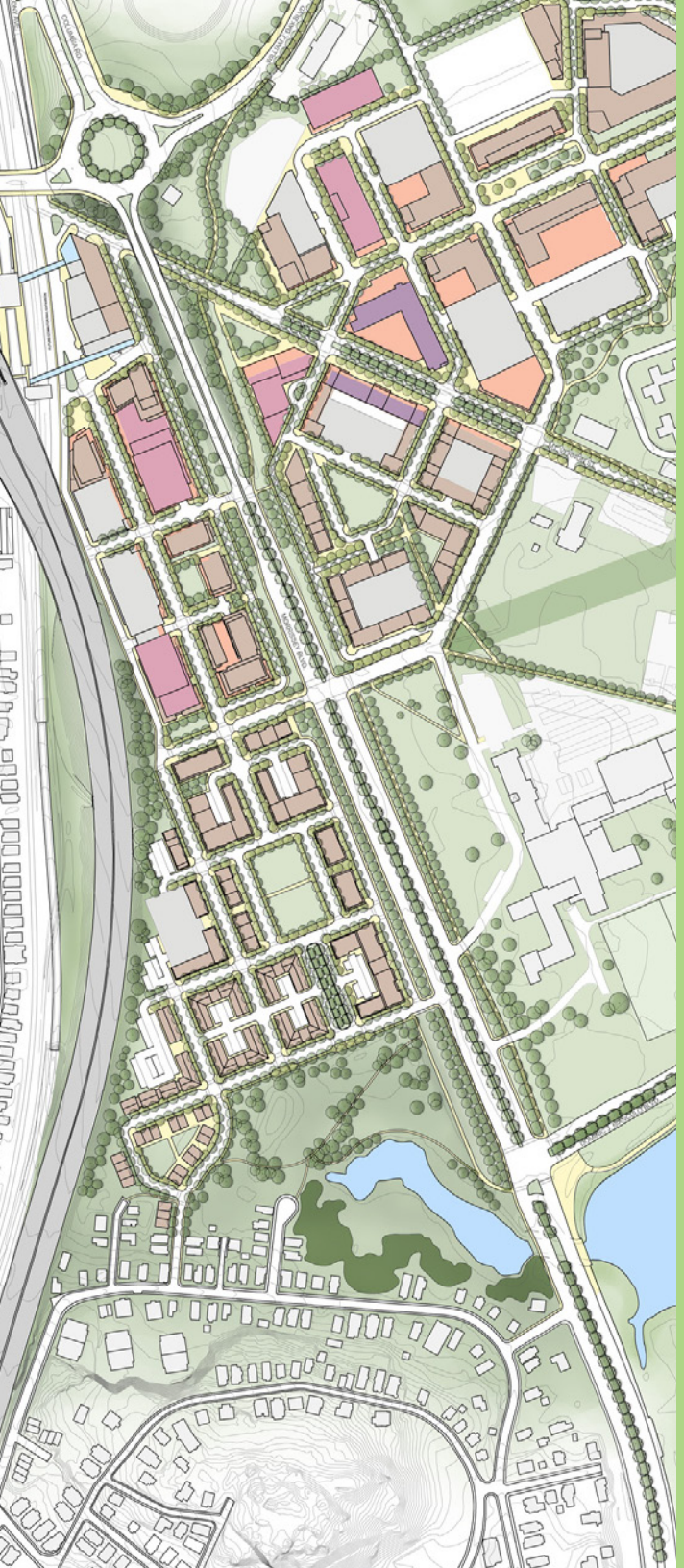

Columbia Point Master Plan

June 2011

CITY OF BOSTON
Thomas M. Menino
Mayor

BOSTON
REDEVELOPMENT
AUTHORITY
Peter Meade
Director

June 2011

Dear Friends:

In 2007, while UMass Boston was in the process of developing a new Master Plan for its Boston campus on Columbia Point, a major new development was proposed that would transform the former Bayside Exposition Center into a mixed-use neighborhood by the sea. At the same time, the MBTA was looking into selling the air rights above its JFK/UMass Station for development. With these extraordinary signs of transformation, I became convinced of the need for a single, cohesive plan for all of Columbia Point.

In early 2008, I commissioned a group of dedicated residents, businesses and institutional representatives to work with the Boston Redevelopment Authority to develop a long-range Master Plan for Columbia Point. Led by their Chairperson, Donald A. Walsh of the Columbia-Savin Hill Civic Association, over the next two years, the Columbia Point Master Plan Task Force worked tirelessly with the staff of the BRA along with the consulting firm of Crosby, Schlessinger and Smallridge, to develop this exciting new plan.

The Columbia Point Master Plan establishes a vision for a vibrant and sustainable new community, transforming an automobile-oriented neighborhood into a transit-oriented community. Over time, a mix of land uses—homes, offices, shops, restaurants, and hotels—will come to line ample, tree-lined streets, inviting people to live, work, and shop in close proximity. New infrastructure for walking and bicycling will encourage these more sustainable forms of transportation. With diversity as one of its guiding principles, the Master Plan embraces housing for a wide range of income groups and household types.

