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Course Description

- **Urban Freeways: Devastation and Opportunity**
- This session will explore the history of urban freeways such as Miami's Overtown Expressway, New Orleans' Claiborne Expressway, and Boston's Big Dig. Panelists will discuss how urban freeways destroyed traditional, often poor, neighborhoods, and what is being done today to repair the urban fabric and make cities whole again.

Presenter:

**Alison Richardson, ASLA, Brown Richardson & Rowe,
presenting Boston's *Big Dig***



The Big Dig

A Great Public Project



Historic Overview:

Boston Sunday Globe

AUGUST 8, 1954

ROTO
Pictorial
MAGAZINE



Boston's \$110,000,000 Highway in the Skies

By K. S. BARTLETT

How soon can we use it?

construction of the towering steel skeleton of the ele-

Boston Globe, 1954

Building the Elevated *Central Artery*



A view from Custom House Tower, 1954

- *Central Artery* Construction began in 1950, Completed in 1959;
- *1,000* structures demolished in highway's path;
- *20,000* lost their homes;
- *Inner Belt* never built;
- Elevated Artery Cut off City from Boston Harbor.

Master Plan (1948)

Elevated Highway to deal with city traffic = *The Central Artery*

Another highway = *The Inner Belt* would allow through traffic to bypass downtown



View of Downtown Construction, October, 1954

3/28/2000

1995 Aerial of Central Artery

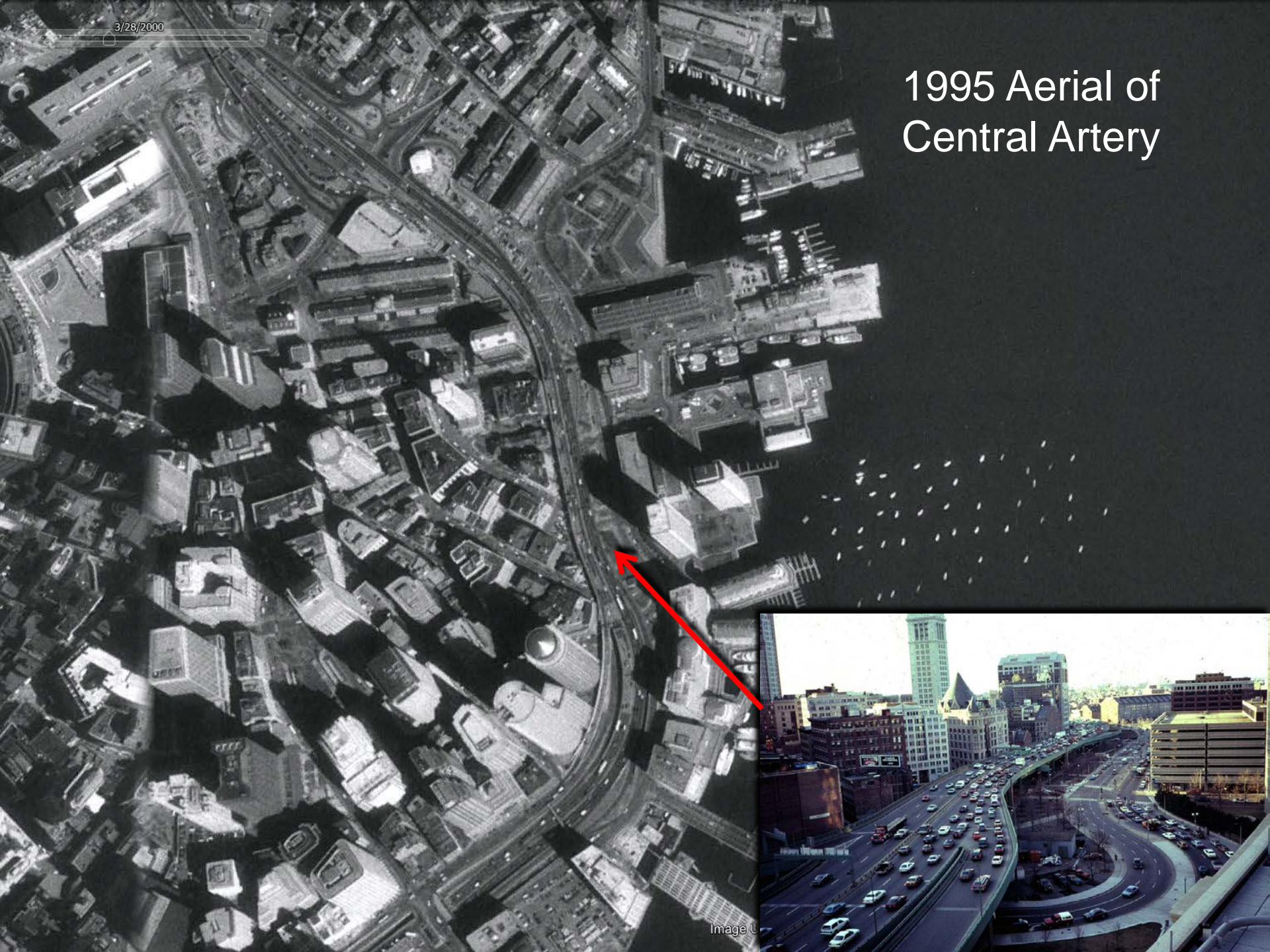


Image U

20 Years Later... Big Problems

- All day traffic congestion
- Deferred maintenance = elevated structures needed replacement
- Unattractive for everyone but views for motorists
- Separated downtown neighborhoods and city from the water



Solution? *Put it all underground*

- Tip O'Neil, retired Speaker of the House wins congressional approval for the "Big Dig," his "Swan Song."

A black and white photograph showing the interior of a large tunnel under construction. The floor is covered with a dense grid of steel reinforcement bars (rebar). Several workers in hard hats and work clothes are visible, some standing and others working on the rebar. In the background, a large circular opening at the end of the tunnel is brightly lit, revealing a building with columns. The tunnel walls are lined with a grid of steel mesh.

Why a Great Public Project?

