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The Rose Fitzgerald Kennedy Greenway: Making the Vision a Reality

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THE ROSE FITZGERALD KENNEDY GREENWAY: 
MAKING THE VISION A REALITY

A Thesis Presented

by

ALEC E. ZEBROWSKI

Submitted to the Graduate School of the 
University of Massachusetts Amherst in partial fulfillment 
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DEDICATION

This project is dedicated to all the men and women who worked to make the Central Artery Tunnel Project a success.
ACKNOWLEDGMENTS

I would like to thank David Dillon, Kathleen Lugosch, Alex Schreyer, and Joseph Krupsczynski for their wisdom and guidance over the past three semesters. I would also like to thank my mother, for her love and inspiration.
ABSTRACT

THE ROSE FITZGERALD KENNEDY GREENWAY: MAKING THE VISION A REALITY

MAY 2011

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The $15+ Billion “Big Dig”, replaced Boston’s deteriorating six-lane elevated Central Artery, known as the Green monster, with a widened highway tunnel running underground through Downtown Boston and crossing the Charles River, creating more than 27 acres of new land area for reuse in Downtown Boston.

Today, a significant portion of the land has been turned into a system of parks known as the Rose Fitzgerald Kennedy Greenway. Since its completion in 2008, five civic and recreational developments planned for the Greenway have been abandoned due to poor funding, rising construction estimates, and a general lack of support. Disconnected, under-programmed and ill-maintained, the Greenway is in danger of becoming a no-man’s land. There have been many visions, but no solutions.

This thesis will provide a solution that will reconnect the North End and the Waterfront with downtown Boston, improve the continuity of the park system, provide a structural approach to construction above highway tunnel exit ramps, and most importantly promote widespread use of the Rose Fitzgerald Kennedy Greenway.
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CHAPTER 1

BACKGROUND AND ISSUES PRESENTED

Introduction

The $15+ Billion “Big Dig”, replaced Boston’s deteriorating six-lane elevated Central Artery, known as the Green Monster, with a widened highway tunnel running underground through Downtown Boston and crossing the Charles River, creating more than 27 acres of new land area for reuse in Downtown Boston. The Big Dig had major, significant impacts for more than a decade but the long term impact of the Big Dig on Boston neighborhoods has been positive. The Green Monster has been demolished. As part of the “mitigation” for the Big Dig, state permitting agencies required the Massachusetts Highway Department to come up with a joint development process, to dedicate 75% of the new land for public open space and to designate a public agency to be responsible for its management.

The Big Dig was completed in 2006. Today, a significant portion of the new land area created has been turned into a park called the Rose Fitzgerald Kennedy Greenway. Most of what is written about the Greenway is critical. Even the critics who like the proposed uses, do not like the design or the execution and complain that people don’t like to walk there. Having read so many negative articles about the Greenway, I was surprised to see that the Greenway looked a lot better than I had expected. Following a year of heavy rainfall, the landscaping was very green. Several workers were planting flowers. Even early on a Sunday morning recently, I saw lots of walkers up and down the Greenway and lots of tourists near the major crossings between Quincy Market and the North End and at
So what is the problem? On February 3, 2010, the Boston Globe announced that two signature projects proposed for the Greenway - a Boston museum and a horticultural garden - would have to be abandoned due to lack of funding. How did we get to this point? What went wrong? Did these proposals make any sense? Are there solutions to financing in the current recession? Are the critics right? What should state and city officials do now? This chapter will describe the development of the Greenway, list the important issues, and suggest some short and long term solutions.

**How We Got to This Point**

In the mid-1970’s, the Commonwealth decided to improve access to Logan Airport and Downtown Boston and to reduce growing traffic congestion in Boston. Access to Logan Airport would be improved by extending the Massachusetts Turnpike to South Boston and constructing another tunnel running across Boston Harbor from South Boston to East Boston. Traffic on the Green Monster and the Sumner and Callahan Tunnels would be reduced by depressing and widening of the Central Artery through downtown Boston and building a new bridge over the Charles River. All of this plus the interchanges to connect each piece added up to an astounding 7.2+ miles of new roadways!

**Control of the Land Under the Green Monster**

When the Green Monster was built in the 1950s, the state did not acquire the land underneath it, only rights to build the elevated structure, utilities, etc. The surface artery and other areas under and along the Green Monster were owned by the city. So, when it came time to build the Big Dig, the state had a big problem - how to get the city to cooperate and provide the land. The Big Dig was already over budget and there was no
money in the budget to purchase that land and no time to fight over it. After lots of bad press, the city and the state decided to “share” the space. The Commonwealth got the rights to build and the city got some control over future development of the surface land. By all accounts, this early tug of war between the state and the city for control of the corridor was just the beginning of the politics that would affect the future use and development of the Greenway.

**Chronic Funding Issues**

Funding was always a major problem for the Big Dig for a couple of reasons. One reason is that most of the Interstate Highway System was already complete in the rest of the United States. By the time the Big Dig came along, it was the “last leg” of the system. President Ronald Reagan thought it was a “local” project that did not deserve federal funding. (That Massachusetts was a “blue” state didn’t help either.) Despite setbacks, Congressman Thomas P. “Tip” O’Neil, Speaker of the House, and supporters never gave up until the Big Dig was approved and funded. According to one article, the arm twisting involved is one of the legends of the Big Dig. Congress overturned a Presidential veto by one vote, passing the Surface Transportation Act of 1987. But Congress did not fund the tunnels between High to Causeway Streets in Downtown Boston and there was no money for amenities except approved mitigation for environmental impacts. Another reason is that the Big Dig was so huge that lots more money would be needed along the way. According to sources from the 1990s, Interstate Highway funding was on a reimbursement basis. Parks and air rights development were not eligible for federal funding except as mitigation for environmental impacts. So, from the start, the state had to front the cost of the Big Dig and meet rigid requirements for reimbursement without the prospect of any
federal funding for the new surface land created by the Big Dig. The cost of the Big Dig simply kept rising every year for one reason or another and each year the political fallout increased. The cost of the project still detracts from the Big Dig legacy and seems to make it easy even today for critics to attack anything related to it.