I congratulate the Columbia Point Master Plan Task Force and BRA on a truly visionary Master Plan that accurately reflects the dreams and aspirations of an entire community and sets Columbia Point on a vital, sustainable path into the 21st century.

Sincerely,

Thomas M. Menino

Mayor of Boston

ACKNOWLEDGEMENTS

The Columbia Point Master Plan is the result of a collaborative effort with the dedicated members of the Task Force and the wider community. This Master Plan would not be possible without the generous contribution of time and insight by these participants.

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Massachusetts State Representative Nick Collins (from 2011 to present)

Massachusetts State Representative Martin Walsh

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Special Thanks

We also would like to thank the following for their generous provision of space:

Boston College High School

Corcoran Jennison Companies

Harbor Point Community

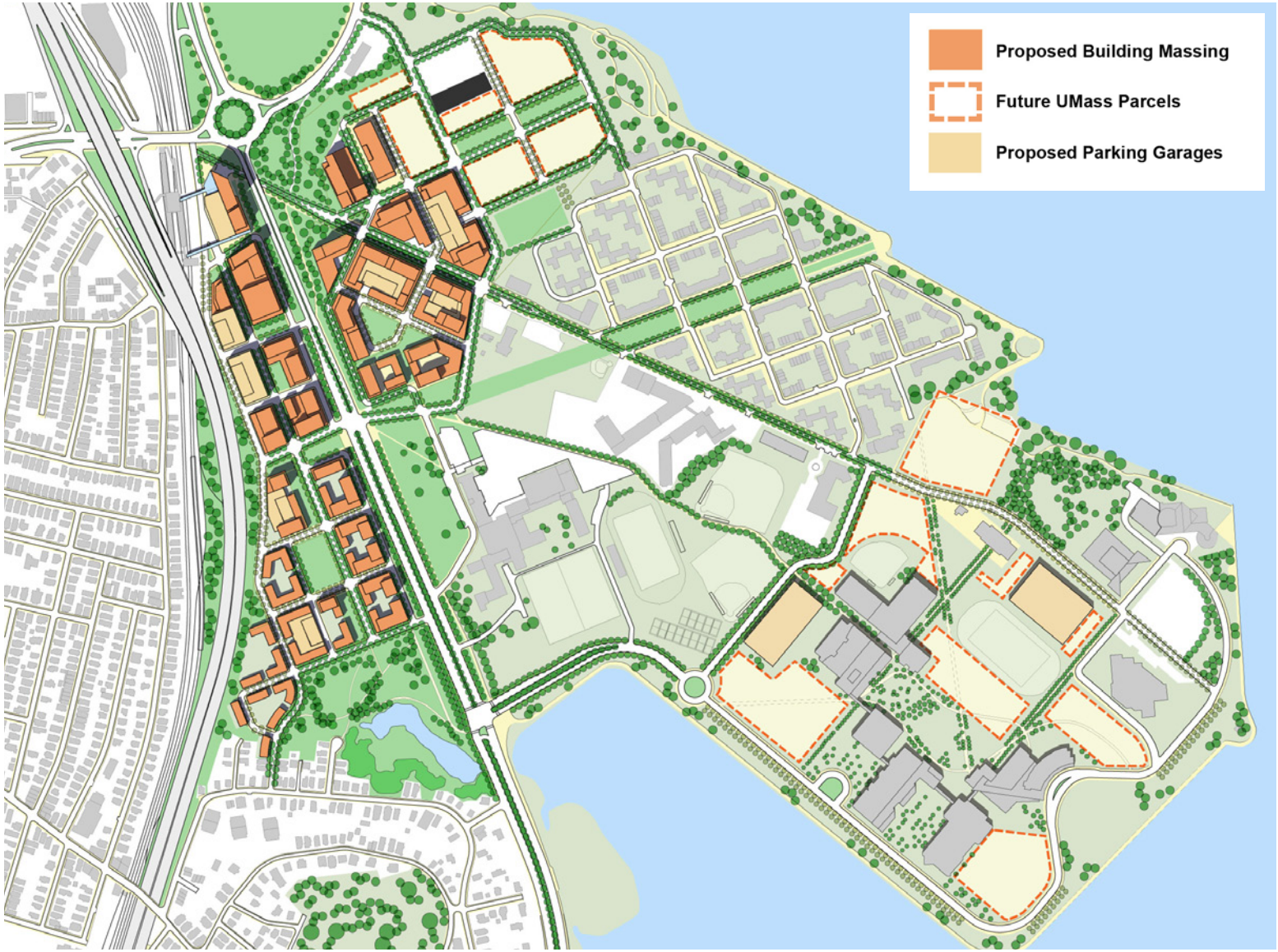
TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Columbia Point Master Plan establishes a vision for a vibrant and sustainable new community on Columbia Point, transforming an automobile-oriented neighborhood into a transit-oriented community. A mix of land uses — homes, offices, shops, restaurants, hotels — will line ample, tree-lined streets, inviting people to live, work, and shop in close proximity. Pedestrians and bicyclists alike will be able to navigate Columbia Point on an extensive system of new multi-modal paths, providing improved connections to the adjacent Dorchester and South Boston neighborhoods, as well as to the waterfront. New parks and recreational facilities, along with a diversity of housing types, will attract individuals, couples and families to these new neighborhoods. Development will be required to meet more stringent requirements for energy and resource conservation, including requirements for on-site renewable energy. At full buildout, the Master Plan would provide approximately 1,560 permanent new jobs and $17.2 million annually in new City property tax revenues.