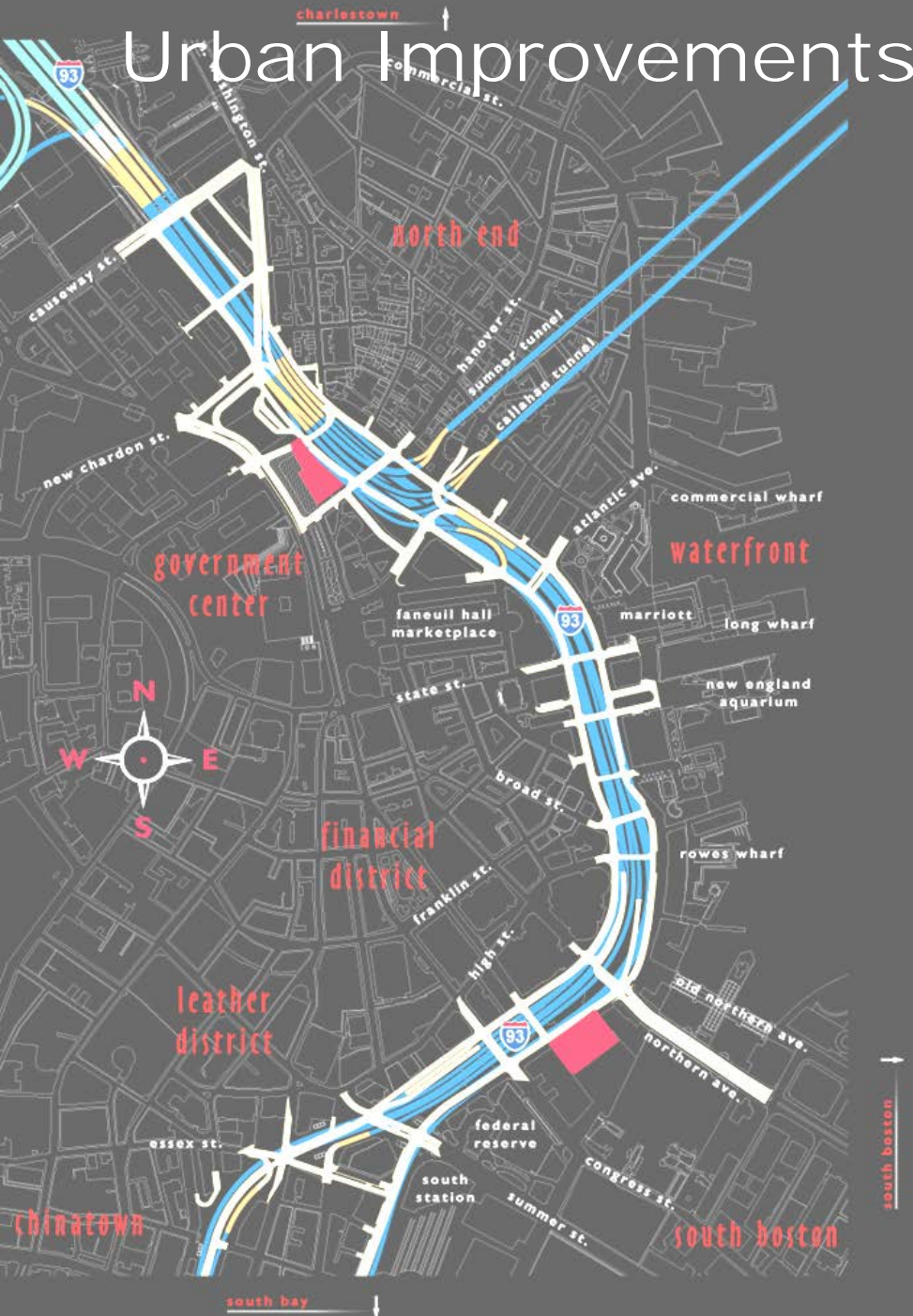
The Most...

- 10 years of planning and politicking to pass *The Surface Transportation and Relocation Act of 1987* for the Central Artery/Third Harbor Tunnel Project
- 20 years to complete permitting, design, & construction
- \$3.2 billion dollar original budget
- \$15 billion dollar final cost
- \$5 billion to keep streets and sidewalks opened during construction
- \$1.4 billion dollars worth of inflation, cost increases and design fees
- 40 design and 114 construction contracts
- 15,000 workers and support employed at peak of construction
- 7 years for final approvals
- 1,500 legal commitments were promised to communities
- 500 large permits were required for construction to proceed

The Biggest...

- 300 acres of new open space including 45 new parks
- 8 linear miles of interstate highway and tunnels
- 150 cranes were working at peak construction
- 120 maximum depth of the downtown tunnel
- Largest tunnel ventilation system in the world
- Largest tunnel jacking project ever built in the USA
- World's widest cable-stayed bridge, the *Zakim Bridge*
- Transformation of Logan Airport
- Largest new MBTA station, *The New Airport Station* to be built in decades

Urban Improvements



- ❖ Reconnected the Downtown to the Waterfront
- ❖ Greatly increased adjacent land values
- ❖ Rebuilt aging utility infrastructure
- ❖ Improved traffic – Arterial put underground, cross town connections improved, on grade traffic improved, new tunnel from west connected to Logan Airport, New Zakim Bridge connected to North, New Silver Line Public Transit Connection from South Station to Logan Airport
- ❖ Logan Airport Roadways completely redesigned and improved
- ❖ Pedestrian connections in Downtown and Waterfront improved
- ❖ Air and light quality (and vermin) especially in Wharf District improved
- ❖ Pollution from open drains dumping into Boston Harbor and Millers River fixed
- ❖ Hazardous soil/waste (from excavate) removed from area and moved to sanitary, capped landfill – Spectacle Island
- ❖ Boston Harbor Islands added to the National Park Service as Boston Harbor Islands National Park – New Visitor Center built with ferry and day trip boat connections to Islands and intercity locations

Open Space and Parklands

The Big Dig created 45 parks and public plazas, over 300 acres of new open space at a cost of \$30 million dollars.