**Planning for the New Surface Street System and Land**

As noted above, the ultimate plan for the new surface land would be shaped by the funding and environmental approval process. The result was a vague joint development process in an appendix to the lengthy environmental impact documents for the Big Dig. Based on the environmental impact documents, almost every interest group, state and local, seems to have had an opinion on who should develop the new surface land and what the future uses should be. Based on on-line sources, the state and the city participated in numerous efforts to try to reach consensus on a plan. Various committees were established just for this purpose and achieved various levels of success. One group composed of representatives of the business community, originally called the Artery Business Committee and now “ABC TMA”, was established in 1989 to help lead the design process, assess impacts of the Big Dig and manage and facilitate its development.

On May 9, 1991, the Boston Zoning Commission approved Article 49 of the Boston Zoning Code creating the Central Artery Special District. Parcel by parcel, Article 49 regulates every detail of what will be acceptable to the Boston Redevelopment Authority in the Special District. Article 49 is very restrictive, containing traditional list uses, dimensional requirements and detailed design guidelines for each parcel.

In 2008, the MA legislature authorized the Rose Fitzgerald Kennedy Conservancy, Inc., a non-profit, to operate, manage, and maintain the Greenway. The Conservancy
also is responsible for “programming” the Greenway. This law puts in place an organization which seems very top heavy and bureaucratic which may explain why it has taken so long for things to happen.

Current Situation

Can the state and the city, the business community, abutters, and other stakeholders rise to the challenge? Jane Holtz Kay, the journalist and architecture critic, in her wonderful book, Lost Boston, expresses her great frustration with Boston ominously: “Throughout Boston, the sanction of the over scaled menaces the intimacy of the historic city. Perpetually untrammeled by plan, mired in politics, and unmindful of public space, the sky’s no limit in the city.” But Ms. Holtz Kay also believes that there is reason to hope that “change, the narrative of Boston’s building shows, can be a creative act: It can be a manifestation of the joy in city-making.”

The greatest problem that advocates of the Greenway parcels face today is the same as always - - funding now exacerbated by the public deficit, the downturn in non-profit giving (since Bernie Madoff), and the constraints on private financing in the current recession. Why do the parcels have to be occupied with non-profit developments? Before the Big Dig began, the Green Monster was a barrier. But the Greenway hasn’t yet stitched Boston back together. The space is open, but the connections have

Figure 1: Perception vs Reality, diagram by author.
not been made. Restaurants, bars, lunchtime sandwich shops have the potential to bring people out to the Greenway at various times of day. There are several key residential business areas of the city which the Greenway can draw people from. Give them a new place to go for lunch. That could get the ball rolling. Robert Campbell says it best: “The park needs a constituency, a regular crowd, i.e., people who will want to be there on a consistent basis. There is talk of concerts, cafes, performances, ice skating. They are all needed. Under-programmed, ill-maintained open space in a city quickly degenerates into a wasteland of blowing newspapers, homeless men, and worse… Also promised were four new buildings – two museums, a YMCA, and a garden under glass, none of which has been started. There was also to be a visitor’s center... stretch of land which today feels shapeless and unfocused… no-man’s land. There might as well be three greenways.”

Footnote

Appendix B, found on page 36, outlines suggested interventions based on the assumption that we need to make development of the Greenway parcels more attractive to Big Dig abutters, private developers, and others who have a financial interest in the land.

**Zoning Overview**

Each parcel of the Greenway is governed by the Boston Zoning code, a detailed and complex compilation including underlying zoning and numerous specific districts governing neighborhoods and areas of the city. The Greenway is governed specifically by Article 49, “Central Artery Special District”, enacted in 1991, and amended on a number of occasions through 2002. Article 49 describes in detail the purposes, goals and objectives intended to control development in the district. Several of those goals include: to protect the residential neighborhoods from encroachment by downtown development;
to create affordable housing opportunities for the North End; to create public open space and park resources for the downtown and the North End, with links to the waterfront; to promote residential and mixed-use commercial activities compatible with adjacent areas; to promote uses which integrate uses, activities, and physical connections between the North End, downtown, and the waterfront; to provide new and expanded facilities for cultural and community services.

Generally, the purpose of Article 49 is to allow the City to shape future development of the Greenway. Article 49 provides guidelines by which developers, architects and planners may approach the design of the Greenway parcels. It is important to keep in mind, however, that the City of Boston is a precedent for zoning change. Although Article 49 has stated a variety of acceptable uses, if a given design is good for the city and (more importantly) if the Mayor likes it, the code may be changed in favor of a more creative approach. There are several parcels which have the potential to greatly increase activity along the Greenway if developed. Some are zoned to be developed, others are protected as open park space.

Some provisions of Article 49 are simply too restrictive and should be abandoned. The park has to be 75% open space. This continues to be a major problem. Architectural critic and historian, Robert Campbell, points out that no one ever really decided how much open space was appropriate. He believes that the 75% open space was well meaning but dictated arbitrarily during the environmental permitting process.

Some of the uses specified in Article 49 have failed and need to be replaced with new ones that will work and be popular attractions. Most of the allowed uses do not generate income. Although Article 49 allows for the possibility of residential, restaurant,
and “seasonal and festival” uses, none of these uses is encouraged. For example, the proposed indoor horticultural garden “under glass” was a good idea discussed for more than 20 years, which has now been abandoned for lack of financing. Article 49 should be amended to allow alternative uses, i.e. a fabulous popular restaurant. Unlike parcels further north, there are not too many great restaurants with broad appeal near South Station. The city and the state should partner with a major and well established restaurant, such as Legal Sea Foods, on the development of a spectacular restaurant on the Greenway. Legal Sea Foods has a vested interest in Boston, a local and national reputation, and extremely popular at lunch and dinner time. Perhaps the city can persuade Legal’s to relocate its Long Wharf restaurant to the Greenway reinforcing the Greenway link to the waterfront.

**Potential Sites**

Parcel 7 East and 7 West are located across from the North End. Parcel 7W is currently occupied with parking garage. Large ventilation shafts penetrate the garage from the highway and subway tunnels below and occupy significant volume within the building. Allowed uses for Parcel 7W are parking, office uses, local retail/service uses, and seasonal and festival uses. The
site also accommodates a subway station serving both the Green and Orange lines. For decades this site has been the future of Boston’s Haymarket farm stands. Conceived in 1988, a proposal to put the farm stands on the ground floor of the garage is finally back in motion and project could be complete by the summer of 2012. The maximum allowable height of any development on Parcel 7 West is 80 feet. Parcel 7 East is designated Open Space Public Plaza with maximum allowable height of 35 feet.

Parcel 9 sits across the street from the North End Parks on the downtown edge. This site is the closest to Faneuil Hall Marketplace. Parcel 9 is the former site of the Boston Museum proposal which was abandoned due to insufficient funding and rising construction costs. The site is adjacent to Blackstone Street, the current but temporary home of the Haymarket farm stands. Allowed uses for this parcel are residential uses and local retail/service uses. The maximum allowable height of any development on Parcel 9 is 55 feet.

Parcels 11 and 11A are located at the edge of the North End residential community across from the North End Parks (parcels 8, 10). Two historic buildings are located on Parcel 11, one of which belongs to Massachusetts Turnpike. Parcel 11A, currently a parking lot, is the former location of an exit ramp from the old elevated Central Artery. Allowed uses for both parcels are residential uses, and local retail/service uses. The size and location of Parcel 11A makes it a valuable space. The maximum allowable height of any development on Parcel 11A is 55 feet.

Parcel 12 is located between the North End Parks and Wharf District, beginning with Parcel 14. Two ramps, which allow vehicles to exit I-93, both northbound and southbound, occupy a significant area of land within the parcel, the rest of which is
surrounded by a chain link fence. The only pedestrian connection between the North End Parks and the rest of the Greenway is a sidewalk along the South edge of the site. Allowed uses for Parcel 12 include Residential Uses, Community Uses, Cultural Uses, and Local Retail/Service uses. The code also states that allowed uses should accommodate a bus and trolley drop-off and ticketing facility. The maximum allowable height of any development on Parcel 12 is 55 feet.

Parcel 13 is located directly adjacent to Parcel 12 on the south side. The site is designated Open Space Urban Plaza and is intended to be a “forecourt” to any development proposed for Parcel 12. The maximum allowable height of any development on Parcel 13 is 35 feet.

Parcel 18 is located further south along the Greenway, outside the Boston Harbor Hotel at Rowes Wharf. Adjacent streets include High Street to the North and Seaport Boulevard to the South. Parcel 18 is the former site of the Center for Arts and Culture, a new museum designed by Studio Daniel Libeskind. The proposal was abandoned in 2010 due to insufficient funding and rising construction costs. Two ramps are located within Parcel 18, a southbound exit ramp and a northbound entrance ramp. Currently, Parcel 18 is landscaped and has a plaza at its north end across from the famous gateway arch of the Boston Harbor Hotel. The maximum allowable height of any development on Parcel 18 is 35 feet.
CHAPTER 2
SITE ANALYSIS

Site Selection: Why Parcel 12

Parcel 12 needs a solution more than any other. Judging by its appearance, the site was clearly not intended to be left in its current state. Surrounded by a chain link fence, it is the least finished portion of the Greenway.

Developing this site is vital to the Greenway’s future. Parcels 12 and 13 are a combined 650 feet in length, approximately 10% of the 1.3 mile park system. With only one sidewalk, the site is almost uninhabitable, offering very little pedestrian access along the length of the Greenway. Given the amount of money spent to remove the elevated highway, the Greenway cannot afford to leave so much of its land unusable.
Parcel 12 has seen two proposals come and go since 2008. The first was a design for a new Boston Museum, designed by architect Moshe Safdie, and was abandoned in 2009. The Boston Museum attempted a second proposal for different site, Parcel 9, which included a pedestrian bridge for Parcel 12, following the curve of the southbound ramp. This proposal was abandoned in 2010.

Parcel 12 is a valuable location given its proximity to major tourist destinations in Boston. Quincy Market, one of the largest attractions in the city, is located south of the Dock Square Garage. Christopher Columbus Park, another popular attraction, is located east of Parcel 12. Just beyond the park, tours of Boston Harbor and other cruise events leave from Long Wharf and Central Wharf. The Freedom Trail crosses the Greenway near Parcel 12 on its way to Faneuil Hall.

Developers, architects, planners, and engineers face a number of challenging con-
straints, making Parcel 12 one of the most difficult sites to develop along Greenway. The presence of the ramps creates a noisy and dangerous condition in a location which should be a pedestrian sanctuary. Cars emerge from the tunnels at an average of 40-50 mph and there is over a twenty foot drop to the ramp pavement below. Parcel 12 is an impasse, a barrier, denying the Greenway the continuity it needs to be successful.

As stated earlier, allowed uses for Parcel 12 include Residential Uses, Community Uses, Cultural Uses, and Local Retail/Service uses. The code also states that allowed uses should accommodate a bus and trolley drop-off and ticketing facility. This exciting mix of uses allowed by the zoning code, combined with the site’s inability to host a park, make Parcel 12 a compelling location for a larger development.

**Existing Site Conditions: Surface/Sub-surface**

This thesis proposes a mixed-use development to be located on Parcels 12 + 13 of the Rose Kennedy Greenway, a combined 2.3 acre site stretching from Mercantile Street at the South edge of the site to the North End Parks on Parcels 8 and 10 north of the site. Cross Street and John F. Fitzgerald Surface Road define the East and West boundaries of the site, respectively. Adjacent buildings include the Dock Square Garage and three façade-less residential buildings.
The tunnels beneath the surface are supported 4-foot thick concrete walls or “slurry”-walls (which will be discussed in a later section). At Parcel 12, the tunnels are supported by three of these walls, two at outermost edges of the tunnel and one in the center, between the northbound and southbound tunnel sections. Only two of the walls are positioned directly beneath the land area within the parcel. The wall supporting the tunnels at the center is located beneath surface approximately 55’ in from and parallel to the curb along the West edge of the site (John F. Fitzgerald Surface Rd.). Where the northbound ramp surfaces, the wall along the outer edge stops and realigns with the tunnel and the inside edge of the ramp. Then it continues north, approximately 42’ from and parallel to the curb along the East edge of the site (Cross St.).

The ramps were positioned as they are for several reasons. First, drivers must have a way to get to and from the tunnels below. Why build a highway through Boston if
the city cannot have access to it? Second, the tunnel depth varies greatly over the 1.3 mile stretch, snaking its way above and below the existing infrastructure of one of the oldest cities in America. From the North, the highway crosses the Charles River by means of the Zakim Bridge, and dives underground at North Station. The further the tunnels descend, the greater the distance the ramps must travel to reach the surface. At Parcel 12, the tunnels are still relatively shallow at roughly 30 feet below the surface, giving the ramps a shorter distance to travel vertically. The tunnels reach their lowest depth beneath Parcel 18.

The northbound exit ramp surfaces at the south edge of Parcel 12 and runs parallel to Cross St. The two lane roadway is approximately 20 feet below the grade when it surfaces and is uncovered for approximately 300 feet before reaching grade. Once the ramp ends, the surface road expands from two lanes to three and splits traffic in two directions, toward the North End and toward downtown Boston. Cars have the option of merging with Cross Street heading northwest or John F. Fitzgerald Surface Road, heading southeast.

The southbound exit ramp approaches the site heading east, then surfaces at approximately 25 feet from the curb along the West side of the site. The ramp then directs the flow of traffic following a curve heading south toward downtown Boston. Vehicles will then merge with surface traffic heading southeast on John F. Fitzgerald Surface Road. The roadway is approximately 20 feet below grade when it surfaces and is uncovered for approximately 315 feet before reaching grade.

At the surface, the ramps are surrounded by walls which extend three feet above grade to prevent both pedestrians and vehicles from falling down to the roadway below,
creating yet another challenge to developing the site. The ramp walls nearly touch at the center of the site, making a pedestrian path between them impossible.

**Structural Challenges Facing the Big Dig**

Any proposal for Parcel 12 must face two major challenges: finding a way around the awkwardly placed exit ramps and supporting a structure above an 8-lane highway tunnel. As cited earlier in the paper, since 2008, the city and private institutions have abandoned five separate proposals for buildings along the Greenway, citing insufficient funding and rising construction costs. The failure of these proposals has led many Bostonians to believe that the planners and engineers of the Big Dig did not have the foresight to design the tunnels to support future construction. However, this was always part of the vision for the Greenway. The infrastructure needed just to complete the project left in its place a foundation more than adequate for the buildings proposed. It is up to the designers to find a way to design around the ramps and to use that foundation in the most efficient way.

**Innovative Solution**

In 1972, facing widespread disapproval, Republican governor Frank Sargent stopped the expansion of the federal highway system. Thousands of protestors were angry at the destruction of homes and businesses in order to make way for new roadways.

Years later, the approval of the CA/T project was contingent upon a process that would preserve adjacent buildings and maintain the flow of traffic throughout construction. Everyone agreed that the Big Dig must be completed without knocking down a single building.

In order to do this, the 8-lane highway tunnel would have to fit directly beneath
the old elevated artery, but first, the weight of the artery would have to be supported during construction until the tunnel was ready to handle the flow of traffic. Engineers found the solution to this unique challenge in “slurry-wall” construction.

Typically, slurry walls are used in areas of soft earth or high water table to create a “bath-tub” around the trench keeping the site dry and the foundations of adjacent buildings and city infrastructure intact during the excavation process. However, in the case of the Big Dig, engineers proposed to use the slurry walls in ways which had never been done before. In addition to keeping the trench intact, the slurry walls would be used as temporary foundation walls to support the weight of the elevated artery during the excavation and construction of tunnels below and then to use them as the actual finished tunnel walls themselves.

By doing this, they gained an extra six feet on either side of the trench, allowing for eight lanes of traffic as opposed to six.

“Slurry” is a reference to the process of creating walls which
keep the tunnel trench from collapsing during construction. A four foot wide trench is dug to the desired depth (bedrock or glacial till up to 120 feet deep in Boston) and filled with slurry, a mixture of bentonite and water. Slurry keeps the narrow trench from collapsing under the inward pressure of the surrounding earth, water and city infrastructure. Then a steel reinforcement cage is lowered into the trench which is then filled with concrete from the bottom up displacing the slurry in the process. The result is a four foot wide concrete foundation wall, resting on bedrock or glacial till, which could support the weight of the tunnel and any buildings proposed in the future.

Four out of the five abandoned proposals were located at parcels where entrance/exit ramps emerged from the tunnels below. At the time
of Big Dig’s planning, construction above federal highway was illegal. Ramps were placed in awkward positions above the slurry walls thereby reducing the potential of future developments to access the slurry walls as a foundation system. As a result, several building designs required “platforms” above the ramps costing an additional $30 million, freeing the building from the constraints of the slurry walls. It is possible that the architects of the abandoned projects did not adequately consider the structural conditions of the site prior to the design process. This challenges the designer to use the constraint as part of the design process, not simply hand off the problem to be solved by a structural engineer.

**Funding and Costs**

In addition to the challenging site constraints and high cost of construction, the five abandoned projects proposed uses which would produce enough revenue to support them in the future. Quite simply, if there is no money, nothing happens. The Greenway needs to be more sustainable, so that maintenance is not such a burden, especially when the state budget tightens its belt. Moving forward, any
project which hopes to succeed along the Greenway must be able to at least support itself.

If new projects continue to propose non-profit uses, such as the Boston Museum and the YMCA, the Greenway will continue to wait for development.
CHAPTER 3

DESIGN

Proposal

This project will take Parcel 12, a Greenway interruption, a no-man’s land, devoid of city life and consumed with traffic, and transform it into a connection, a destination with round-the-clock activity and excitement.

The central purpose of the building is to strengthen the linear continuity of the Greenway by providing a safe and usable space for pedestrians above the I-93 exit ramps. The building will do this by literally lifting the Greenway up over the ramps and providing a link between the Wharf District Parks and the North End Parks. Combining

![Figure 14: Concept diagram by author.](image)
public and commercial retail spaces above the space will help to create a Greenway constituency, a home-crowd, which will further enhance the spirit of the park system.

**Building Program**

The development will provide a flexible mix of uses which will bring much needed life to the Greenway as well as produce enough income to support the development in the long-run and contribute to the upkeep and maintenance of adjacent Greenway parcels. These uses will include a multi-purpose theater; a green-roof / sculpture garden; an event center with a multi-purpose function room; a transportation center for coach buses bringing tourists from out of town; local retail spaces and outdoor vendors; as well as multiple family-style restaurants and a bar/night-spot. Flexible tenant spaces will allow the building to adapt to market conditions. By rising 5 stories, the building will take advantage of the potential views of Boston Harbor over the Christopher Columbus Waterfront Park.

At the ground level, most of the parcel is occupied by the exit ramps. The project proposes a bus stop to be located on a platform above the northern half of the southbound exit ramp. Currently, coach buses bringing tourists from out of town have no place park other than along the surface road. On a hot summer day, 8-10 buses can be found double-parked outside the Dock Square Garage. The curve of the southbound exit ramp on Parcel 12 is a perfect location to bring the buses in off the street and alleviate the traffic situation. Tourists visiting Boston would begin their day inside the building, increasing its viability in Boston’s tourist economy. The bus-stop could also serve as a new North End location for the ever popular Duck Tours. Mechanical rooms and a truck dock for loading and deliveries will be located on the ground floor, southbound side.

The 2nd level concourse begins with a long low-sloped floor lifting pedestrians up
Figure 15: Program diagram by author.
over the exit ramps. This allows the Greenway to maintain foot traffic through Parcel 12 while still achieving the minimum 14 foot clearance above the exit ramps. The concourse provides a variety of local retail and specialty shops, including a café, newsstand, and bike shop. Tickets for the Duck Tours and featured theater events will also be sold on this level.

The 3rd level features a multi-purpose theater at the North end of the building, capable of supporting a range of events including cinema, theater, dance, and music. Theater support, storage and green room will be located to the side of the stage and seating areas, allowing the back of the stage to be glass, with the ability to open onto a public garden the length of a football field. At an elevation of 36 feet, the public garden will give the Greenway a different form, a place of refuge away from city traffic. Quiet and protected, the garden will display sculptures from local artists, while providing plenty of space for picnics and Frisbee. At the South end of the building, the garden gently slopes up one level to Legal Seafood’s or down to a multi-function room capable of hosting weddings or company outings. Other family style restaurants will be located on the 4th and 5th floors.

Given the site’s high-profile location, it is important not to overbuild. Larger masses will be located at the North and South ends of the site, anchoring the entrances of the building. These “pods” will appear to be wrapped in a translucent skin emphasizing the lightness of the structure and providing plenty of daylight. At night, the pods will glow with activity attracting visitors to the Greenway from all over the downtown area. The pods will be wrapped horizontally so that they read as gateways, not bookends. This will maximize transparency of the building along the axis of the Greenway.
Building plans can be found in Appendix A on page 32.

**Structural Solution**

In order to create a more efficient structural system, the sub-surface constraints of the site had to be a part of the design process. Rule: the building must use only the slurry walls as a foundation, without adding any additional support to the tunnels or ramps beneath the surface.

The result was a bridge-like structure with primary vertical supports resting on the slurry walls only in the locations where the slurry wall is accessible (indicated in red on the diagram on page 26). The 2nd and 3rd floors act as a giant truss spanning from wall to wall supporting the structure above the exit ramps ad providing the necessary height clearance consistent with federal highway design standards.
Figure 17: Diagram of structural concept by author.
The structural walls which support the building will be wrapped in perforated metal screening, allowing light to pass through, as well as reducing wind load and noise from the traffic below. The walls provide an efficient means of integrating vertically distributed systems including circulation (elevators and stairs) as well as well mechanical, electrical and plumbing systems, which will be positioned within the thickness of the walls. The shape and placement of the walls echo the structure of the tunnels below. The building becomes part of the Big Dig, a significant piece of Boston’s heritage.

**Pedestrian Movement**

The building will encourage public use at all times of the day. During inclement weather, people will be able to cut through the building on their way to and from work. The ramp system provides a seamless flow of movement through the building and up to the roof garden. A diagram of pedestrian movement through the building on page 28.

**Site Access**

Pedestrian access to the building is limited to the North and South ends of the building. Due to the proximity of the northbound exit ramp to the street, a sidewalk is not possible along the east edge of the site. The existing sidewalk along the West edge of the site will remain. However, given the number of curb cuts along the West edge for the Bus Center and both North and South exit ramps, pedestrians will be encouraged to use the 2nd level concourse through the building to reach the North End Parks. Emergency exits from the center of the building will be provided through the Bus Center. A truck dock will be located on the West edge of the building between the northbound ramp exit and the entrance to the Bus Center.
Figure 18: Diagram of pedestrian movement, by author.
Visitors and employees can travel to the site by several means of public transportation. There are four T-stops within five minutes walking distance of Parcel 12. Located North of the site is Haymarket Station which provides access to the Orange and Green lines; to the West of the site is Government Center, which provides access to the Green and Blue lines; South of the site, State Street provides access to the Orange and Blue lines; and Southeast of the site, Aquarium provides access to the Blue Line. Several local bus routes are also located within walking distance. The site is located between North and South Stations, both of which provide access to the Commuter Rail. In addition to the Red line, South Station also provides access to regional transportation through Amtrak, the Bus Terminal, and the Silver Line with access to Logan International Airport.
The development supports the proposal for a future Greenway Shuttle. A map of local public transportation options can be found on page 31.

**Parking**

Parcel 12 is a transit-oriented development. Given the site’s high-profile nature, limited footprint, and proximity to public transportation, there will be no onsite parking provided for any vehicles other than buses and trolleys using the Bus Center. Several parking garages and surface lots are located within walking distance of Parcel 12. Garages include the Dock Square Garage directly adjacent to the site; the Marketplace Center Garage at 200 State St.; and the Harbor Garage at East India Row. Surface parking lots include Fulton St. Lot, directly adjacent to Parcel 12, and Lewis Wharf on Commercial St.
Figure 20: Site analysis maps, by author.
APPENDIX B

SUGGESTED INTERVENTIONS

Consider Some Inexpensive Seasonal Improvement and

Fine Tune What Has Already Been Built

Given financial constraints, some of the critics are too harsh and need themselves to try to be more creative in their criticism. A few of the park areas on the Greenway have some nice landscaping and would be more effective with the benefit of a wind barriers or a bit more shade. In the short run, this could be accomplished some larger planters at windy corners, wind barriers at “wind tunnel” locations, and some temporary canopies or tents. The Conservancy could conduct a competition this summer and have some of these improvements in place this season!

Amend Boston Zoning and Other Laws as Necessary to Allow

Greater Latitude for Creative and Income Producing Uses

Some provisions of Article 49 are simply too restrictive and should be abandoned. The park has to be 75% open space. This continues to be a major problem. Architectural critic and historian, Robert Campbell, points out that no one ever really decided how much open space was appropriate. He believes that the 75% open space was well meaning but dictated arbitrarily during the environmental permitting process.

Some of the uses specified in Article 49 have failed and need to be replaced with new ones that will work and be popular attractions. Most of the allowed uses do not generate income. Although Article 49 allows for the possibility of residential, restaurant, and “seasonal and festival” uses, none of these uses is encouraged. For example, the proposed indoor horticultural garden “under glass” was a good idea discussed for more
than 20 years, which has now been abandoned for lack of financing. Article 49 should be amended to allow alternative uses, i.e. a fabulous popular restaurant. Unlike parcels further north, there are not too many great restaurants with broad appeal near South Station. The city and the state should partner with a major and well established restaurant, such as Legal Sea Foods, on the development of a spectacular restaurant on the Greenway. Legal Sea Foods has a vested interest in Boston, has a local and national reputation, and is extremely popular at lunch and dinner time. Perhaps the city can persuade Legal’s to relocate its Long Wharf restaurant to the Greenway reinforcing the Greenway link to the waterfront.

Article 49 needs to be updated in lots of ways. City planners need to take a closer look at what works conceptually and what will work in a given context. This makes sense now that much of the Greenway is constructed and in use. For example, Article 49 allows a “café” use described as an eating establishment with a floor area of less than approximately 1500 square feet. This is barely enough space for a good size Starbucks! Perhaps the state and the city should also consider partnering with Starbucks. Coffee drinkers would flock to Starbucks at multiple locations on the Greenway year round, including sites near South Station, the Aquarium, and the North End.

Enhance the “Gateway” at Rowe’s Wharf

Rowe’s Wharf has long been a landmark and a gateway to the waterfront, framing Boston Harbor with its massive elegant arched rotunda. The “curve” of the Greenway and general location is closest to the water at the Wharf District park area. The Greenway could significantly benefit from having stronger connections to the Harbor and the activities and foot traffic at the docks. Although this section is well maintained, there is nothing
whatssoever about the park in front of Rowes Wharf that evokes anything of the harbor or
the sea. The section is surprisingly uninteresting. These parcels are also quite a bit nar-
rower and have been referred to as “glorified highway medians” by critics such as Robert
Campbell. Opening up better views and pedestrian connections at these points would
relieve the narrowness and improve the Greenway’s presence through the Wharf District
park area. The “gateway” should be expanded to include the entire stretch of Greenway
from Christopher Columbus Park at the edge of the North End residential area to the Bos-
ton Harbor Hotel and Seaport Boulevard (parcels 14 – 18).

As noted above, the ultimate plan for the new surface land would be shaped by
the funding and environmental approval process. The result was a vague joint develop-
ment process in an appendix to the lengthy environmental impact documents for

Work with Don Chiofaro on a Plan to Connect His Project and the

Greenway or Relocate Him to Another Site

Don Chiofaro, the developer of International Place, no doubt is good at what he
does and the harbor garage is prime real estate. But is the answer a pair of 600-foot tall
towers blocking access and views of the harbor? Probably not. The city has made it clear
that it will not allow a building height greater than 200 feet. The location of the garage is
a perfect spot to strengthen the connection between the Greenway and the harbor. Ac-

According to Boston Globe articles, Mr. Chiofaro paid $147 or $177 Million (depending on
which article is correct) in November of 2007. The garage is probably a real cash ma-

chine, so Mr. Chiofaro can take his time. If he could use some or all of the Greenway par-
cels directly in front of the parking garage in combination with the garage land, perhaps
he could downsize his project while improving the Greenway. If this doesn’t work, the
city should try to relocate Mr. Chiofaro to a different location where towers would make more sense in exchange for the opportunity to put the parking garage underground and make some or all of the surface smaller and greener. This would allow a better more direct connection from the Greenway to the harbor, while still allowing Chiofaro to benefit from the potential value of the Greenway and contribute to the residential and commercial growth of the Waterfront. This would also help prevent the Greenway from becoming a “canyon” with skyscrapers on either side. This type of trade would be a win/win for everyone involved.

As noted above, the ultimate plan for the new surface land would be shaped by the funding and environmental approval process. The result was a vague joint development process in an appendix to the lengthy environmental impact documents for

**Persuade the Owner of the Dock Square Garage to Reconstruct, Allowing Greater Density There and Generate More Activity on Adjacent Parcels**

The parking garage at Dock Square presents a similar challenge. Although some form of a parking facility is essential, as parking is limited, it seems a shame to waste such prime real estate on a façade-less above ground garage. The land would hold the edge of the Greenway better if it took another form. With Quincy Market located directly behind the garage, the land should be used as a transition from the retail and restaurant activity across the Surface Road to the Greenway. On the same side of the street, across from the garage is Parcel 9. Plans for the Boston Museum fell through several months ago. It serves as one of three major crossings on the Greenway providing a path from Quincy Market to the North End. This area of the Greenway would benefit and could support lots more street vendor activity, such as a flee market, antiques fair, or other programmed
activities, especially on weekends.

**Create More and Better Lighting Exhibits**

Most of the buildings along the greenway were built before the Big Dig and consequently do not have storefronts or facades which take advantage of such a large open space. This explains, in part, why foot traffic is limited along the Surface Artery. Until such time as building owners renovate to take advantage of their new “front yard”, something should be done to enliven the area and make it safer at night. I propose an alternative urban lighting scheme for the blank walls of the inactive corridor. The city should consider inviting lighting designers to create temporary installations using LED spotlights, neon strip lighting, and projectors. Although strictly an evening/nighttime attraction, lighting events could encourage the arrival of restaurants and bars and jumpstart the nightlife along the edges of the Greenway while making the Greenway safer at night. These lighting exhibits can have many possibilities, e.g., the work of Jenny Holzer, an exhibit by ‘Billy the artist’ in Piazza San Marco, Venice, both using urban surfaces as their canvases.

**Improve Pedestrian Safety Along the Greenway**

The temptation to jaywalk along the Greenway is huge because crossings are limited and Boston is Boston. Parcel 17, between India Street and High Street is rarely occupied. Although quite beautiful, it is a “no-man’s” land, surrounded by traffic on all sides with no pedestrian presence to draw from. There are several others like it. Although the Greenway creates a safe place in the middle, pedestrians still have to traverse six lanes of traffic in order to arrive at the Harbor – not an easy or inviting task. Traffic on the surface artery undoubtedly will increase and speed up before it becomes congested.
enough to slow itself down. Pedestrians need safer crossing connections, better signals, and lower traffic speeds. Maybe there should be fewer streets that penetrate the Greenway, fewer opportunities for traffic to cross. Or maybe there should be fewer and better crosswalks to the Greenway. The city should consider specific pedestrian entrances to the Greenway with wider, safer crosswalks at the cross-streets.

**Add a New Children’s Museum Facility on the Greenway**

The success of the Boston Children’s Museum suggests the possibility of adding some program sponsored by the Museum for families with younger kids. The presence of a playground or some other alternative climbing structure similar to exhibits at the Boston Children’s Museum could bring families to the Greenway more often.

**Add Elevated Walkways at One or More Locations**

Another success of New York City’s High Line, which I will discuss in greater detail below, is that the elevation of the walkway provides a different view, a new perspective of the city. Although still within the canyons of New York’s skyscrapers, the High Line lifts you up off the street level just high enough to offer views of the Hudson River. The Greenway needs a similar feature. It needs to offer something unique, not just a clearing of grass and open sky, but a view of Boston unlike any other, or a view of the Harbor, or even itself. Greenway parcels 6, 12, and 18 are the locations of ramps to and from Interstate 93 beneath the surface. Chain link fences are used around the concrete walls of the ramps to prevent people from sitting or walking along the edges. These ramps and their fences take up valuable space and cause interruptions in the Greenway. One way around this situation is to build pedestrian bridges/ramps/platforms which could bypass the interruptions as well as lift pedestrians up above the street level. This would
allow pedestrians to make direct visual contact with the water and provide a long beautiful view of the Greenway itself.

**The Greenway Needs a Dedicated Funding Source and a New Funding Strategy Such as Adopt Part of the Greenway**

Recently, the Boston Globe reported that the Greenway must find a way to raise an additional $2 Million a year to offset a state reduction in funding starting July 1st, 2010. The Greenway is looking at several potential sources of revenue, including renting out space for restaurants and selling naming rights. This is not enough. The Greenway needs a more reliable funding source. Why not dedicate some of the city’s parking meter revenues? Or, the Conservancy should approach the abutters who stand to benefit the most from the success of the Greenway. This will be difficult because some of the towers are like little cities with restaurants and other retail on the ground floor so they may not want to encourage their tenants to go outside. On the other hand, they should care about the success of the Greenway because it will affect the value of their properties. The maintenance of such an extensive public space cannot be left vulnerable to state budget cuts. The Greenway looked good recently, following a heavy season of rain, but how will it look in August if it is not properly maintained? The Greenway is at risk of becoming a wasteland if the current financial shortfall is not resolved. The Conservancy should consider the Friends of Post Office Square (see below) as an example of how to get the job done right.
APPENDIX C

PRECEDENTS

Southwest Corridor Park

The Southwest Corridor Park sits on top of the MBTA Orange Line tunnel running from Back Bay Station to the Forest Hills T-stop. The Southwest Corridor project was also federally funded but with transit money that could be used for it. Some parts of the project still spark heated debate, for example, Melnea Cass Boulevard and other surface streets that failed to generate commercial development in the minority community. The Southwest Corridor Park is a different matter. Everyone loves it and it seems to work on every level. In the space right across from Back Bay Station next to Copley Place, restaurants and small stores open onto the park. Adjacent housing was constructed with the park as the front or back yard. The surface is a mix of elements, including large flower boxes and different levels using brick and concrete pavers to form designs and

Figure 21: Southwest Corridor Park
point the way for pedestrians. This area transitions into the next segment between Copley Place and Massachusetts Avenue which has island type planters, basketball and tennis courts, lawns, and rose gardens. Eventually, the Orange Line becomes an open cut. It seems to work because it was designed as part of and funded by the project and because most of the abutters had a keen interest in the outcome. According to articles, some abutters offered design ideas that became part of the design and these ideas translated into different areas being adapted to different styles and layouts. According to a recent article, neighboring residents pick up their garden hose when the park irrigation isn’t working.

**Friends of Post Office Square/Norman B. Leventhal Park**

According to its web site, the Friends of Post Office Square, Inc. is a group of civic and business leaders, who originally donated more than $1 Million to acquire the deteriorated city garage at Post Office Square, demolish it, reconstruct an underground garage, and create a new park on the surface. The project was privately financed and

![Figure 22: Post Office Square Park, Boston, MA](image)

Figure 22: Post Office Square Park, Boston, MA
maintenance is paid out of the new garage revenues. Every day, especially from April through October, hundreds of office workers come to the park to enjoy a lunch break, and hundreds more walk through it. The landscaping is spectacular including mature shading trees and other plantings. Much of the reason that it is so beautiful and well-maintained is that Norman B. Leventhal, who envisioned the park, successfully retained the park’s maintenance as the financial responsibility of the Friends of Post Office Square to make sure that it would not be subject to budget cuts by any public agency. This is great lesson for the state and the city.

**The Gates, New York City**

The Gates is an interesting example of public installation in a city park. In 2005, Central Park, NYC, had on display thousands of “gates”, swaths of pleated orange nylon hanging from steel frames, along its meandering curved walkways. Paths temporarily became processionals, boulevards decked out as if with flags on a holiday parade. Although the exhibit only lasted for two weeks, the project gathered many people together for its shared public experience.

The Greenway could benefit from such an installation. The Gates highlighted the already brilliant curves, dips and loops of Central Park, and beckoned people to discover what was beyond them, emphasizing the continuity of the public space. The Greenway currently suffers from a lack of continuity from parcel to parcel and one forgets that it is a single public park. An installation that possesses some of the same processional qualities as the Gates, could remind the public of the Greenway’s long graceful sweep through downtown Boston and the hideous barrier that once stood in its place. A temporary installation could unify the parcels into one. The anniversary of the “substantial” comple-
The High Line, New York City

The High Line offers an elevated pedestrian walkway stretching 1.5 miles from Gansevoort Street to 34th Street on Manhattan’s West Side. A subtle connection between contemporary design and historical preservation provides the visual appeal of the path above the city streets, but the experience is what makes the High Line so special.

---“It is the height of the High Line that makes it so magical, and that has such a profound effect on how you view the city. Lifted just three stories above the ground, you are suddenly able to perceive, with remarkable clarity, aspects of the city’s character you would never glean from an office window. At some points, billboards and parking structures dominate the foreground. At others, you are directly below the cornice line, so that
you seem to be floating among the rooftops. At the same time, you are still close enough to make eye contact with people on the sidewalks, so that you never lose your connection to the street life. The High Line is the only place in New York where you can have this experience — one that is as singular in its way as standing on the observation deck of the Empire State Building.” --- NYT

Again, another example of how private funding strategies protected the future of such a wonderful urban jewel. The group “Friends of the High Line” raised $44 million toward the total cost of construction. The same developers and owners, who called for its demolition, now salivate over it and beg to build elevated connections to it.

Figure 24: The High Line, New York City, Image produced by Diller Scofidio + Renfro
In this article, Peter Gisolfi brings into question the method by which cities create open space. He sites three examples of cities choosing to focus on the remnants left behind by previous uses. Boston, New York City, and St. Paul are all well developed cities and may be focusing on left over bits of land out of necessity, but he asks if this method is truly binding the cities together.

In addition to the Rose Kennedy Greenway, he cites the High Line in New York City which re-uses one and a half miles of a railroad line constructed in the 1930’s as a green walkway. The author questions the decision of New York City officials to invest $50 million to build the walkway on a deteriorating steel frame which has been abandoned for more than 25 years. A third example, the Bruce Vento Nature Sanctuary, is located on a 27 acre site near the Mississippi River near downtown St. Paul, Minnesota. Originally a brewery in the 1850’s, the land has had several other uses since then including a train yard, an industrial park, and later after its abandonment, an illegal dumping ground. After the conclusion of a ten-year site restoration effort, the park is now an elongated landscape made up of two and a half acres of parks, bike paths, streams and wetlands, as well as 1.4 miles local and regional trails. The edge conditions of these three examples illustrate the dilemma of creating parks from city remnants.

The author raises important questions about the parks’ locations, connections, and its link with an original natural landscape. He suggests that although cities will be faced
with developing parks from industrial or commercial remnants in the future, they can still choose to develop the leftovers in such a way that supports the overall plan of the city. Rather than simply making it a green open space, cities should recognize the potential of that space to create connections within the urban fabric and understand the importance of restoring and linking the underlying natural landscape.
The $15+ Billion "Big Dig," replaced Boston's deteriorating six-lane elevated Central Artery, known as the Green Monster, with a widened highway tunnel running underground through Downtown Boston and crossing the Charles River, creating more than 27 acres of new land area for reuse in Downtown Boston. The Big Dig, declared substantially complete in 2006, had major impacts for almost a decade but the long term impact of the Big Dig on Boston neighborhoods has been positive. The Green Monster has been demolished and as part of the "mitigation" for the Big Dig, the Massachusetts Highway Department was required to come up with "Joint development" process and dedicate 76% of the new land for public open space.

Frederick P. Salvucci
MA Transportation Secretary
1975 - '78 + '83 - '90

Central Artery/Tunnel Project Timeline
City planners investigate several potential highway routes, drawing lines over hundreds of homes and businesses. Boston had property taken again in 1958.
Objective: Construct an 8 lane highway tunnel beneath existing Central Artery while maintaining traffic (200,000 cars per day) throughout construction...

1. Begin construction
   - Construction Begins 1991

2. Construct Slurry Walls and place intermediate bracing as needed
   - Add temporary surface decking

3. Add longitudinal grade beams
   - Place needle beam anchors

4. Construct Slurry Walls
   - Add transverse grade beams

5. Construct Slurry Walls
   - Add transverse grade beams

6. Begin Excavation
   - Remove central artery piles
   - Intermediate bracing of slurry walls

7. Remove central artery piles
   - Place needle beam anchors

8. Construction Complete in 2006
   - Greenway Landscaping Complete in 2008

THE BIG DIG: THE LARGEST URBAN CONSTRUCTION PROJECT IN THE HISTORY OF THE MODERN WORLD

Massive beams brace the walls deep within the trench.
Many people believe that the Greenway is or could remain one long park. - There are 24 different parcels, each separated by 2-4 lanes of traffic. - 5 parcels contain ramps from the I-93 tunnels below. - 2 parcels contain exhaust buildings. - 2 parcels have already been built upon, 2 more with future developments. - 1 parcel contains a garage. - Several parcels are paved and used as surface parking.

PERCEPTION VERSUS REALITY:

REALITY:
- There are 24 different parcels, each separated by 2-4 lanes of traffic.
- 5 parcels contain ramps from the I-93 tunnels below.
- 2 parcels contain exhaust buildings.
- 2 parcels have already been built upon, 2 more with future developments.
- 1 parcel contains a garage.
- Several parcels are paved and used as surface parking.

PERCEPTION:
- Many people believe that the Greenway is one long park.
- Perceptions often differ from reality.
**existing:**
Emerging ramps obstruct pedestrian pathways and disconnect the greenway.

**greenway**

**interruption**

**greenway**

**proposed:**
Build a bridge over the ramp, reconnecting the greenway.

**connection**

**destination**

Insert program to bring people to the greenway.
FROM THE NORTH
END PARKS TO THE
RESTAURANT/BAR

PEDESTRIAN CIRCULATION

VEHICULAR CIRCULATION

FROM THE GREENWAY
TO RETAIL + OUTDOOR VENDORS

FROM THE GREENWAY
TO THE THEATER

FROM THE BUS STOP
TO THE MAIN CONCOURSE

TRAFFIC EMERGING FROM I-93 TUNNELS
TOUR/COACH BUS ARRIVAL

STRUCTURAL WALLS ALSO PROVIDE SPACE FOR VERTICALLY INTEGRATED COMPONENTS, SUCH AS: MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS, ELEVATORS, STAIRS, AND TUNNEL EXIT RAMP EXHAUST.

BENEATH THE SURFACE, 8 LANES OF TRAFFIC CARRY OVER 250,000 CARS A DAY.

THE TUNNEL IS SUPPORTED BY 4' THICK CONCRETE WALLS, OR "SLURRY WALLS", WHICH WILL PROVIDE ADEQUATE SUPPORT FOR CONSTRUCTION ON THE SURFACE, AS ORIGINALLY INTENDED BY THE PLANNERS OF THE BIG DIG.

DUE TO THE AWKWARD POSITIONING OF THE RAMPS ABOVE THE TUNNELS, THE SLURRY WALL FOUNDATION CAN ONLY BE ACCESSED IN SPECIFIC LOCATIONS (INDICATED IN RED).

THE SLURRAY WALLS EXTEND DOWN TO BEDROCK WHICH IS APPROXIMATELY 90 FEET BELOW THE SURFACE OF THE GREENWAY AT PARCEL 12
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