The product of more than one and a half years of diligent work on the part of a Task Force appointed by Mayor Thomas M. Menino, the Master Plan reflects the dreams and aspirations of residents, businesses, and institutions and sets Columbia Point on a vital, sustainable path into the 21st century.

Bird's eye view hovering above I-93 looking northeast.

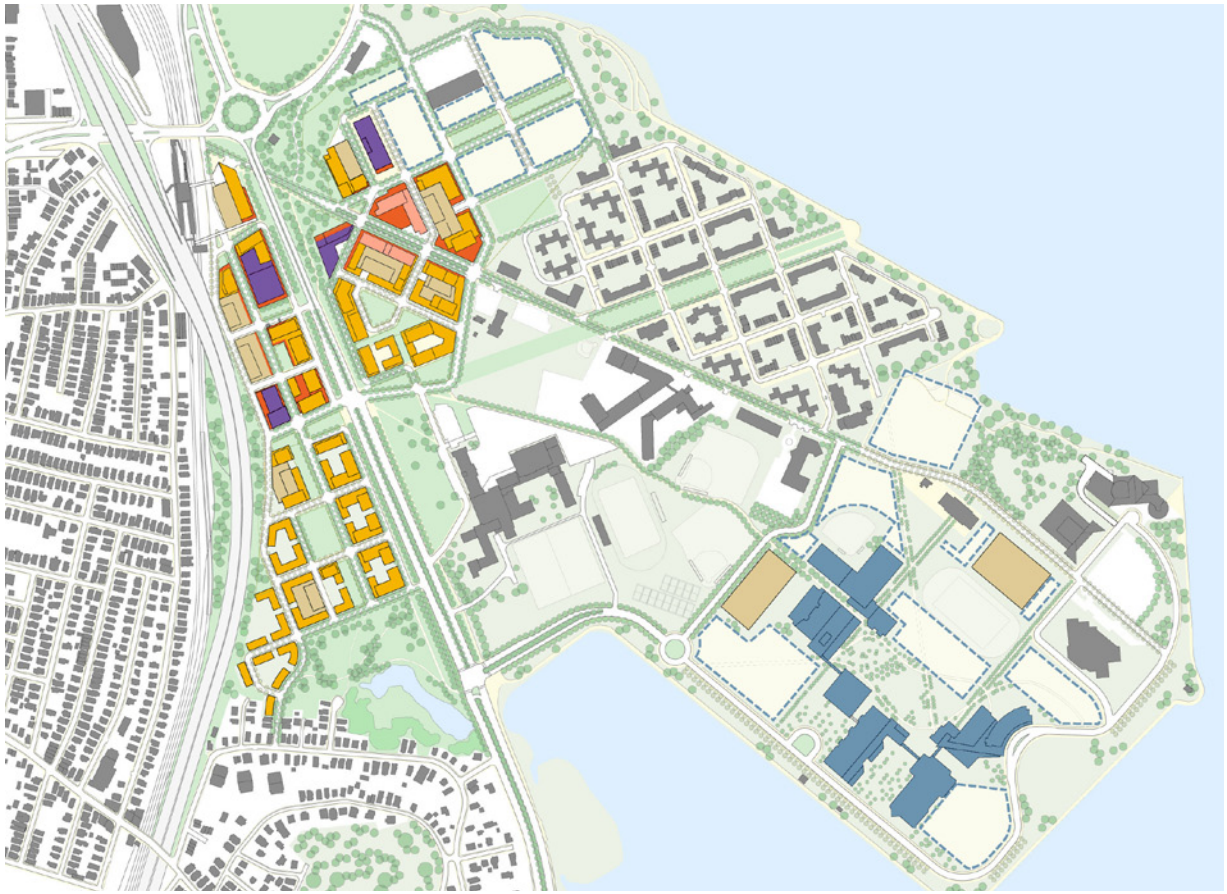


Illustrative Plan.

Existing Setting

Located just two miles from downtown Boston, the Columbia Point peninsula is home to some of Boston's most important institutions, including the John F. Kennedy Presidential Library and Museum, the Massachusetts State Archives and Commonwealth Museum, the Boston Globe, Boston College High School, and the University of Massachusetts, Boston. Its enviable assets include access to Interstate 93, intra-city connections via Morrissey Boulevard, and a high level of transit service at the MBTA's JFK/UMass Station. The scenic Boston Harborwalk extends along the full perimeter of Columbia Point.

Despite its location and wealth of cultural institutions, Columbia Point remains isolated from the rest of Dorchester and from neighboring South Boston. The pedestrian environment on Columbia Point is particularly harsh, with streets that do nothing to encourage the urban vitality and interaction that are prevalent elsewhere in the City. Left unchecked, these qualities would impede the revitalization and future development of Columbia Point.



Land use plan.

Vibrant, Mixed Use Districts

The Illustrative Plan on the previous page shows a series of new districts situated near the JFK/UMass MBTA Station, knitted together by a series of new streets. The design of these new districts facilitates walking and bicycling, creating vibrant streets while

reducing carbon emissions. Two new "main streets", one on the property currently owned by Synergy and another on the former Bayside Exposition Center property, now owned by UMass Boston, will offer active ground-level uses, such as restaurants, outdoor dining, and opportunities for strolling.

The Land Use Plan on the previous page depicts a variety of land uses clustered close to one another near the MBTA station. Each of the major redevelopment parcels--including those currently occupied the former Bayside Exposition Center, Shaw's Supermarket, JFK/UMass MBTA Station, Sovereign Bank, and the Boston Globe--becomes a unique mixed-used neighborhood unto itself within the larger whole.

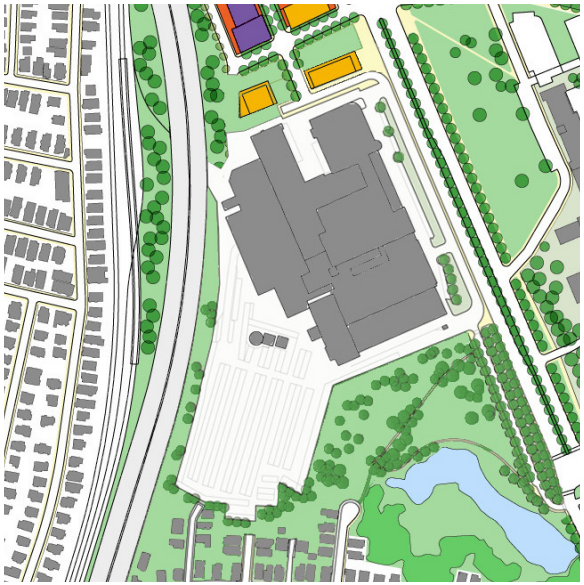
As shown in Table 1, the Master Plan would allow approximately 5.7 million square feet of development at full buildout. This compares to 1.6 million existing square feet on the redevelopment parcels. With the goal of making Columbia Point an 18-hour-a-day neighborhood, approximately three-quarters of the proposed land uses are residential. Another 15% are office uses, 10% are retail (stores and shops), with the balance devoted to hotels.

Use	Total	% Total
Residential Units	4,100	72.3%
Hotel Rooms	410	4.3%
Office SF	833,000	14.7%
Retail SF	492,500	8.7%
TOTAL SF	**5,671,500**	**100%**
Parking spaces	6,130	

Table 1: Potential Development on Redevelopment Parcels

To maximize access to public transportation, building heights become gradually higher as one approaches the JFK/UMass MBTA Station, increasing from 4 stories furthest away from the station and gradually rising up to seventeen stories at the station's site.

Buildout is expected to occur progressively over many years. At this time, the Boston Globe has no plans to move or redevelop its property. While the Master Plan envisions what might happen if the Boston Globe site were ever to be redeveloped, it readily accommodates the existing Boston Globe in its current configuration.



Illustrative plan with Boston Globe remaining.

New Tree-lined Streets

Today, Columbia Point can be disorienting and difficult to navigate, as much for vehicles as for pedestrians and bicyclists. To ameliorate this condition, as shown in the figure at right, the Master Plan calls for a system of streets that are designed to help separate local from regional traffic and make it easier to move about. Old Colony Avenue (1) will be extended through the JFK/UMass MBTA Station property and on through the property currently occupied by the Shaw's Supermarket. The extension of Old Colony Avenue intersects at right angles with a new street (hereafter referred to as "New Street") (2) which crosses Morrissey Boulevard and continues between Boston College High School and Sovereign Bank to Mt. Vernon Street. New Street then continues over Mt. Vernon Street through the Bayside site to Day Boulevard. One of the primary purposes of New Street is to provide an alternative to Kosciuszko Circle for local traffic within Columbia Point. Meanwhile, in order to establish a more recognizable, walkable street pattern, each major development parcel will have its own system of tree-lined, pedestrian-oriented internal streets similar to many of Boston's traditional neighborhoods (3).

New streets, parks and paths (numbers refer to numbers in the text starting at right).

As shown in the figure on page vi, the Master Plan also proposes to transform Morrissey Boulevard, consistent with the State's historic parkway initiative, (4) by reducing the amount of paved area in the main travel lanes and by adding multi-modal paths for pedestrians and bicycles on both sides of the boulevard, creating a more traditional boulevard.

New Pedestrian and Bicycle Paths

In addition to the new streets, the Master Plan introduces several new parks (5) within each of the major redevelopment parcels, as well as new multi-modal paths which are intended to provide better connections across Columbia Point. One of these multi-modal paths (6) extends from JFK/ UMass MBTA Station across the Sovereign Bank site through the open space between Boston College High School and the Boston Public Schools to UMass Boston. A similar path (7) links Patten's Cove on the west side of Morrissey Boulevard to Calf Pasture on the east side of Columbia Point, establishing a visual and physical link between these spectacular open spaces. The plan further envisions a clear, safe pedestrian connection (8) from the Sydney Street neighborhood through a redeveloped MBTA station (9) into Columbia Point and an

View of redesigned Morrissey Boulevard facing north, with new multi-use paths and bicycle lanes. Synergy development is shown at left, and new development on the Sovereign Bank parcels is shown to the right.

extension of Wave Street (10) from the Savin Hill neighborhood to and through the Boston Globe site, should this site ever be redeveloped. A redesigned Morrissey Boulevard would also be flanked by dedicated pedestrian and bicycle paths (11), while Mt. Vernon Street would enjoy sidewalk level cycle tracks on both sides of the street (12).

Transportation Choice

Choice is the key to mobility under the Master Plan. The largest buildings are sited near to the MBTA station to make public transportation an attractive option for the greatest number of people. The Master Plan's mix of uses, generous sidewalks, and strong pedestrian connections are designed to facilitate walking. A new system of on- and off-street bicycle paths, combined with bicycle accommodations, such as bicycle lockers and showers, at places of employment, will ensure that bicycling is both a commuting and recreational option.

The Master Plan also includes a goal to reduce single occupant vehicle (SOV) mode share—that is, the proportion of people who commute to work driving alone—by 10%. New development will be required to accomplish this goal through a variety of means—for example, by providing free transit passes, by encouraging carpooling, and by creating financial and other incentives for commuters to find more environmentally sustainable ways to travel.

The tallest buildings are located near the JFK/UMass MBTA Station to facilitate access to transit.

Critical to unlocking the development potential of Columbia Point is to more fully understand and address design constraints at Kosciuszko Circle, the Interstate 93 access ramps, and Morrissey Boulevard. To this end, the Master Plan calls for a comprehensive follow-up study and plan to analyze future traffic demand and formulate design solutions for these roadways.

Housing: Affordability and Diversity

Housing for a wide range of income groups and household types is one of the guiding principles of the Master Plan. Individuals, families, seniors, and disabled persons; persons and families wanting rental and ownership housing; and households with limited means should all be able to find a home in Columbia Point.

The Housing Chapter includes an objective that 20% of new housing be affordable to a range of incomes at and below 100% of the area median income (AMI). This objective would help to make Columbia Point eligible for Smart Growth Overlay Zoning under Chapter 40R of Massachusetts General Law (MGL), which could in turn enable the City of Boston to receive substantial financial payments from the State in exchange for allowing and building new housing units.

The Master Plan includes an objective that 30% of all new housing in Columbia Point be ownership housing, consistent with the proportion that ownership housing represents of all housing Citywide. The Master Plan also calls for a range of household sizes, including housing large enough to accommodate families.

Open Space & Watersheet Activation

One of the Master Plan's most important contributions to the open space system is the creation of a series of new physical and visual connections to existing and planned open spaces (as described above). These connections will help to open Columbia Point up to the water, bringing one of the peninsula's most significant assets within easy reach of residents, businesses, and employees.

As indicated above, the Master Plan calls for expanding usable open space. Each major redevelopment district will contain a centrally located park. The amount of usable open space along Morrissey Boulevard will be significantly increased as the amount of the paved right-of-way is reduced and multi-modal paths are introduced. In addition, Patten's Cove will be expanded. A total of approximately 16.9 new acres of open space will be added under the Master Plan. Of this 16.9 acres, 9.5 acres will be devoted to a new park and plaza spaces, with the remaining 7.4 acres devoted to multi-modal paths.

The waterfront and ocean are among Columbia Point's most important assets. Among other things, the Master Plan calls for activating the waterfront by providing wayfinding signage and by introducing performance and exhibit areas, fishing and viewing platforms, and concessions. The Master Plan also calls for activating the watersheet (the surface of the water) by establishing berthing locations for visiting historical vessels, cultural vessels, and docking for small short-term private vessels.

Sustainability

Environmental sustainability is a central theme and guiding principle of the Master Plan. The basic armature of the Master Plan, with its compact mix of uses and walkable streets situated close to transit, is the very definition of sustainable land use. Moreover, development under the Master Plan would be subject to an array of goals and requirements for reduced energy and water use. All new development would be required to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating. On-site renewables (such as photovoltaics, solar hot water, and building-incorporated wind turbines) would be required to supply a minimum of 5% of annual energy consumption. New buildings would be required to use on average 20% less water than baseline buildings. In these ways Columbia Point will be a leader in sustainability for Boston.

Economic Benefits

Upon its realization, the Master Plan will yield significant fiscal and economic benefits for the City, region, and State. Full buildout will yield approximately 1,560 new permanent jobs and 3,980 year-long construction jobs. Net new annual City property taxes from the Master Plan's buildout could reach approximately $17.2 million, while annual net new State income tax revenue could come to approximately $4.3 million annually. With the wages generated by new jobs, new "buying power" under the Master Plan — that is, income available to spend on such basic goods and services as groceries, restaurants, housing, apparel, and transportation — could reach approximately $68.6 million annually.

Phasing & Implementation

New development under the Master Plan must be supported by new infrastructure and public improvements, such as streets and parks. The Master Plan identifies these improvements and addresses the roles and responsibilities, including financial responsibilities, of private property owners and public agencies in ensuring that these are provided in concert with new development.

1 INTRODUCTION

Located within two miles, and three subway stops, of downtown Boston, the Columbia Point peninsula is home to some of Boston's most important institutions — the University of Massachusetts, Boston; the John F. Kennedy Presidential Library and Museum; the Massachusetts State Archives; the Boston Globe; Boston College High School; McCormack Middle School and Dever Elementary School; the Boston Teachers Union; and St. Christopher's Church, among others. Major commercial entities include the former Bayside Exposition and Conference Center (now owned by the UMass Boston), Sovereign Bank and Bank of America, and Shaw's Supermarket (on land owned by Synergy). It is also home to the approximately 2,900 residents who live in the Harbor Point community and 380 residents at the Peninsula apartments.

Columbia Point has incredible assets: unparalleled water views; the Boston Harborwalk, which is both a wonderful amenity and a connection to the South Boston beaches; a high level of transit service at the MBTA's JFK/UMass MBTA Station with both Red Line and Commuter Rail access; great highway access and visibility from Interstate 93 (I-93); large, relatively flat parcels and views of the Boston skyline.

Aerial view of Columbia Point, facing north.

However, since the construction of the Calf Pasture Pumping Station in 1883, the Columbia Point peninsula has been altered and manipulated to accommodate each new project, with little thought given to the character and environment of the peninsula as a whole. Individual uses on Columbia Point are disconnected from each other, and I-93 and the railroad tracks act as barriers between Columbia Point and the adjacent Dorchester neighborhoods.

The pedestrian environment on Columbia Point is particularly harsh, with streets that do nothing to encourage the urban vitality and interaction that are prevalent elsewhere in the City. Vehicular travel is no better. Moreover, from the interior vantage points on the site, it is possible to forget that Dorchester Bay is just steps away. This Master Plan will serve to connect these disparate elements and unlock the potential of the Study Area.

Columbia Point was originally called Calf Pasture because Dorchester residents pastured calves there in the 1600s and 1700s. The Old Colony Railroad, opened in 1845 to connect Plymouth and Boston, is now the location of the MBTA Red Line tracks. In 1903 (above) Columbia Point was still a marshy uninhabited peninsula. The first land added to the Calf Pasture was part of the Calf Pasture Pumping Station, Boston's first sewage pumping station. By 1946 (top right), a significant amount of filling had occurred. Old Colony Avenue (later renamed Morrissey Boulevard) and Day Boulevard had been built. By 1970 (bottom right), even more land had been filled; the UMass Boston campus, JFK Presidential Library and Museum, and Columbia Point housing project had been built on filled land. Development was focused on Mount Vernon Street and along Morrisey Boulevard.

Currently, there are a number of significant development proposals being discussed in Columbia Point (see map on facing page). For example, UMass Boston is in the process of implementing a 25-year Master Plan for its campus, which now includes the former Bayside Expo Center site. UMass Boston now plans to also undertake a planning process for this site's future. For its part, the MBTA is planning to sell the air rights for development above the JFK/UMass Station area. Synergy is exploring a mixed-use residential, office and retail redevelopment of its nine-acre parcels which include the Shaw's supermarket and parking lot, as well as adjacent vacant parcels and the Greater Media building.

Individually and collectively, these proposals have major implications for the future of the Columbia Point neighborhood. Because of the scale, proximity, and inevitable interaction, it is critical that they be fully coordinated.

The current interest in redeveloping a significant portion of the area provides the unique opportunity to create a true district – a recognizable place with a collection of interwoven uses and public open space. There is also the opportunity to coordinate infrastructure requirements and investments – to develop a more efficient and sustainable district with an effective multi-modal transportation system and more efficient utility systems, and to program public investment.

Potential redevelopment sites.

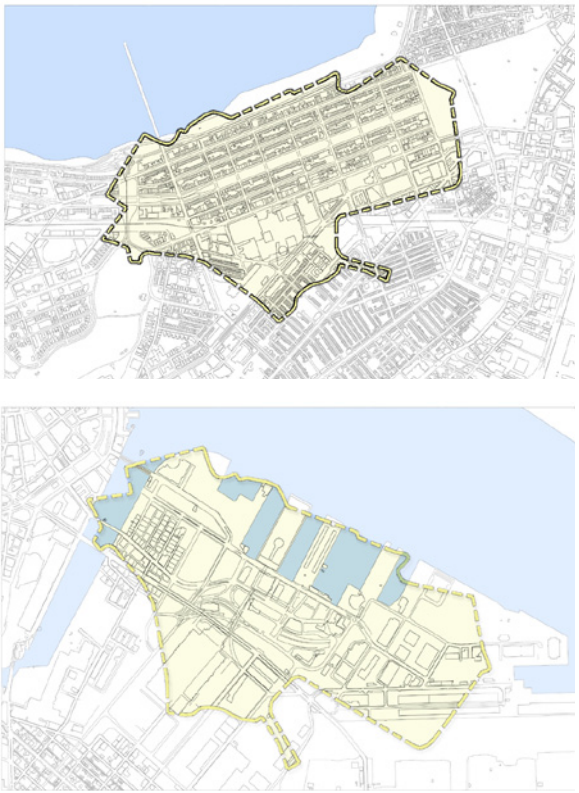
Consequently, with all of these projects moving forward on various schedules, this Master Plan was initiated to:

- Develop a coordinated vision for a lively, mixed-use district with a "sense of place" and a framework for redevelopment activities.
- Enhance the public realm – that is, create urban design, pedestrian environment, open space improvements, and community services.
- Improve connections through Columbia Point and from Columbia Point to the adjacent neighborhoods.
- Ensure that there is adequate transportation infrastructure to support existing and future development.
- Coordinate the plans of the property owners.

The Master Plan documented in this report provides a framework for individual property owners to use when planning the redevelopment of specific parcels, for the BRA, other public agencies and the community to use when evaluating specific development proposals, and for public agencies to use in planning and designing infrastructure improvements. This long-term plan will be implemented over the next 20 to 25 years. It has been developed to be flexible enough to respond to changes in the real estate market and funding priorities, while identifying key design features and infrastructure improvements that will be critical under any future land use scenario.

This report summarizes the extensive public participation process that was key to the development of the Master Plan, and describes the vision and principles which provide the foundation for the Master Plan. The following chapters document the Master Plan analysis and recommendations in these topic areas:

- Land use and urban design
- Housing
- Multi-modal transportation
- Open Space and recreation



At 412 acres, Columbia Point is approximately the same scale as Back Bay (top) and the South Boston waterfront (bottom).

- Sustainability
- Utilities and public services
- Community benefits
- Phasing and Implementation Strategy

The key redevelopment parcels are all within an easy 1/4 to 1/2 mile radius of JFK/UMass Station.

To reinforce the topic's importance, there is a chapter of the Master Plan devoted to environmental sustainability. However, sustainability is also a central, organizing theme of the Master Plan The Plan's entire framework — its orientation around transit, a new network of walkable streets, the focus on compact, mixed-use neighborhoods, and an emphasis on non-automobile transportation — represents its fundamentally sustainable armature. Moreover, the theme of sustainability is interwoven throughout the various chapters Master Plan.

As a means of assessing the Master Plan's level of sustainability, the BRA conducted a preliminary evaluation of the Master Plan using the Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) Rating System (Pilot Version). Based on this evaluation, it appears that multiple building developments that meet the Master Plan's recommendations can reasonably achieve LEED Gold (by earning 63 out of 110 Points).

Throughout the Master Plan, policies and implementation actions which relate to the LEED-ND rating systems have been identified with a leaf symbol. In this way, the reader can see which specific elements of the Master Plan support the LEED-ND criteria.

2 PLANNING PROCESS & CONTEXT

Planning Process

In the summer of 2007, the BRA began the planning process for the Columbia Point Master Plan. The decision to initiate the planning process was spurred in part by the need to coordinate emerging plans and development proposals on Columbia Point, including: a new 25-year Master Plan for UMass Boston; a proposed redevelopment of the Bayside Exposition Center (which has since been abandoned, as the former property owner has sold the site to UMass Boston); and a proposed long-term lease of air rights about the JFK/UMass Station for new development.

In August 2007, the BRA issued a Request for Proposals (RFP) to identify a consulting team to assist in preparation of the Master Plan. The BRA Board of Directors approved the selection of the consulting firm of Crosby | Schlessinger | Smallridge on November 15, 2007 after a competitive selection process.

Selected by Mayor Thomas M. Menino, a Task Force was formed to advise the BRA on planning process, policy, and public participation in preparing the Master Plan. In order to solicit nominations from a wide range of community members, advertisements were placed in local papers, and emails were sent to a broad array of civic, neighborhood, and business organizations. A list of Task Force members is contained in the Acknowledgments section of the Master Plan.

The Task Force began meeting in February of 2008 and held regular working sessions in neighborhood locations throughout the Master Plan process, for a total of 18 meetings over the course of approximately two-and-a-half years. Mr. Don Walsh was appointed Chair of the Task Force by Mayor Menino and was responsible for leading meetings. All working sessions were open to the general public, and each session concluded with a public comment period.

A project-specific web page was created on the BRA's website for the Master Plan (http://www.bostonredevelopmentauthority.org/Planning/PlanningInitsIndividual.asp?action=ViewInit&InitID=126). All Task Force meeting agendas, Powerpoint presentations, and meeting notes were posted to this website.

BRA staff and consultants guided the Task Force through a comprehensive planning process involving six phases:

I. Existing Conditions

II. Issues and Opportunities

At the public workshops, participants broke into smaller groups for more focused discussions on specific topics.

III. Visioning

IV. Alternatives

V. Draft Plan

VI. Final Plan

At each working session and during each phase of the planning process, Task Force members provided constructive comments to the project team.

Additionally, the BRA and the Task Force co-sponsored four community-wide meetings designed to engage the public directly in a dialogue about

the future of Columbia Point. These meetings were held on May 15, 2008 (at Harbor Point's Corcoran, Mullins, Jennison Community Center), June 14, 2008 (at Boston College High School), January 24, 2009 (at Boston College High School), and September 26, 2009 (at Harbor Point's Corcoran, Mullins, Jennison Community Center).

Attendance at these meetings ranged from 75 to 100 people per meeting. In order to encourage community members to attend, advertisements were placed in the Dorchester Reporter, the Dorchester Argus Citizen, the South Boston Tribune, and South Boston Online. In addition, flyers were distributed in the community by Task Force members and emails were sent to the project's email list, which contains over 325 entries. All meetings were also announced on the BRA's online Calendar of Events.

The first meeting, entitled "Existing Conditions, Issues & Opportunities," featured a presentation on existing conditions, followed by an open house with topic stations on transportation, land use, open space and connections, and urban design. The second meeting, entitled "Visioning," included a presentation with draft plan principles, followed by a brainstorming session with four breakout discussion groups.

The third meeting's purpose was to present draft Master Plan recommendations and elicit feedback on them from the community. A presentation was given, and four breakout discussion groups offered the community a chance to provide comments.

At the final community meeting, the Draft Master Plan was presented. The Draft Master Plan incorporated many changes to the draft recommendations presented in the third community meeting in response to community comments.

As with the Task Force meeting materials, all meeting notes and presentations from the community-wide meetings have been posted to the project website.

Throughout the planning process, the BRA and its consultant team met with the following City and State agencies:

- City of Boston Parks and Recreation Department
- City of Boston Public Schools (BPS)
- City of Boston Public Works Department (PWD)
- City of Boston Environment Department
- City of Boston Department of Neighborhood Development (DND)
- City of Boston Transportation Department (BTD)
- Massachusetts Bay Transportation Authority (MBTA)
- Massachusetts Department of Conservation and Recreation (DCR)
- Massachusetts Executive Office of Transportation (EOT)
- Massachusetts Office of Coastal Zone Management (CZM)
- Massachusetts Water Resources Authority (MWRA)

Meetings with each of these agencies were convened as necessary, with some taking place more frequently than others. Contacts for each of these departments were included on the project's email distribution list, and were notified of public meetings associated with the Master Plan.

Several interagency meetings were also held throughout the planning process, in order to provide agency representatives with an update on the Master Plan's status, as well as to allow for an open dialogue between those involved.

Additionally, the BRA and its consultant team met with the following stakeholders and landowners on Columbia Point at various stages in the planning process:

- Boston Globe
- Boston College High School
- Boston Public Schools (including McCormack Middle School and Dever Elementary School)
- Boston Teachers Union

The Task Force met regularly over the course of the project to review and discuss the analysis and recommendations.

- Massachusetts State Archives & Commonwealth Museum
- Corcoran Jennison (former owners of the Bayside Exposition Center)
- Harbor Point Community Task Force
- JFK Presidential Library and Museum
- Sovereign Bank
- St. Christopher's Church
- Synergy (owners of the parcels adjacent to the JFK/UMass MBTA Station, which includes the Shaw's Supermarket and the Greater Media building)
- University of Massachusetts, Boston

Lauren Smyth and Casey Flynn, the Dorchester and South Boston neighborhood coordinators from Mayor's Office of Neighborhood Services, also participated actively in the meetings with the Task Force, community, stakeholders, landowners, State, and City agencies.

This Master Plan is the product of many hours of volunteer time on the part of many dedicated members of the community and is the result of a truly participatory planning process.

Planning Context

The Columbia Point Master Plan has been prepared with awareness of other important plans affecting Columbia Point. Produced by a variety of City and State agencies, some of these plans date back to the 1980's but remain relevant today. Table 2.1 lists these plans in chronological order. Appendix B provides a summary of each of these related plans as well as a brief description of the plan's relevance to the Columbia Point Master Plan.

Document Title	Date
Dorchester Waterfront Study	1981
Harborwalk Initiative	1984
Harborpark Plan	1990
Combined Sewer Overflow Plan	1994
Back to the Beaches Program	1993
Beach Access Plans: Public Access to Dorchester Beaches and Long Island	1998
Morrissey Boulevard Restoration Project	1998
Neponset River Reservation Master Plan Phase I	1998
Boston Inner Harbor Passenger Water Transportation Plan	2002
Dorchester Rezoning	2002
Study of Cultural, Civic and Non-profit Facilities of Public Accommodation	2005
Facilities of Public Accommodation: Commercial, Retail and Restaurant Market Demand and Supply Analysis	2006
UMass Boston Master Plan	2008
Urban Ring Phase 2 Revised Draft Environmental Impact Report	2008

Table 2.1: Other plans affecting Columbia Point

DCR's Patten's Cove.

3 VISION & PRINCIPLES

Through community meetings and discussions with the Task Force, the vision for the future of Columbia Point was defined as:

> *A new, distinct, sustainable mixed- use neighborhood district with an appropriate balance of residential and non-residential uses that make it possible to live, work, shop, and recreate without getting into a car; where 18-hour-a-day activity animates the streets and sidewalks; and, where both families and individuals desire to be because it is active, vibrant and unique.*

Building on this vision, a series of ten principles provided the framework for the analysis and specific recommendations of this Master Plan. The principles fall into four main categories:

- Land Use & Placemaking
- Urban Design
- Transportation
- Sustainability

Land Use & