meet the requirements of the scoring system, some locations need to be known and input into the analysis of the variables. These sites, for the purposes of this research are called “Targeted Sites”. The Targeted Sites have been identified from the *Tampa Bay Times* (2010) database and were used to initiate the spatial analysis. Once the analysis was completed using the Targeted Sites, locations that were not within the database and fit the requirements of the scoring system were labeled as a “Non-Targeted Site” and are presented and measured equally against the Targeted Sites.

### **3.7 Limitations**

The biggest complication that can arise from this methodology is the arbitrary nature of the scoring system as well as its simplicity. Considering that there is no precedent in identifying a stadium site using measurable scientific methods, the values placed by the scoring system may not reflect the true value of the variables. Also, for this type of analysis to be repeatable in other cities, the parameters for the variables may have to change. As an example, a 45-minute commute in New York City may constitute traveling less than 15 miles, while in Milwaukee it may result in traveling close to 45 miles.

Another limitation for the real-world fulfillment of this research is the need to use unknown or unverified Targeted Sites as a jumping point. Ideally, sites should be



selected based on the scoring system without the need for inputting possible sites first. To facilitate this would require an immense amount of time and effort to create an automated process for site identification. The automated system would remove the prerequisite of needing a Targeted Site to determine suitability and would allow the process to be endlessly repeatable irrespective of variable parameters.

## CHAPTER FOUR: RESULTS

To locate suitable sites within the region, a thorough analysis was completed of both Targeted and Non-Targeted Sites throughout the Tampa Bay area. The Targeted Sites were initially identified through the *Tampa Bay Times* (2010) online database of possible stadium sites located within the region. The Non-Targeted Sites are those locations that simply identified themselves once analysis of the Targeted Sites was completed. These sites have never received any scrutiny before this project and are sites that were not included in the *Tampa Bay Times* database. Inclusion of the Non-Targeted Sites is for the sole purpose of attempting to identify a location using the variables and parameters set by the Scoring System without the need for knowing the sites before site selection begins and attempting to validate the Scoring System metrics.

To initiate the study, a baseline analysis of Tropicana Field was completed. The baseline analysis serves as a guide to establishing scores for the subsequently analyzed Targeted and Non-Target Sites. Once a baseline has been established, the remaining sites are analyzed in the same fashion, leading to a score that can be compared against the existing stadium site and any future sites that may present themselves along the way. The resulting data will show which of the Targeted and Non-Targeted Sites is the best fit for the Tampa Bay Rays given the parameters set forth in the Site Scoring System.

Of the ten Targeted Sites listed in the *Tampa Bay Times* (2010) online database, five were scored using the Site Scoring System developed for this project: Carillon Business Park, Channelside Plaza, Derby Lane, the Florida State Fair Grounds, and The New York Yankees Spring Training Complex. The analysis of the sites included Traffic and Population analysis, Critical Infrastructure analysis, and Parcel analysis, which

resulted in one site having a clearly defined high score over the other sites listed in the article. As predicted, three Non-Targeted sites emerged during the analysis process. The sites were analyzed in the same fashion as the Targeted sites and yielded a clearly defined high score.

#### **4.1 Control Analysis**

To better estimate the effectiveness of the Targeted and Non-Targeted analysis results, the project was initialized using the current stadium site of the Tampa Bay Rays—Tropicana Field—in order to establish a ‘control’ score. The location was scored in the same fashion as the Targeted and Non-Targeted sites in order to achieve a constant score for future stadium site surveys and analysis during this project.

##### *Time/Distance and Population Analysis (50 Points Max)*

As was stated in chapter three, the Time/Distance and Population Variables are the most crucial to establishing overall success of the stadium’s location. Analysis of these variables consisted of ascertaining a drive-time value from Tropicana Field throughout the Tampa Bay area. To achieve the results 30-, 45-, and 60-minute impedances were used to identify the furthest reaches of the stadium’s service area. The resultant service area polygons were then joined with the population block level data to establish the population percentages within the three impedance levels. The results—which can be seen in Table 3—indicate that 1,358,758 people reside within 30-minutes of Tropicana field. This equates to 52.05 percent of the population of the Tampa Bay area and achieves a score of 5 points from the Population Variable. Expanding the drive time

Table 3 Time/Distance and Population Scoring Results

Time/Distance and Population								
Targeted Site	Tampa MSA Population	30 Min	Percent	45 Min	Percent	60 Min	Percent	Score
Yankees Complex	2610465	2262687	86.67754595	2598662	99.54785833	2610423	99.99839109	50
Channelside Plaza		2185208	83.70953068	2594997	99.40746189	2610447	99.99931047	50
Derby Lane		1835440	70.310845	2498334	95.70455838	2610325	99.99463697	30
Carillon Area		1816364	69.58009397	2471475	94.67566123	2608577	99.92767572	30
FS Fair Grounds		1806302	69.1946454	2591032	99.25557324	2610465	100	30
Tropicana Field		1358758	52.05042014	2281997	87.41726091	2594434	99.38589485	20

to 45-minutes, the percentage increases to 87.42 percent with a population figure of 2,281,997 and a Time/Distance Variable score of 15 points. Finally, a drive time of 60 minutes returns a population percentage of 99.39 percent and a population number of 2,594,434. For the combined variables, the Tropicana Field site received a score of 20 out of a possible 50 points.

*Critical Infrastructure Analysis (25 Points Max)*

Exploration of the critical infrastructure surrounding Tropicana Field was executed using the distance zones established in the Scoring System. The Traffic parameter analyzed the number of On/Off Ramps to major roads/interstates, the number of controllable traffic signals, and the average speed within the 5-mile buffer. As Table 4 depicts, surrounding the Tropicana Field area there are 102 on/off Ramps, 100 controllable traffic signals, and an average speed of 37.36 miles per hour. The value for this parameter is 239.36 which, when analyzed to the Targeted sites, garnishes 4 points out of a maximum of 10. The Public Services parameter analyzed the quantity of law enforcement, fire stations, hospitals, hospital beds, international airports, and civic centers within the 3-mile boundary. Analysis of the area surrounding Tropicana Field

found the following results: law enforcement—4; fire stations—5; hospitals—4; hospital beds—1301; international airports—0; civic centers—20. This combined for a count of 1334 and a parameter score of 2.5 out of 3. The subsequent parameter analyzed was Accommodations. This parameter reflects an overall capacity for the hotels within the 2-mile boundary. The immediate area around Tropicana Field indicated a maximum capacity of 1,365 spread over 30 properties, yielding a score of 2 out of a possible 4 points. The final parameter analyzed was the 1-mile Recreation boundary. This focused

**Table 4 Critical Infrastructure Scoring Results**

<b>Critical Infrastructure</b>								
<b>Recreation (1 Mile Buffer)</b>								
	Parks	Restaurants	Bars/Nightclubs	Bowling Alleys/Skating Rinks	Tourist Attractions	Parking Lots	Total	Score
Yankees Complex	1	3	4	0	0	17	25	7
Channelside Plaza	3	13	2	1	1	145	165	8
Derby Lane	0	5	3	0	1	2	11	6
Carillon Area	0	4	0	0	0	0	4	5
FS Fair Grounds	0	1	0	0	0	1	2	4
Tropicana Field	7	15	12	0	0	5	39	7

<b>Accommodations (2 Mile Buffer)</b>					
	Count	Capacity	Average Per Property	Total	Score
Yankees Complex	9	1048	116.4444444	1048	2
Channelside Plaza	9	1665	185	1665	3
Derby Lane	3	75	25	75	0.5
Carillon Area	15	1887	125.8	1887	4
FS Fair Grounds	9	749	83.22222222	749	1
Tropicana Field	30	1365	45.5	1365	2

<b>Public Services (3 Mile Buffer)</b>								
	Police	Fire	Hospitals	Hospital Beds	International Airport	Civic Centers	Total	Score
Yankees Complex	3	6	5	1370	1	20	1405	3
Channelside Plaza	2	6	2	1198	0	15	1223	2.5
Derby Lane	0	2	0	0	0	1	3	1
Carillon Area	2	4	0	0	1	8	15	2
FS Fair Grounds	2	2	0	0	0	4	8	1.5
Tropicana Field	4	5	4	1301	0	20	1334	2.5

<b>Traffic (5 Mile Buffer)</b>					
	On/Off Ramps	Traffic Signals	Average Speed Limit	Total	Score
Yankees Complex	95	228	37.946948	360.946948	8
Channelside Plaza	90	258	38.021983	386.021983	10
Derby Lane	57	41	38.743201	136.743201	2
Carillon Area	83	57	39.126779	179.126779	4
FS Fair Grounds	92	144	39.589461	275.589461	6
Tropicana Field	102	100	37.357507	239.357507	4

<b>Total (Max Points)</b>					
	Recreation (8)	Accommodations (4)	Public Services (3)	Traffic (10)	Total
Yankees Complex	7	2	3	8	20
Channelside Plaza	8	3	2.5	10	23.5
Derby Lane	6	0.5	1	2	9.5
Carillon Area	5	4	2	4	15
FS Fair Grounds	4	1	1.5	6	12.5
Tropicana Field	7	2	2.5	4	15.5

on the establishments that will attract and maintain the patrons before and after an event at the site as well as any other necessary components. Analysis of the boundary identified 7 parks, 15 restaurants, 12 bar/nightclubs, and 5 full-time parking lots. With the combined total of 39, the analyzed score is 7 out of 8. The combination of the parameter results in a final score for the Critical Infrastructure Variable of 15.5 out of 25

*Parcel Analysis (25 Points Max)*

For the Parcel Variable of the Scoring System, Tropicana Field receives full points on all parameter categories. This is a result of the site meeting all the requirements of the established Scoring System parameters: County/City Owned, Fits Stadium, and if the land is Occupied. No further analysis was necessary to conclude its score of 25 out of 25 for the variable.

*Final Score (100 Points Max)*

The final results of the four individual variables make up the score for the overall site. In the case of Tropicana Field, it received 15 points for the Time/Distance Variable, 5 points for the Population Variable, 15.5 points for the Critical Infrastructure Variable, and 25 points for the Parcel Variable. The overall score derived from the Scoring System variables is 50.5 out of a possible 100.

## **4.2 Targeted Site Analysis**

Having established a control score by examining the area surrounding Tropicana Field, the assessment moved on to analyzing the Targeted Sites established in the *Tampa Bay Times* database. The Targeted Sites shown in Figure 6 were reduced from the original ten sites established in the database to five final sites, which received full scoring. This was done in order to mitigate redundant results and introduce variation in the results due to the proximity of the sites to one another. In some cases, the Targeted Sites listed in the database were within 1-mile from one another and could therefore produce results that would be very similar to other sites. Analysis of the Targeted Sites was limited to the New York Yankees Spring Training Complex, Channelside Plaza, the Florida State Fair Grounds, Carillon Business Park, and Derby Lane.







#### ***4.2.1 Time/Distance and Population Analysis (50 Points Max)***

As was established in the baseline results for Tropicana Field, the process of establishing a value for the Time/Distance and Population Variables is reliant on the two variables being analyzed concurrently. Each site was analyzed individually and a score for the variables was assigned accordingly based on the 30-, 45-, and 60-minute impedance.

##### *New York Yankees Spring Training Complex (NYY)*

This site—seen in Figure 7—is located within the city limits of Tampa within Hillsborough County and is adjacent to Raymond James Stadium—home of the NFL’s Tampa Bay Buccaneers. Using the impedance levels set forth by the Scoring System, analysis of the NYY site finds that 86.68 percent of the population of the Tampa Bay area resides within 30-minutes of the site and, as a result, scores the full 25 points available for the Time/Distance Variable along with max points for the Population portion of the analysis. Expanding the analysis to the remaining impedance levels reveals that 99.55 percent of the Tampa Bay population resides within a 45-minute commute of the site. Finally, analysis of the remaining boundary level indicates that 99.99 percent of the MSA population resides within 60-minutes of the NYY site.

**Combined Variables Score: 50**

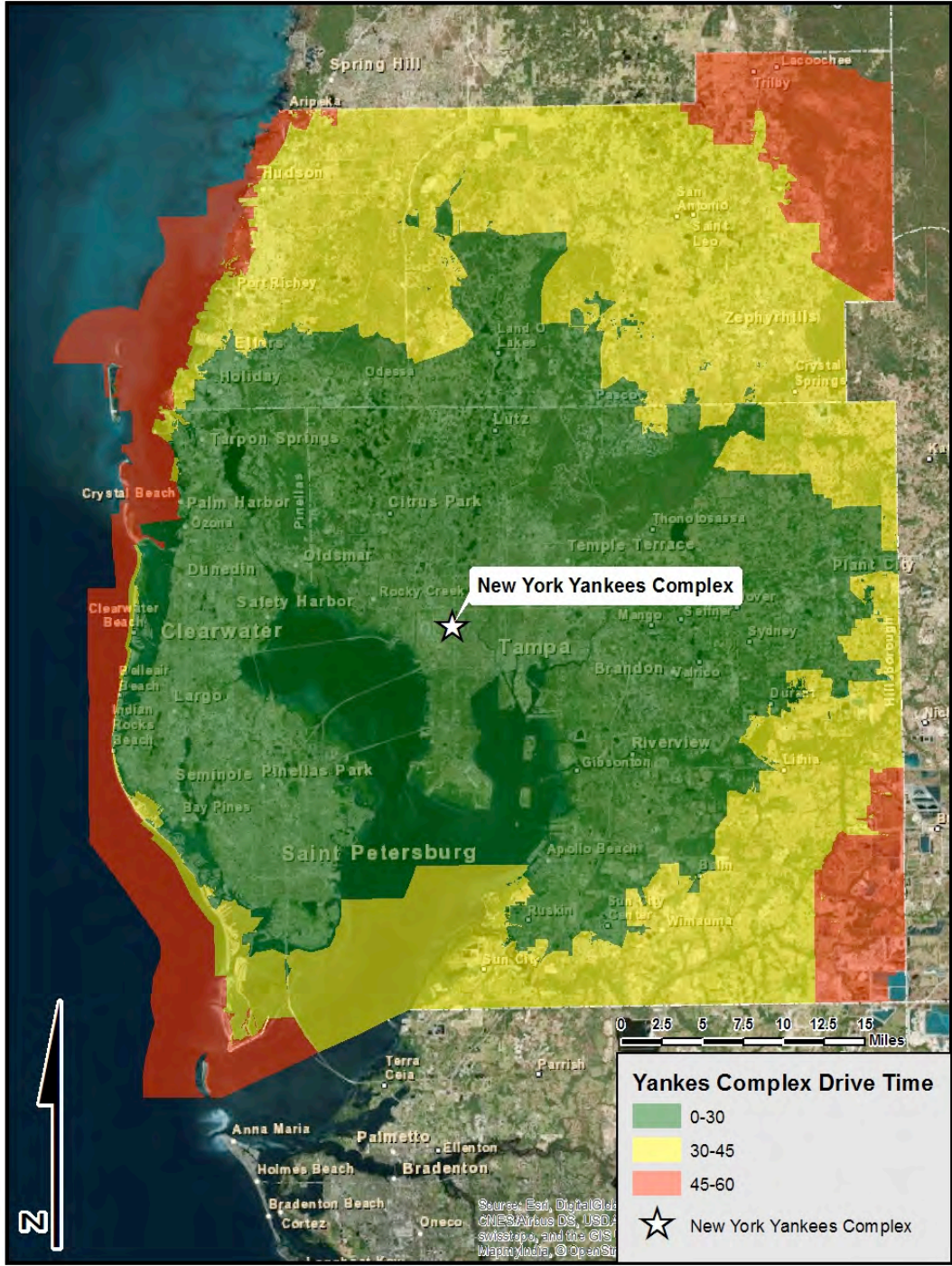


Figure 7 NYY Complex Drive Time Impedance Results

*Channelside Plaza (CP)*

This site is located within the city limits of Tampa within Hillsborough county and is situated along Garrison Channel. The location is also located next to the home of the NHL's Tampa Bay Lightning, Amalie Arena. Analysis of the CP location indicate that 83.71 percent of the population of Tampa Bay reside within the 30-minute impedance buffer and results in maximum points for both the Time/Distance and Population Variables. The site can also service 99.41 percent of the population within a 45-minute commute. Extending to 60-minutes, and the population covered increases to 99.999 percent.

**Combined Variables Score: 50**

*Derby Lane (DL)*

This site is located in Pinellas County and resides within the city limits of St. Petersburg. Analysis of this site indicates that 1,835,440 people reside within 30 minutes of the location. This equates to a total population percentage within 30 minutes of 70.31 percent and garners a score of 15 points for Population. The 80 percent population threshold is satisfied within the 45-minute travel time impedance totaling 95.70 percent and rendering a 15 point score for drive time. Analysis of the 60-minute boundary shows a 99.99 percent population coverage.

**Combined Variables Score: 30**

### *Carillon Business Park (CBP)*

Located towards the outskirts of St. Petersburg's city limits and located within Pinellas county, analysis of this site identifies that 1,816,364 people, or 69.58 percent, can reach the CBP site within 30-minutes. With the boundary pushed to 45-minutes, the population value increases to 2,471,745 which equates to 94.68 percent and renders a score of 15 points for Population and 15 points for Time/Distance. Extending the impedance value to 60-minutes indicates a 99.93 percent population coverage.

**Combined Variables Score: 30**

### *Florida State Fair Grounds (FSFG)*

This site is located within Hillsborough county and resides within an unincorporated portion of Tampa. Analysis indicates a population percentage of 69.19 reside within 30-minutes, 99.26 percent reside within 45-minutes, and 100 percent of the Tampa MSA population resides within 60 minutes of the site. This generates a score of 15 points for Population and 15 points for Time/Distance.

**Combined Variables Score: 30**

### ***4.2.2 Critical Infrastructure Analysis (25 Points Max)***

To determine overall site readiness and the ability to sustain the stadium, a count of the surrounding infrastructure was completed using the Scoring Systems parameter distance zones. The distance zones are as follows: Traffic, 5 miles (10 points); Public Services, 3 miles (3 points); Accommodations, 2 miles (4 points); and Recreation (8 points). Upon

completion of the analysis, the sites are compared to one another and a final point score is tallied.

*New York Yankees Spring Training Complex (NYY)*

Analysis of the Traffic parameter distance zone surrounding the NYY complex identified 95 On/Off Ramps, 228 Controllable Traffic Signals, and an average speed of 37.95 miles per hour. This equates to a sum of 360.95 for the Traffic portion of the parameter. Examination of the Public Services parameter indicated the following infrastructure was within the 3-mile distance zone: law enforcement—3; fire stations—6; hospitals—5; hospital beds—1370; international airport—1; and civic centers—20; bringing the total for this parameter to 1,405. The Accommodations parameter identified 9 hotel properties with a combined capacity of 1,048, which averages out to be roughly 116 beds per hotel. The sum of this parameter is 1,048. Lastly, the Recreation parameter was analyzed to identify structures that would draw event goers to the site before or after the event. Within the 1-mile boundary, 1 park, 3 restaurants, 4 bars/nightclubs, and 17 full-time parking lots were identified. In total, 25 structures were identified for this parameter.

*Channelside Plaza (CP)*

Analysis of the area surrounding the CP site—shown in Figure 8—resulted in the identification of the following traffic infrastructure: 90 On/Off Ramps; 258 Controllable Traffic Signals; and an average speed of 38.02 miles per hours. The sum for this parameter is 386.02. The Public Services parameters identified the 2 law enforcement



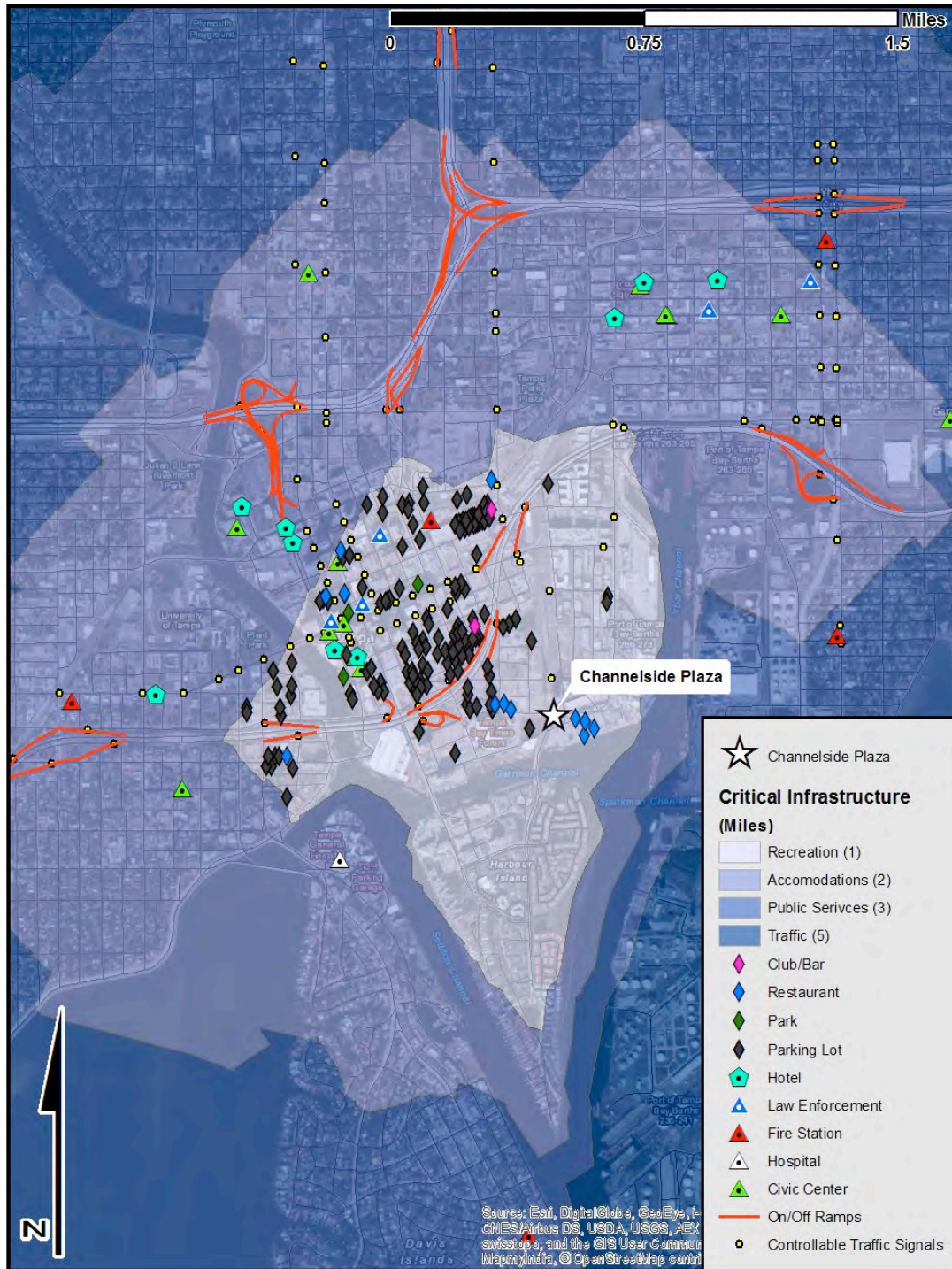


Figure 8 Channelside Plaza Critical Infrastructure - Close Up

stations, 6 fire stations, 2 hospitals, 1198 hospital beds, and 5 civic centers within the 3-mile distance zone. The sum for this parameter is 1,223. The Accomodations parameters

located 9 hotels within the 2-mile zone. Overall capacity is 1,665 with an average of 185 per location. The sum for this parameter is 1,665. Within the 1-mile Recreation zone, the following infrastructure was identified: parks—3; restaurants—13; bars/nightclubs—2; bowling alleys—1; tourist attractions—1; and 145 full-time parking lots. The sum for this parameter is 165.

#### *Derby Lane (DL)*

Analysis of the area surrounding the DL site indentified 57 On/Off Ramps, 41 Controllable Traffic Signals, and an average speed limit of 38.74 miles per hour. This equals to a sum of total of 136.74 for the DL Traffic Paramaeter. The analysis of the Public Services parameter distance zone returned no law enforcement stations, 2 fire stations, no hospitals, no airports, and 1 civic center giving the parameter sum score of 3, the lowest of any of the categories analyzed. Examination of the existing accommodations within the 2-mile distance zone discovered 3 properties with a an average capacity of 25. The sum for this Paramter is 75. Lastly, analysis of the Recreation Paramter identified the following existing infrastructure: 5 restaurants; 3 bars/nightclubs; 1 tourist attraction; and 2 full-time parking lots. The combined sum for this Paramter is 11.

#### *Carillon Business Park (CBP)*

Srutinzing the traffic data within the 5-mile distance zone surrounding the CBP site located 83 On/Off Ramps, 57 Controllable Traffic Signals, and an average speed limit of 39.13 miles per hour. This equates to a sum total of 179.13 for the Traffic

parameter. A survey of the Public Services Parameter's distance zone returned the following infrastructure: law enforcement stations—2; fire stations—2; international airports—1; and civic centers—8; giving the parameter a sum of 15 structures. Analysis of the existing hotels within the 2-mile distance zone identified an overall capacity of 1887 spread over 15 properties. This was the highest noted capacity figure identified throughout the Targeted Sites. The sum for this Parameter is 1887. Reviewing the Recreation Parameter for the CBP location identified only 4 restaurants and no other structures, resulting in a Parameter sum of 4.

#### *Florida State Fair Grounds (FSFG)*

Evaluation of the Traffic parameter distance zone identified 92 On/Off Ramps, 144 Controllable Traffic Signals, and an average speed limit throughout the 5-mile zone of 39.59 miles per hour. This results in a sum of 275.59 for this portion of the analysis. The Public Services parameter identified the following existing critical infrastructure: 2 law enforcement stations; 2 fire stations; and 4 civic centers; resulting in a final tally of 8 for this Parameter. Analysis of the Accommodations Parameter identified 9 properties with a total capacity of 749. This results in a sum of 749 for this Parameter. Review of the Recreation Parameter for the 1-mile distance zone surrounding the FSFG location found only two existing structures: 1 restaurant; and 1 full-time parking lot. This results in a sum of 2 for this parameter, the lowest Critical Infrastructure sum for any of the analyzed sites.



### *Final Variable Scoring*

Final scoring of the Critical Infrastructure Variable consisted of comparing the Parameters for each site and scoring them based on the highest overall value. The tabulated site scores are as follows and are out of 25 possible points: Channelside Plaza—23.5; New York Yankees Complex—20; Carrillon Business Park—15; Florida State Fair Grounds—12.5; and Derby Lane—9.5.

#### ***4.2.3 Parcel Analysis (25 Points)***

As depicted in Table 5, analysis of the Targeted Sites parcels consisted of three parameters: County/City Owned, Fits Stadium, and Occupied. As parcel size requirements can vary greatly based on architectural designs, the baseline parcel size required to fit the new stadium was based on the abandoned stadium design at Al Lang Field in the Downtown St. Petersburg area. The waterfront parcel is 14.84 acres in size and is bounded by Bayshore Drive to the West, 1<sup>st</sup> Avenue South to the North, 1<sup>st</sup> Street North to the East, and Progress Energy Drive to the South. The design of the proposed stadium location required reliance on existing infrastructure surrounding the site for event support, meaning that the entire property is dedicated mainly to the stadium with minimal introduction of additional infrastructure beyond the stadium itself.

#### *New York Yankees Spring Training Complex (NYY)*

The NYY parcel is roughly 24.77 acres in size and currently used by the New York Yankees organization as the Spring Training facility for their Major League level

club. This parcel will fit the stadium as established by the Tampa Bay Rays baseline.

The site is county owned and would require minimal government interaction to acquire.

**Variable Score: 18**

*Channelside Plaza (CP)*

The CP parcel, which is currently an occupied entertainment plaza is 10.349 acres in size and is bounded on Southeastern side by Garrison Channel, which is used by recreational and commercial boaters to access Tampa Bay. This site, which in its current configuration will not fit the baseline stadium, requires expansion into Garrison Channel in order to make the stadium fit. Channelside Plaza has struggled since its inception and has changed hands numerously with the current ownership rights belonging to the City of Tampa.

**Variable Score: 10**

**Table 5 Parcels Scoring Results**

<b>Parcels</b>						
<b>Targeted Sites (Max Points)</b>						
	County/City Owned (10)	Fits Stadium (8)	Occupied? (7)	Acres (NS)	Notes	Score (25)
Yankees Complex	Yes-County	Yes	Yes	24.77	Current New York Yankees spring training complex	18
Channelside Plaza	Yes-City	No	Yes	10.349	Would require building into Garrison Channel	10
Carillon Area	No-Private	Yes	Partially	20.499	Multiple parcels make up proposed site	11.5
Derby Lane	No-Private	Yes	Yes	77.7	Could have issues with Historic Status of location	8
FS Fair Grounds	No-State	Yes	Partially	298.676	Only a portion of FSFG site would be necessary	11.5

*Carillon Business Park (CBP)*

The CBP site consists of a number of privately owned parcels that, when combined, make up the proposed site. The combined size of the parcels is 20.499 acres

and would fit the baseline stadium with ease. A handful of the parcels are currently occupied, but as they are owned by the same entity, the intent to construct the facility on that site would be met with little resistance.

**Variable Score: 11.5**

*Derby Lane (DL)*

The DL parcel located within St. Petersburg, is the current site of the active Derby Lane Dog Track. The site, which is currently privately owned, is 77.7 acres in size and can fit the baseline stadium easily. The biggest hinderance to acquiring and developing this site is the historic status of the Derby Lane Dog Track. The site has been featured in many movies and is viewed as a landmark by St. Petersburg and its residents. Acquisition is further complicated as the site is listed within the parcel registry as a tourist attraction for the area.

**Variable Score: 8**

*Florida State Fair Grounds (FSFG)*

The FSFG parcel is massive in size and is the largest parcel studied for this project. The site is 298.676 acres in size and could accommodate any stadium desing and any required event support infrastructure with minimal effor. The site is currently owned by the State of Florida and serves as the primary fair grounds for state and local events. The size and layout of the site would permit subdividing the parcel and allowing functionality of the fair grounds to continue as well as including a stadium. The site has been subdivided in the past for other venues and could be once again.

## Variable Score: 11.5

### *Final Variable Scoring*

The scoring breakdown—depicted in Table 3—shows that the best parcel available from the Targeted Sites is the New York Yankees Complex with a score of 18 out of 25. The rest of the scores break down as follows: Carillon Business Park—11.5; Florida State Fair Grounds—11.5; Channelside Plaza—10; and Derby Lane—8.

#### **4.2.4 Targeted Site Analysis (100 Points Max)**

Upon completion of the analysis of each sites based on the variables set in the Scoring System, a final score was generated for each site. The score—which can be seen in Table 6—indicates which of the sites is best prepared to accept and sustain a new stadium for the Tampa Bay Rays. As expected, the sites within the Tampa city limits scored far better than those within St. Petersburg city limits and Pinellas County.

The site with the highest score was the New York Yankees Complex with a final score of 88 out 100. Following close behind is the Channelside Plaza complex with a final score of 85. The Carillon Business Park site scored the best of all Pinellas County

Table 6 Final Site Scores

<b>Total Score (100 Points Max)</b>					
<b>Targeted Sites</b>					
	<b>Time/Distance</b>	<b>Population</b>	<b>Critical Infrastructure</b>	<b>Parcel</b>	<b>Total</b>
Yankees Complex	25	25	20	18	88
Channelside Plaza	25	25	23.5	11.5	85
Carillon Area	15	15	15	10	55
Derby Lane	15	15	9.5	8	47.5
Florida State Fair Grounds	15	15	12.5	11.5	54
<i>Tropicana Field</i>	5	5	15.5	25	50.5

sites with a tabulated score of 55 out of 100. The Florida State Fair Grounds site finished with a 54 out of 100. Finally, the Derby Lane site scored the worst of all scored sites with a final score of 47.5 out of 100. By comparison, all of the Targeted Sites—with the exception of the Derby Lane site—scored better than Tropicana Field, which scored a 50.5 overall.

#### ***4.2.5 In-Depth Targeted Site Analysis***

As was determined by the results of the Site Scoring System, the New York Yankees Spring Training Complex and Channelside Plaza have scored the highest of all the Targeted Sites. As a result, an in-depth analysis of each site and its potential to serve as the new site has been completed. This analysis serves to paint a complete picture of these sites and to better understand if the sites would be successful based solely on the geographic positioning.

##### *New York Yankees Complex (NYY)*

The NYY complex is located on the southwestern corner of the Dale Mabry Boulevard and Tampa Bay Boulevard and is currently occupied by the stadium and associated training fields for the New York Yankees and their Single-A affiliate, the Tampa Yankees. The stadium, known as George M. Steinbrenner Field, resides on land that is owned solely by Hillsborough County and is considered a single use facility as the primary function for the site revolves around baseball related operations. The site has been used in the past for various national events and local events when not in use for its

primary function. The parcel is 24.77 acres in size and can easily accommodate a new stadium and any accompanying necessary facilities.

Across Dale Mabry Boulevard resides Raymond James Stadium (RJS), which is home to the regions NFL franchise, the Tampa Bay Buccaneers. Raymond James Stadium has been in its current location since its construction and occupation by the Buccaneers in 1996. Their former stadium, known as Tampa Stadium, was razed and demolished upon completion of Raymond James Stadium. The site of Tampa Stadium is due North of Raymond James Stadium and due East of the NYY complex. It is currently used as overflow parking for events held at RJS and the NYY complex.

The area of where the NYY and RJS complex's reside is known as Drew Park and has been the only area where the Buccaneers have played since their creation in 1976. The area is known locally as "dealer row" due to its high number of automobile dealerships along this stretch of Dale Mabry. As a result of this, there are very few residential areas that are within the immediate area of the NYY complex and would have minimal impact on the lives of any residents within the immediate area.

### *Benefits*

The NYY complex is located within an area that has been accustomed to hosting between 8-10 games per year for the Tampa Bay Buccaneers every year since 1976. The traffic infrastructure within this area reflects this as ingress and egress to RJS has expanded over the years to accommodate the influx of traffic and population during these games. While there are a considerably more games played yearly for a professional baseball franchise versus a professional football franchise—81 versus 10—the capacity

of the stadiums is vastly different. RJS capacity is currently 65,890 and the capacity of the baseline stadium is roughly 35,000. This difference should make the impact of almost daily games for a major league baseball season versus the almost weekly games for professional football season negligible to the area. Considering its proximity to RJS and the community college to its southwest, the need for additional parking lots should not be necessary apart from those created directly on the site itself.

### *Drawbacks*

The area surrounding the NYY complex is very commercial and has very few “quality of life” infrastructures within the immediate area. There are very few restaurants within the area and there are very few entertainment options for those that are partaking in event in the area. The area has been known as an “in and out” site for games and events, meaning that patrons come only for the events and do not patronize the surrounding infrastructure. Due to the commercial nature of the area, the site is very drab and can be intimidating after dark. Another issue with this site is the proximity to the RJS and the overlap of the MLB and NFL seasons. The MLB season typically begins in May and ends September unless the team was to reach the postseason, in which the season would extend to the end of October. The NFL season begins in August and runs to the beginning of the following year, typically ending in January. This small overlap of three months could pose potential problems for the site and the area as there is a potential to have over 100,000 patrons within the area if game days were to coincide. Coordination with league schedulers would be required to ensure that minimal impact occurs for either team. Even so, as it has been seen in the past by teams that share parking,

it's not always a possible to avoid schedule conflicts and logistical nightmares (Klemko 2013). The site is also outside of the CBD and business regions of the area. As such, any future consideration for mass transit would more than likely overlook the site, forcing patrons to ingress and egress via private vehicle only.

### *Channelside Plaza (CP)*

The CP location is a waterfront site within the Channel District of downtown Tampa. An entertainment zone that includes bars, restaurants, and nightlife activities for the region currently occupies the 10.35-acre site. The site has been suggested in the past because of its inability to draw and maintain businesses and patrons to the plaza. The CP was constructed during the height of the housing and construction boom of the early 2000's and has had its success impeded by high rent and mediocre patronage. This has resulted in the plaza changing ownership multiple times within its lifetime and led to site ownership falling to the city of Tampa. The site is bound to the North by the Channelside Drive, to the South by Garrison Channel, the Florida Aquarium to the East, and Beneficial Drive to the West.

### *Benefits*

The CP location offers a considerable amount of aesthetic benefits over the NYY complex location. The immediate area surrounding the site has been redeveloped over the past two decades to be more inviting to visitors and also to attract residents to the downtown area. Success has been moderate as there are residential properties being erected throughout the downtown region and specifically the Channel District. One



major draw to the district is the presence of the NHL's Tampa Bay Lightning franchise and their arena known as Amalie Arena. The arena's proximity to the CBD of Tampa and the residential area of Harbour Island has aided in the success of the Tampa Bay lightning and the accompanying recreational infrastructure throughout the area. There is extensive parking available throughout the downtown region and the Channel District negating any issues of finding parking for those traveling by private vehicle. The CP site also has the added benefit of being a picturesque waterfront property that allows the site to better reflect the region as a whole. The site is also close to many high-speed roads throughout the area and allowed for the quickest ingress and egress of the sites scored. Future development of the area surrounding the site could be benefited by placement of the stadium within the Channel District. As the site is considered to be with the 'prime' areas of downtown, downtown redevelopment can begin simultaneously to stadium construction, creating a well organized and very pedestrian friendly entertainment zone. Finally, and probably the biggest benefit is the possibility for mass transit in and out of the site location. As the site is within the established CBD for the Tampa, mass transit options are endless for those that both live and want to frequent the area during an event. Currently, the only options for mass transit within the CBD are small shuttles and taxis with no options for moving a game day population during an event.

### *Drawbacks*

The biggest drawback to the CP site is the size of the site itself. Basing the required size for the new stadium on the baseline stadium, the site is roughly four acres too small for the stadium. Given the current design of the immediate area, there are only

two options to make the site large enough for the stadium: 1) Build into Garrison Channel and effectively narrow a popular thoroughfare for both private and commercial water traffic; or 2) Reroute Channelside Drive to allow for construction of the stadium within the site. Building into Garrison Channel could prove problematic as the environmental impacts could cause the stadium site to lose support similar to the Al Lang Field site in St. Petersburg. Rerouting Channelside Drive could also prove to be problematic because of the proximity to a residential high-rise that is on the corner of Channelside Drive and South Meridian Avenue. Channelside Drive also serves as access to the Tampa Bay Cruise terminal and the Florida Aquarium and rerouting Channelside Drive—or converting it to a pedestrian zone—could impact these two neighboring facilities.

#### **4.3 Non-Targeted Site Analysis**

After completion of the site scoring process, sites that fit the same criteria for a successful site, yet not identified as Targeted Sites by the *Tampa Bay Times* database, were located throughout the region. As the most people can be reached in the shortest amount of time by placing the stadium site within the Hillsborough County, the search was limited to this region. This search identified three sites: the Tampa Stadium Site, the Channelside/Downtown Site, and the Westshore Area site. Their locations in comparison to the location of Tropicana Field can be seen in Figure 9.



Figure 9 Non-Targeted Sites Compared to Tropicana Field Location

**4.3.1 Time/Distance and Population Analysis (50 Points Max)**

*Tampa Stadium Site (TS)*

During the analysis of the NYY complex, it was noticed that the former site of Tampa Stadium—the facility that preceded Raymond James Stadium—had been converted to overflow parking for events at Raymond James Stadium and the NYY complex. Given the NYY complex’s proximity to the bulk of the population and the quick access to the site, this site was chosen as a Non-Targeted Site.

Similar to the NYY complex, this site scored a perfect score for the Time/Distance and Population Variables by having 86.70 percent of the population within 30-minutes of the site. Within 45-minutes, the site can serve 99.50 percent of the Tampa Bay population and when pushed to 60-minutes, this site can serve 99.998 percent of the region. These results can be seen in Table 7.

**Combined Variable Score: 50**

*Westshore Area Site (WA)*

Contrary to the other two Non-Targeted Sites, the WA site was identified by matching the size requirements for the baseline stadium site. The site is also located within the drive time and distances that have been established as being favorable for

**Table 7 Non-Targeted Time/Distance and Population Scoring Results**

<b>Time/Distance and Population</b>								
<b>Non-Targeted</b>	<b>Tampa MSA Population</b>	<b>30 Min</b>	<b>Percent</b>	<b>45 Min</b>	<b>Percent</b>	<b>60 Min</b>	<b>Percent</b>	<b>Score</b>
Tampa Stadium Site	2610465	2263205	86.69738916	2597298	99.4956071	2610423	99.99839109	50
Westshore Area		2254194	86.35220162	2592650	99.31755454	2610423	99.99839109	50
Channelside Area		2201553	84.33566434	2595563	99.42914385	2610460	99.99980846	50

stadium success. Analysis of this site indicated that 86.35 percent of the population resides within a 30-minute commute of the site. Further analysis revealed 99.31 percent within 45-minutes and 99.998 percent within 60 minutes. These results garner full points for each of the variables analyzed.

**Combined Variable Score: 50**

*Channelside/Downtown Site (CD)*

The CD site was located using methods similar to those used to identify the TS site. The site is directly adjacent to the CP location and is comprised of vacant lots within the downtown district. Given the high marks received by the CP site for both Time/Distance and Population, this site was located and analyzed. Just like the CP site, this site also managed a perfect score for these combined variables. Analysis reveals that 2,201,553 people (84.34 percent) reside within 30 minutes of the CD location. Expanding to 45-minutes indicates 99.43 percent population coverage and 99.999 percent coverage at the 60-minute mark.

**Combined Variable Score: 50**

**4.3.2 Critical Infrastructure Analysis (25 Points Max)**

*Tampa Stadium Site (TS)*

As the TS site is adjacent to the NYY complex, the Critical Infrastructure review indicated similar results. The Traffic parameter of the variable indicated that there are 114 on/off ramps, 260 controllable traffic signals, and an average speed limit of 38 miles per hour. The sum score for this parameter is 412, which is the highest of the three Non-



Targeted Sites analyzed. The Public Service parameter results indicated the following structures within the 3-mile distance zone: 3 law enforcement stations; 5 fire stations; 5 hospitals with 1,370 beds; 1 international airport; and 21 civic centers. The combined sum for this parameter is 1405. Review of the Accommodations parameter for the TS site identified 11 properties within the 2-mile distance zone with a total capacity of 1581. The sum score for this parameter is 1581. Finally, the Recreation parameter indicated the following infrastructure within the 1-mile distance zone: 3 restaurants, 2 bars/nightclubs, and 17 full-time parking lots. The sum total for this parameter is 22 and can be seen in Table 8.

**Table 8 Non-Targeted Critical Infrastructure Scoring Results**

<b>Critical Infrastructure</b>								
<b>Recreation (1 Mile Buffer)</b>								
	Parks	Restaurants	Bars/Nightclubs	Bowling/Alleys/Skating Rinks	Tourist Attractions	Parking Lots	Total	Score
Tampa Stadium Site	0	3	2	0	0	17	22	4
Westshore Area	0	8	1	0	0	7	16	6
Channelside Area	5	15	2	1	1	157	181	8

<b>Accommodations (2 Mile Buffer)</b>					
	Count	Capacity	Average Per Property	Total	Score
Tampa Stadium Site	11	1581	143.727273	1581	2
Westshore Area	22	4604	209.272727	4604	4
Channelside Area	10	1686	168.6	1686	3

<b>Public Services (3 Mile Buffer)</b>								
	Law Enforcement	Fire	Hospitals	Hospital Beds	International Airport	Civic Centers	Total	Score
Tampa Stadium Site	3	5	5	1370	1	21	1405	3
Westshore Area	3	4	0	0	1	22	30	1
Channelside Area	2	7	2	1198	0	16	1225	2

<b>Traffic (5 Mile Buffer)</b>					
	On/Off Ramps	Traffic Signals	Average Speed Limit	Total	Score
Tampa Stadium Site	114	260	38.004262	412.004262	10
Westshore Area	90	144	37.8308	271.8308	4
Channelside Area	99	263	38.064356	400.064356	7

<b>Total (Max Points)</b>					
	Recreation (8)	Accommodations (4)	Public Services (3)	Traffic (10)	Final Score (25)
Tampa Stadium Site	4	2	3	10	19
Westshore Area	6	4	1	4	15
Channelside Area	8	3	2	7	20

### *Westshore Area Site (WA)*

Examination of the 5-mile distance zone for the Traffic parameter identified the following infrastructure: 90 on/off ramps; 144 controllable traffic signals; and an average speed limit of 37.83 miles per hour. The sum total for this parameter is 271.83. Analysis of the Public Services parameter within the 3-mile distance zone identified 3 law enforcement stations, 4 fire stations, 1 international airport, and 22 civic centers giving this parameter a sum total of 30. Looking at the accommodations within the 2-mile distance zone showed an average capacity of 209 spread over 22 properties. This brings the sum total for this parameter to 4604. Finally, the Recreation parameter was analyzed and indicated the following infrastructure within the 1-mile distance zone: 8 restaurants, 1 bar/nightclub, and 7 full-time parking lots. The sum total for this parameter is 16.

### *Channelside/Downtown Site (CD)*

The 5-mile traffic distance zone was analyzed and the following infrastructure was identified: 99 on/off ramps, 263 controllable traffic signals, and an average speed limit of 38.06 miles per hour. The sum total for this parameter is 400.06. Studying the infrastructure for the Public Services distance zone identified the following: law enforcement—2; fire stations—7; hospitals—2, hospital beds—1198; and civic centers—16. The sum total for this parameter is 1,225. The Accommodations parameter was analyzed using the 2-mile distance zone and located 10 properties with a total capacity of 1686. The sum total for this parameter is 1686. The Recreation parameter was analyzed using the established 1-mile distance zone. Analysis of this parameter identified the following infrastructure: 5 parks; 15 restaurants; 2 bars/nightclubs; 1 bowling

alley/skating rink; 1 tourist attraction; and 157 full-time parking lots. The sum total for this parameter is 181.

#### *Final Variable Scoring*

The final score and ranking for the Non-Targeted Sites was calculated in the same fashion as the Targeted Sites. The sum totals of each of the parameters were calculated and a final score was tabulated. The top scoring site for this variable is the Channelside/Downtown site with a final score of 20 out of 25. It is followed closely by the Tampa Stadium site, which scored 19 out of 25. Finally, the Westshore Area site scored the lowest with 15 out of 25 points.

#### ***4.3.3 Parcel Analysis (25 Points)***

##### *Tampa Stadium Site (TS)*

The parcel shown in Figure 10, which was once the site of Tampa Stadium, is 33.64 acres in size and can accommodate the baseline stadium and any event related infrastructure. The site is directly to the North of Raymond James Stadium and directly East of the NYY complex. Currently, the parcel serves as overflow parking for both RJS and NYY complexes and is owned by the county. The site is currently grass covered with the only remnants of Tampa Stadium being an outline of the stadium's foundation. As each parameter was successfully scored, the TS site received the full 25 points possible which can be seen in Table 9.



**Table 9 Non-Targeted Sites Parcel Scoring Results**

<b>Parcels</b>						
<b>Non-Targeted Sites (Max Points)</b>						
	County/City Owned (10)	Fits Stadium (8)	Occupied? (7)	Acres (NS)	Notes	Score (25)
Tampa Stadium Site	Yes	Yes	No	33.6378	Site is directly adjacent to RJS	25
Westshore Area	Yes	Yes	No	36.529	Proximity to active runway could cause issue	25
Channelside Area	Yes	No	No	9.334	Would require purchase of occupied parcels to fit	17

*Westshore Area Site (WA)*

The county owned parcel located directly to the South of Tampa International Airport, is roughly 36.5 acres in size and can accommodate the baseline stadium and any event support sites required with ease. The site is currently unoccupied and is available for development. The largest drawback to this location is its proximity to an active runway at Tampa International. While this can be circumvented with customized architecture and site planning, it is a potential negating factor for this site. The site receives the full 25 points based on the scored parameters of this variable.

*Channelside/Downtown Site (CD)*

The CD site is located to the North of Amalie Arena and is a collection of city-owned vacant parcels totaling 9.34 acres in size. In its current configuration, the site does not meet the requirement of the baseline stadium size and would require the purchasing of privately owned sites within the area. As such, the site received a final score of 17 out of 25 points.

**4.3.4 Non-Targeted Site Analysis (100 Points Max)**

Once the site study was completed on the Non-Targeted Sites, scores were issued to each of the three sites. As predicted, the site scores were among the highest of all sites

analyzed. The site with the highest score was the Tampa Stadium site with a final score of 94 out of a possible 100 points. The Westshore Area site scored came in right behind the Tampa Stadium site with 90 points out of 100. Finally, the Channelside/Downtown site scored 87 out of 100. The final score breakdown can be seen in Table 10.

**Table 10 Non-Targeted Sites Total Score**

<b>Total Score (100 Points Max)</b>					
<b>Non-Targeted Sites</b>					
	<b>Time/Distance</b>	<b>Population</b>	<b>Critical Infrastructure</b>	<b>Parcel</b>	<b>Total</b>
Tampa Stadium Site	25	25	19	25	94
Westshore Area	25	25	15	25	90
Channelside Area	25	25	20	17	87

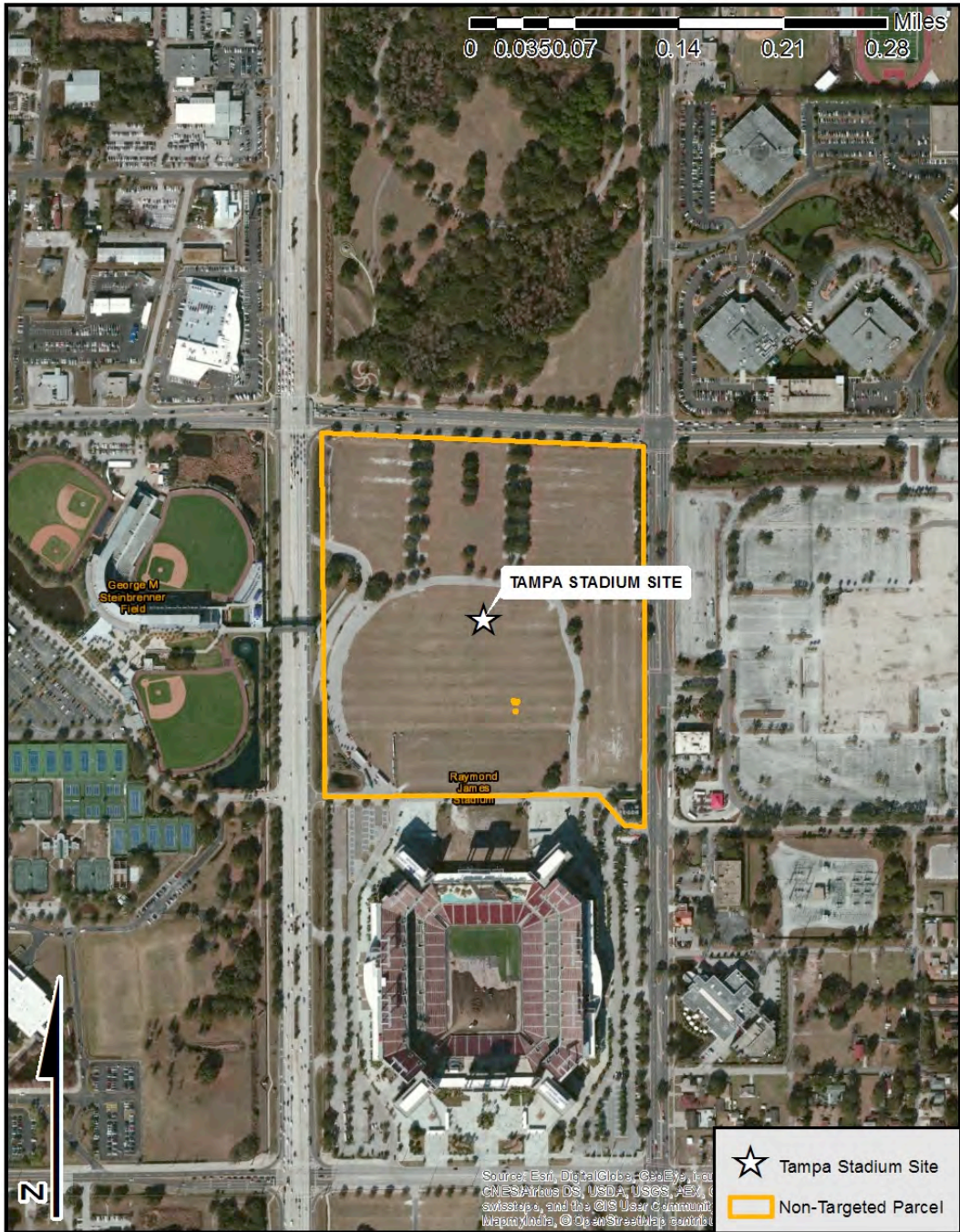


Figure 10 Tampa Stadium Parcel Site

## **CHAPTER 5: DISCUSSION AND CONCLUSION**

The main goal of this research was to identify where throughout the Tampa Bay area would be the best location to construct a single-use stadium for the Tampa Bay Rays by analyzing traffic, population, and critical infrastructure. Beyond the goal of establishing where a stadium should go, an anticipated by-product of the research is the creation of a standardized and repeatable scoring method for any future stadium location assessments. While the goals were ambitious, this research provided insight into the process of stadium site selection and made an emphasis on the scientific elements that should be included during any future site selections.

### **5.1 Key Observations**

As was expected, the results of the research indicate that a stadium placed within the city of Tampa—and close to the Tampa CBD—would attract more of the regions population and allow easier access to and from the stadium than its current location in downtown St. Petersburg. The research also validates the anecdotal claims that have been made by fans and local media: the stadium, in its current location, is too far to travel to. To this point, the location with the second-worst population percentage within a 30-minute commute is Tropicana Field with only 50.5 percent living within the ideal driving distance.

The analysis of the Targeted sites identified the New York Yankees Spring Training Complex and the Channelside Plaza sites as being the best for the new stadium by achieving overall scores of 88 and 85 out of a possible 100. The process also identified three Non-Targeted Sites—or sites that were not initially identified by any databases or documentation—whose scores were higher than the analyzed Targeted Sites.

The three sites identified—Tampa Stadium, Westshore, and Channelside—scored 94, 90, and 87 respectively out of a possible 100 points. These scores verify the initial hypothesis that the stadiums location would be better suited and would better serve the Tampa Bay community if it were moved closer to the population center.

Ultimately, the goal of relocating a team to a different site within the same community should be founded on increasing fan attendance and increasing revenue. As such, any correlation between the final site scores achieved through the scoring system and attendance should be emphasized to add legitimacy to the Stadium Site Scoring System as a whole. In order to determine if any correlation between site score and attendance exists, an analysis was completed of the three existing professional stadium sites within the Tampa Bay area and was compared to attendance records since 2008 for all three sites. Interestingly, when the resultant data was scrutinized, a correlation emerged. The Raymond James Stadium site, the Amalie Arena Site, and the Tropicana Field site scored 94, 85, and 50.5 respectively. The average attendance between 2008 and 2014 was noted to be 88.8, 91.5, and 53.8 percent respectively. The most glaring of those figures is the score and average attendance for Tropicana Field. This similarity acts as a conceivable verifier that the variables and parameters used to analyze the potential and existing sites could be the key to successful stadium site placement.

## **5.2 Future Research**

The research proved to be successful in identifying the ideal locations throughout the region where a stadium should be placed for optimal results. While the results were capable of identifying optimal site locations by analyzing driving distances/drive time

correlated to population percentages, further research could enhance the results and ensure that the site selected will indeed serve as the best location for the population of the Tampa Bay area and the Tampa Bay Rays organization.

### ***5.2.1 Traffic Flow Analysis***

The research hinged on determining drive time distances throughout the region and surrounding each site. To obtain this information, speed limit data was used for all the roads throughout the Tampa Bay area. This produced drive times and distances that are based within a sterile environment with no traffic impedances of any sort. Essentially, the conditions in which the traffic study was completed do not reflect those that occur in real life and do not take into account congestion or delays that can occur on a daily basis. While it may be impossible to accurately portray the impacts of traffic throughout the region due to the variability of traffic flow, it may be possible for a long-term study to determine average speed versus posted speed and further refine the driving distance/travel time variable.

Another component to the traffic portion of this research that is likely to benefit from further research is that of traffic patterns on days of events. Identifying where throughout the region are ‘choke points’ and where on the traffic network are the areas that will likely incur the most congestion on days of events could prove beneficial to further expansion of the road networks and better understanding of what can be done to mitigate congestion as much as possible. There is no way to completely eradicate congestion from the event process—as there will always be an influx of population on

event days—but by including event traffic patterns into any future study could prove to be beneficial for many outlets beyond stadium planning.

### ***5.2.2 Population Analysis***

Another area that could benefit from further research is the population data of the region. The data, which was obtained from the U.S. Census Bureau, contains population data based on block levels and establishes the data based on results from the census surveys. Unfortunately, there is nothing within the data that identifies what is located within the census block, such as jails, half-way houses, assisted care facilities, etc. While it is possible to identify the type of facility using various methods, including identifying those sites with zero homes but a high number of residents or by using parcel data, understanding the likelihood of those ‘residents’ to travel to and from an event is not well comprehended. Any future studies of this nature should attempt to identify which those population pockets are those that could attend events if they desired to, and which are unlikely to attend under any circumstances.

Similarly, an analysis should be completed to determine which team, if any, the population roots for within the region. The Tampa Bay area is known for being a transplant community and, accordingly, portions of the population root for their original hometown teams. By doing such an analysis, it will provide further understanding of the population of the region and can assist in determining if a specific area has a vested interest in attending Rays games first hand. One method that can be used to identify the population allegiances is Twitter. In the recent weeks, hash-tag data has been aggregated to determine where the fan-base for each NFL franchise resides. The data was displayed



on the county level and may require a bit of further research to determine if a block level analysis could be completed.

### ***5.2.3 Travel Time Analysis***

Lastly, another portion of this project that could use further research is the determination of how much time is acceptable to commute to the new site. The time component is one that is considered to be at the forefront of why the population does not attend events regularly, so as a result of this, the time component needs to be specific enough to establish a service area that meets the requirements desired by the population. For the purposes of this project and because of the makeup of the region, the 30-, 45-, and 60-minute service areas were selected. Further research into this portion of the assessment could identify more exact times that patrons are willing to travel in order to come to an event. On this same note, an assessment into where the fans are coming from to attend events would also help identify where the service area should be focused and how far the search for a new site should extend to.

## **5.3 Conclusion**

At the inception of this research, the idea was simply to find a new site for the Tampa Bay Rays and to settle the on-going argument of which site would be better: Tampa or St. Petersburg. While this is the foundation of this project, the included research has established that there is a scientific process that can be undertaken to identify where a stadium would fulfill the needs of both the franchise and a community.



The bottom line to this research is this: there is a problem with the Tampa Bay Rays current facility and its location. The research has demonstrated that the site is in a location that is not favorable to attracting the most amounts of people within the shortest amount of time within the Tampa Bay area as evidence by the 50.5 score Tropicana Field obtained through the scoring system. While the stadium itself is not in an ideal location to attract patrons, the surrounding area is replete with supporting infrastructure for the site. With this in mind, moving the stadium will require a monumental investment to ensure that the surrounding area is ready to support the stadium and the influx of patrons. The locations identified in this research are areas that would require the least amount of investment and would impact the community in a favorable way. The opportunity is there for the Tampa Bay area to have a successful team, in a successful location, and with the community's support. If located, constructed, and supported thoughtfully, the resulting stadium site could be at the forefront of facility location and design for the foreseeable future.

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