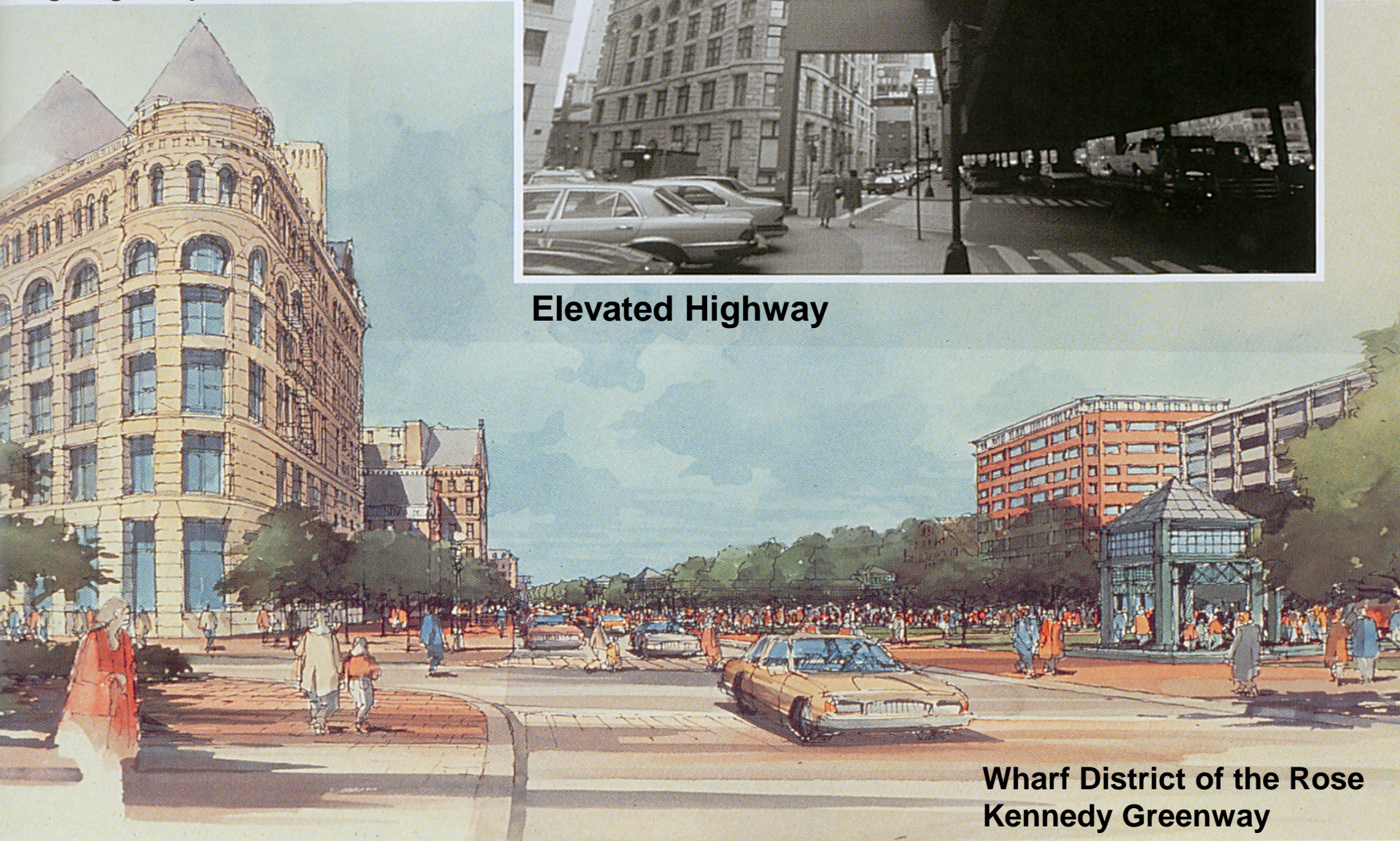
Major new parks included:

- ❖ *Wharf District Park*, 27 acres of the *Rose Kennedy Greenway*
- ❖ *Charles River Basin*, 40 acre parkland along the Charles River
- ❖ *Memorial Park Expansion*, 23 acres in East Boston
- ❖ *Bremen Street Park and Greenways Trail*, 18.5 acres in East Boston
- ❖ *Spectacle Island Park*, 121 acre Boston Harbor Islands National Park

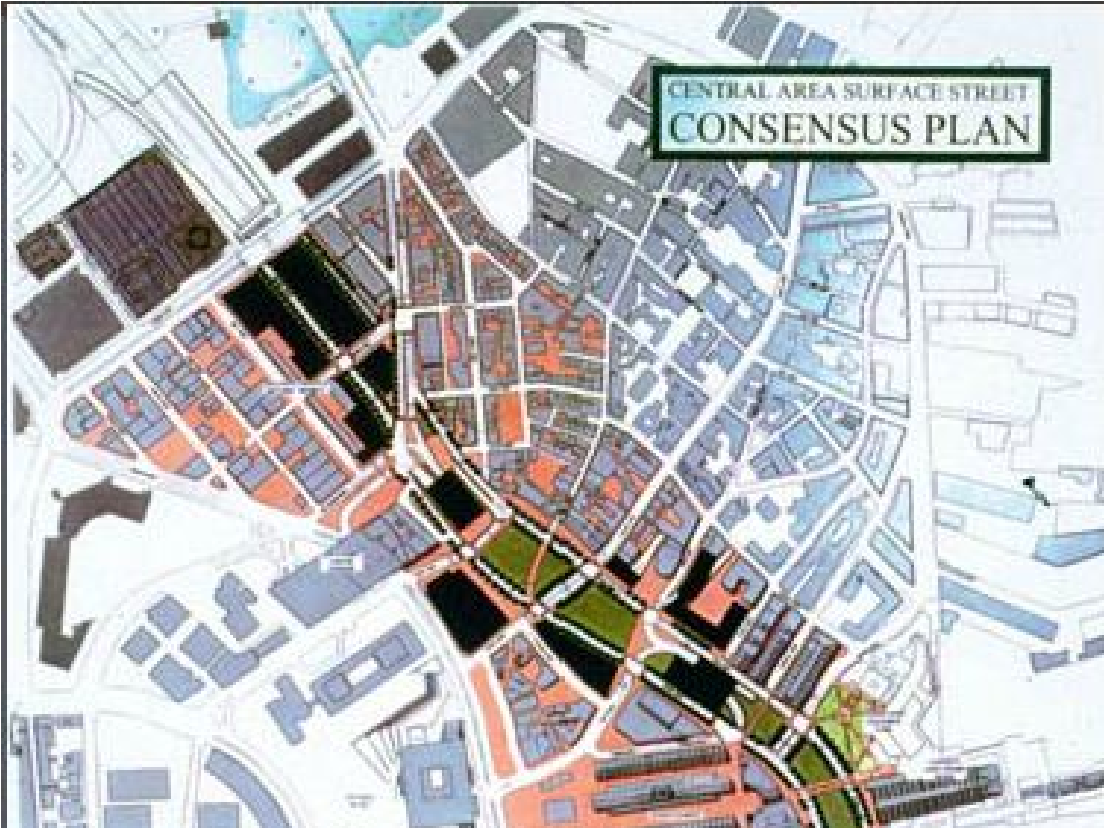
**1.5 mile long
Rose Kennedy Greenway**
Atlantic Avenue before and
early proposed image after
Big Dig Project



Elevated Highway



**Wharf District of the Rose
Kennedy Greenway**



The Boston Globe Architectural Critic wrote:

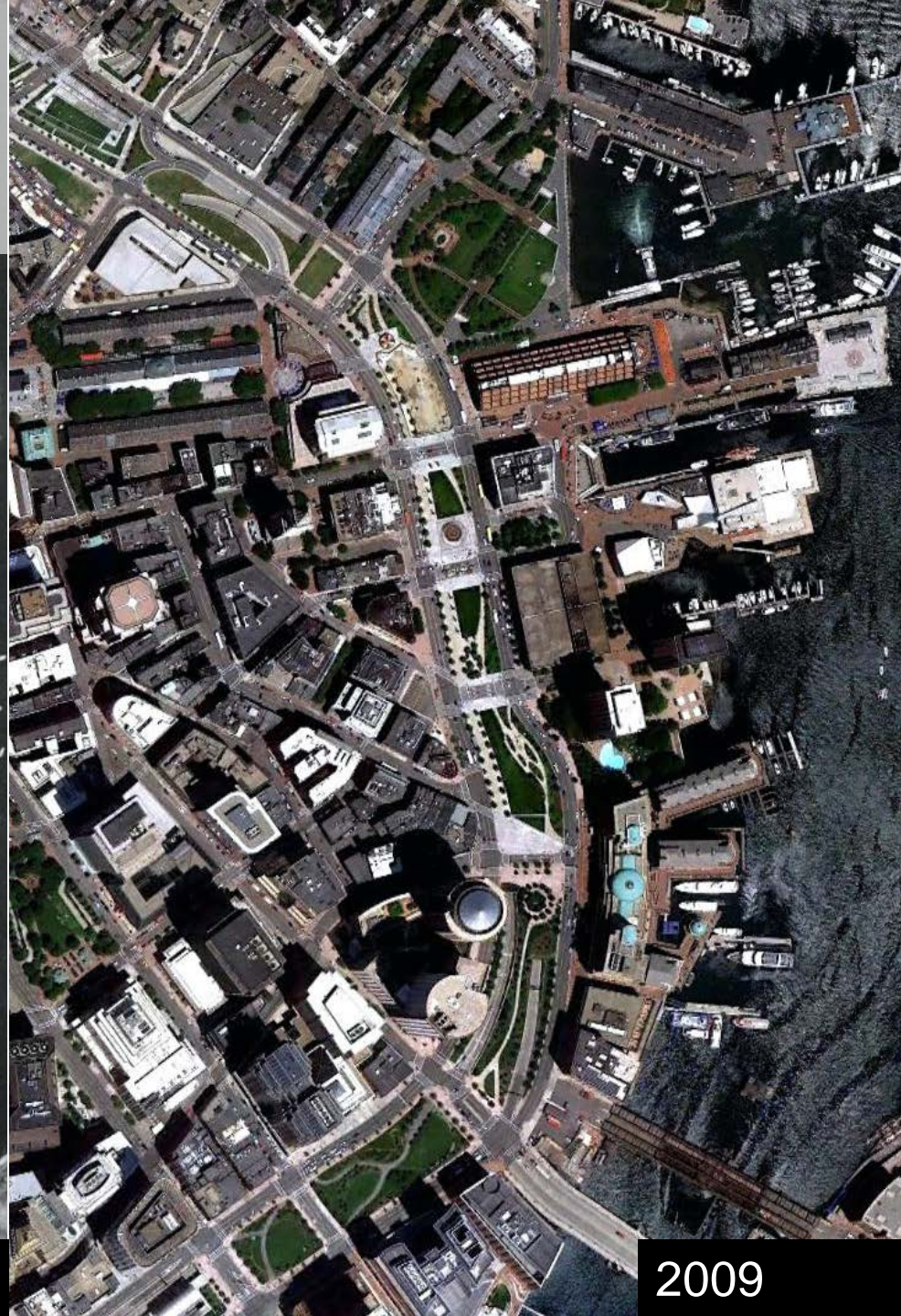
The *Rose Fitzgerald Kennedy Greenway* should be a 21st-century complement to the Boston Common: A gathering place, a town center, public ground. It can assume whatever form Bostonians choose. An emerald necklace. A grand boulevard. A waterfront lawn. It is now none of those things.

The Rose Kennedy Greenway Consensus Plan

**Rose Kennedy Greenway partial list of
Landscape Architects & Planners:
The Halvorson Partnership, Copley-Wolff,
MTA Architecture & Urban Design, and
Carol R. Johnson Associates**



1995



2009

Create and activate the open space asset



Workers



Residents



Tourists

North End Park and Zakim Bridge





North End Park and Zakim Bridge

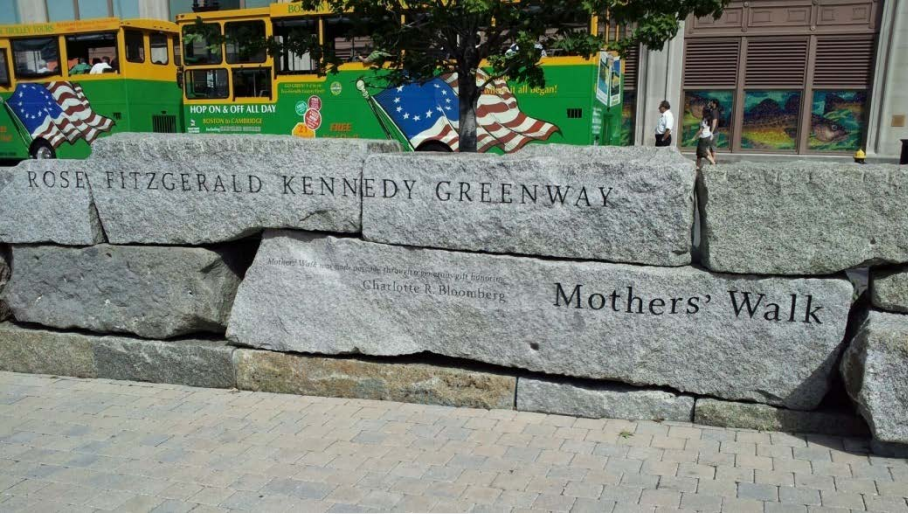




Wharf District Parks



Wharf District



**Wharf District - Greenway Gardens:
The Doldrums or An Urban Oasis?**



Dewey Square - 2011



Chinatown Park



Rose Kennedy Greenway: Creating Long-Term Value

MARCH 2010

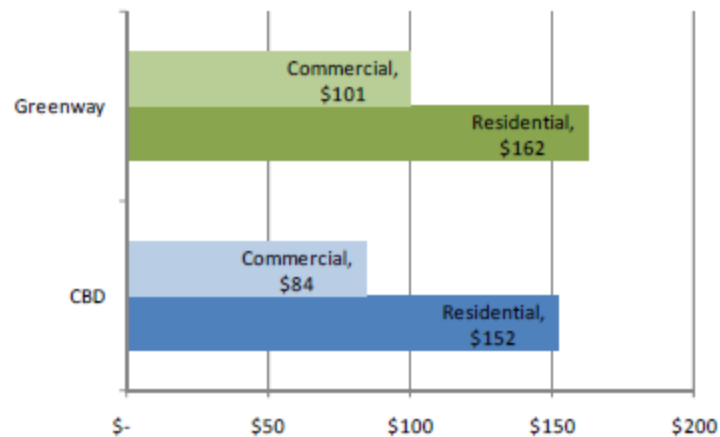
HR&A
Analyze. Advise. Act.

utile

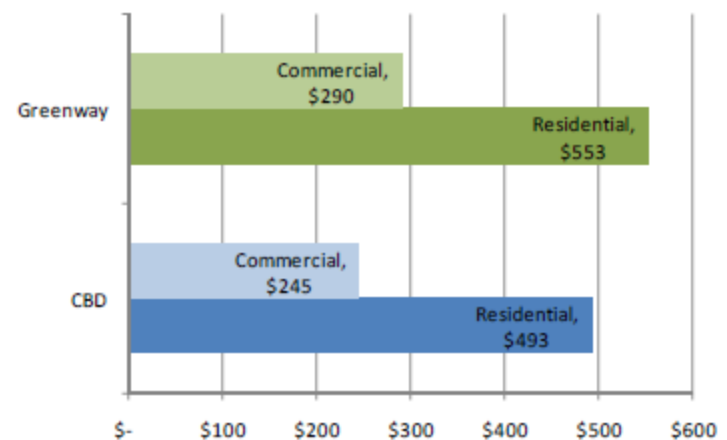
HR&A ADVISORS, INC.
Prepared for The Boston Redevelopment Authority

Greenway district exceeds CBD in value.

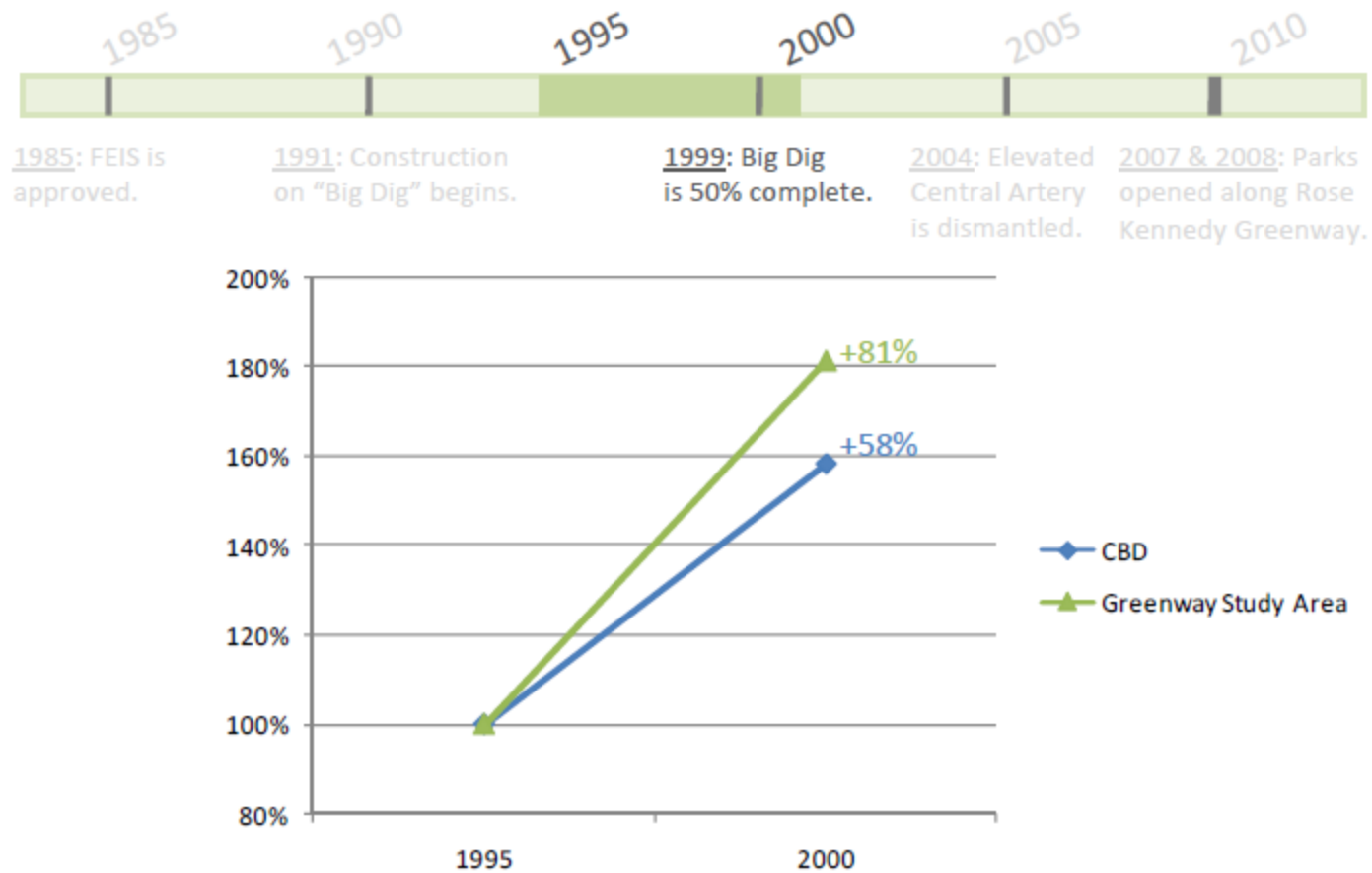
2005 Assessed Values per Square Foot



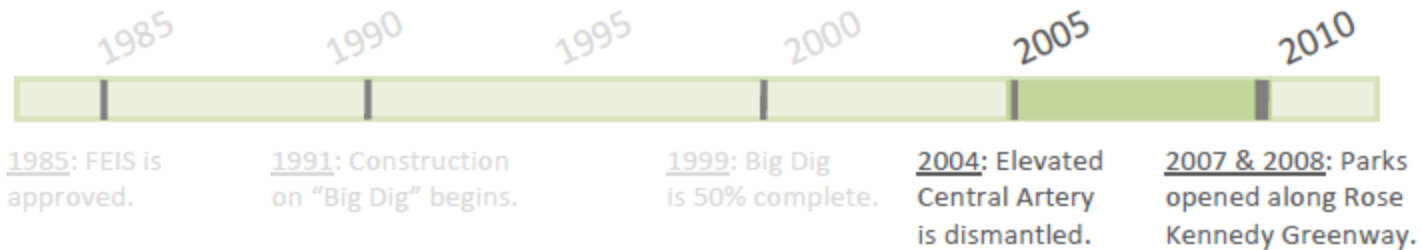
2009 Assessed Values per Square Foot



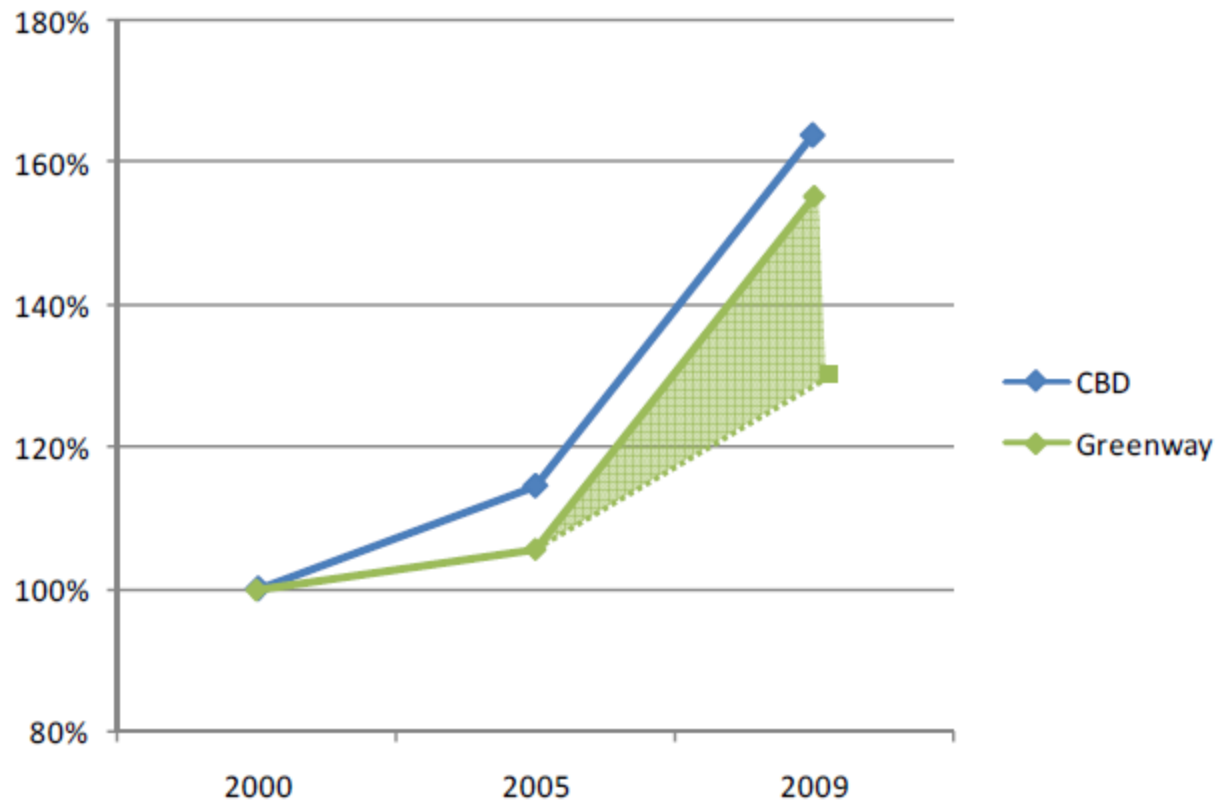
Speculative bubble: Greenway growth above CBD.



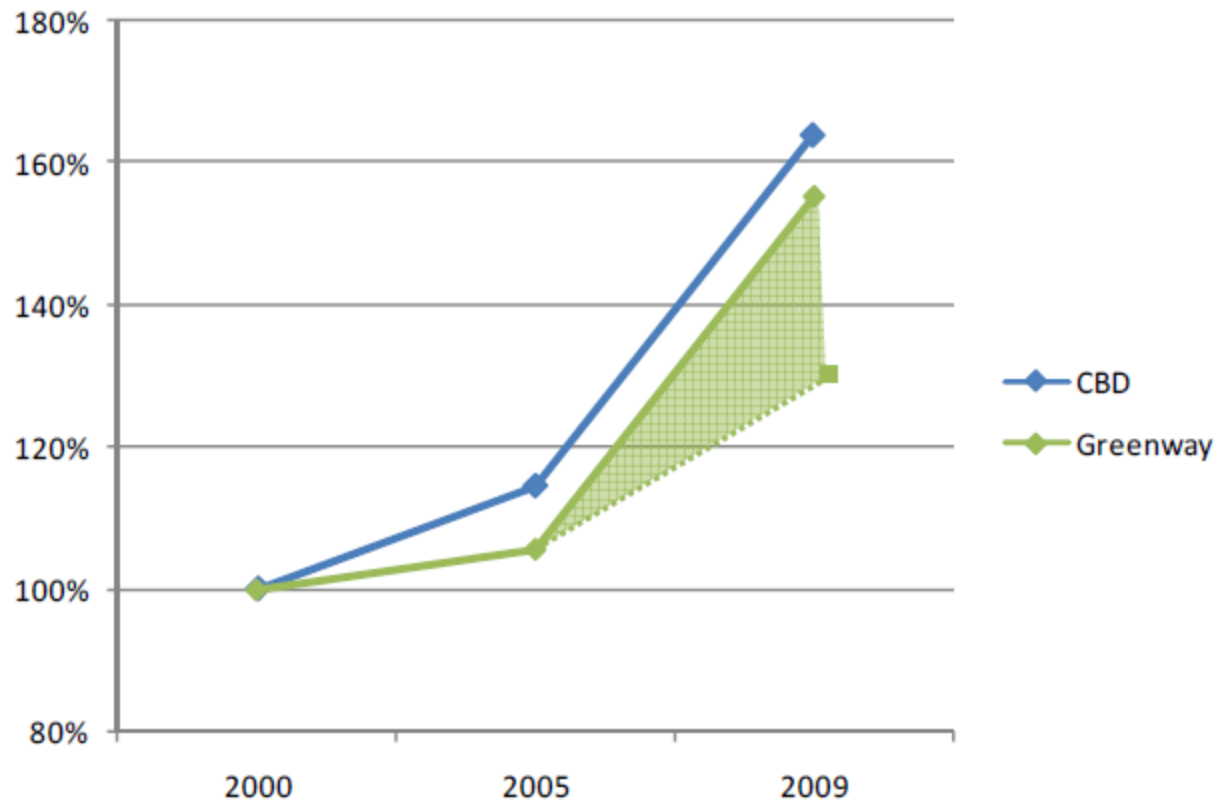
Greenway era: High commercial concentration drives higher rate of growth.



Increase in growth rate of commercial properties
generated \$3.1 B in property value.



Increase in growth rate of commercial properties
generated \$3.1 B in property value.



Strong investment to date.

CURRENT AND ONGOING GREENWAY DISTRICT INVESTMENT

4M SF

\$1.4B

FUTURE DEVELOPMENT ENVELOPE

3-5M SF



EXCERPTS FROM LESSONS FROM UNMAKING URBAN MISTAKES

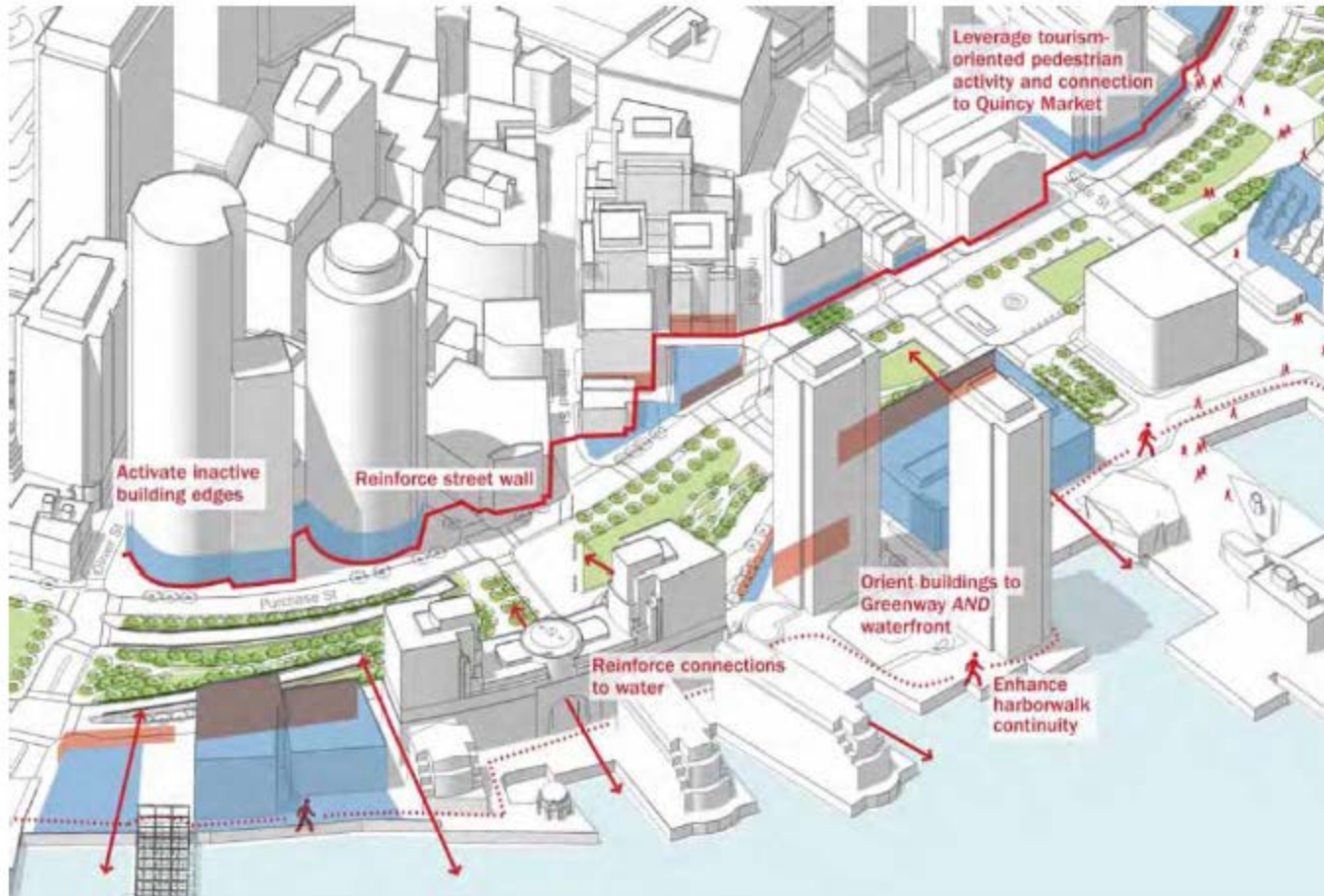
By: JOHN TOLVA, DIRECTOR OF CITIZENSHIP AND TECHNOLOGY, IBM

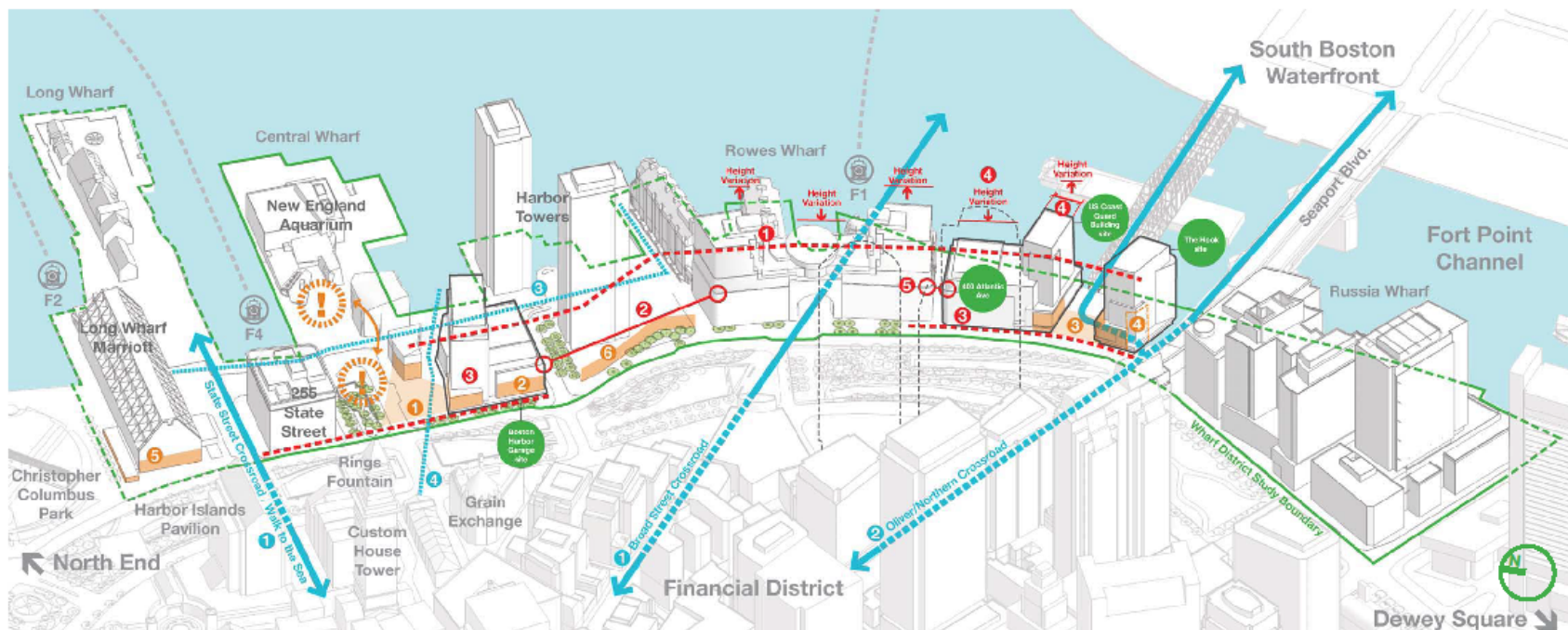
The Rose Kennedy Greenway does not re-establish human scale transit in the way that existed before the coming of the highway or as it does in the North End because the *Big Dig did not concern itself with the secondary effects- the cross-system effects – on the urban tissue surrounding the highway*. The Greenway is a phantom limb, a linear park that too precisely echoes a well-landscaped median, which still serves as what Kevin Lynch described as an “edge”

The bitter irony is that the structures that were built to limit the edges of the Central Artery mostly turned away from it (towards the water or downtown), or thrust upward, or engaged in businesses that had no need for street-level interaction. *These remain today and are a primary reason that the Greenway has not fulfilled its potential.*

...To understand the city as a system of interdependent systems should be the foundation of any information architecture.....All urban tissue is scar tissue. As we co-create the second city of information and services, we need ...to remember that there are plenty of ways to deal with scars, from covering them up to highlighting them as unique differentiators.

Create a complementary urban district.





Dimensional Criteria

- 1 All new buildings will have a maximum height of 200' (with the exception of the Hook site, at 175'), equivalent to the taller portions of Rows Wharf. Buildings should combine both low-rise and mid-rise elements in a way that takes cues from the existing context. Individual massing alternatives will be evaluated for how the shadows they create will impact the actively used portions of the park.
- 2 New buildings should establish a datum at the property's edge facing the Greenway. Ideally, the datum corresponds to and reinforces the heights in the immediate context, including the lower portions of Rows Wharf, the parapet of 255 State Street, or the tallest portion of Long Wharf, at about 125'. Taller portions of any new building should be set back by 10'-15' at this datum on the Greenway-facing sides of the building.
- 3 New development at the Boston Harbor Garage, 400 Atlantic Avenue, and the U.S. Coast Guard Building should reinforce the Atlantic Avenue street edge by building to it along a majority of its frontage. Significant breaks in that alignment should be in the service of opening connections to the waterfront.
- 4 All sites in the Wharf District, including 400 Atlantic Avenue, should vary in height like Rows Wharf, where taller masses alternate with lower masses of approximately 125' to allow for intermittent exposure to the sky plane, and to maintain visual access to the water. The lengths of any upper portion of a building over 125' should be limited to 125' on the Greenway-facing portions of the building.
- 5 The lower portions of 400 Atlantic Avenue should align with those of Rows Wharf.

Programmatic Goals

- 1 The lively occupation of the forecourt to the New England Aquarium should be extended as close the Greenway as possible. An additional ticket kiosk or similar related programming venue might facilitate this goal. New development on the Boston Harbor Garage site should feature active uses at the northwest corner that help anchor this node of activity and enhance enjoyment of the harbor.
- 2 New or replaced uses for the Atlantic Avenue edge of the Boston Harbor Garage should offer as many uses as possible that are complementary to the adjacent parks—restaurants, cafes, retail.
- 3 The ground floor uses at 400 Atlantic Avenue and the Hook site should reinforce the presence of the Oliver Street/Northern Avenue Crossroad with complementary active uses. Concentrations of small cafes will help mark the space between them as an important link over the bridges between the Greenway and South Boston.
- 4 The southwest corner of the Hook site should acknowledge in its architectural form the importance of the Moakley Bridge "gateway" to the South Boston waterfront. The form and orientation of the building should reflect the important urban morphologies that have created the site and that announce the grid of the adjacent emerging neighborhood.
- 5 The edges of the Long Wharf Marriott site have the opportunity to offer expanded ground level uses complementary to the adjacent Greenway and Christopher Columbus Park.
- 6 The base edge of Harbor Towers is currently defined by a perimeter fence. This location would benefit from an increased residential presence and openness at the ground level.

Connectivity

- 1 State and Broad Streets are two important Crossroads, the only two that terminate at the water's edge. Future development along those axes should enhance these rare direct views to the water from the Financial District, such as those through the arch at Rows Wharf.
- 2 Development at the Hook site and 400 Atlantic Avenue should enhance the ground plane in such a way as render this most fragile Crossroad connection more legible. Ground floor uses and special attention to landscape design will help in this regard.
- 3 All developments in the Wharf District should enhance the continuity and accessibility of the Harborwalk by providing additional points of connection from the Greenway and by "repairing" breaks in the community caused by grade changes and buildings or other obstructions.
- 4 All developments in the Wharf District, and the Boston Harbor Garage site in particular, should increase visual access to the waterfront, either at the building edges or through-building connections.

Other Lesser Known Big Dig Projects



Presenter –
Alison
Richardson's
7 CA/T Design
Project
Experience

Spectacle Island

"The Dump"

- This Harbor Island had been home to a slaughterhouse, a grease-extraction plant, and a land fill. It was literally 'a dump.'
- Prior to rehabilitation, 22 million gallons of toxic run-off had leached into Boston Harbor annually.
- A plan for Spectacle Island to be a park was a goal for years.
- 25% of the dirt displaced by the Big Dig (almost 4,000,000 cubic yards), was placed on Spectacle Island, raising the grade by over 100 feet on north drumlin.



Spectacle Island

The Transformation



- Provided grading for the millions of cubic yards and up to 5' deep of manufactured topsoil for woodland restoration
- Designed a successional seasonal planting plan to beautify the island for 30,000 annual park users, control erosion, and provide habitat for birds and small mammals
- Helped created in-water habitat for lobster colonies with rip rap



After- Erosion control walls and native plants



Before- The "Dump"

NORTH-SOUTH SECTION LOOKING EAST

SOUTH ORILIN

DOCK

SOUTH BEACH



Illustrative Site Plan



Boston Harbor Islands Pavilion

Aerial of the Island in the harbor in late spring of 2011 at very low tide. Some of the meadow areas on the North Drumlin have just been mowed.



From the North Drumlin looking south to the Visitor Center, promenade, swimming beach and boat dock.





A mown path to the top of the South Drumlin.





The forest is growing! The sky approves.



The city skyline from the crest of the North Drumlin at dusk.



The Bremen Street Park axonometric site plan shows location between dense neighborhood and airport.

1. Community Gardens
2. Open Lawn
3. Playground
4. Restroom / Guard House
5. Spray Fountain
6. Path to Airport Station
7. Amphitheater
8. Statue of Donald Mckay
9. Tot Lot
10. Bocce Court

BREMEN STREET PARK

East Boston



BREMEN STREET PARK AERIAL
East Boston



The path from the park to the new light-filled transit station is accessible by foot from the park. The highway is both above and below the new pedestrian bridge that leads from the park to the new station.



The bike and pedestrian paths occupy the former railroad right-of-way.



Extending the landscape under the highway viaduct, locating two main walkways and the bike trail near the park edges, and separating them with wide undulating lawns created the illusion of width and dramatically improved the park's proportions.



The new YMCA occupies former railroad Engine House within the park. Its activities bring people to the park throughout the day and night.



Artist-inspired granite waves used throughout the park reference the city's history as a port. Spray pool has stone waves, classic Italian stone fountain coping, and an oval pool shape with an overlook and accessible symmetrical ramps.



Amphitheatre and
Interpretive Granite Stage



Walkways, Community Gardens, Playgrounds



**This concludes The American Institute of Architects
Continuing Education Systems Course**

Congress for the New Urbanism

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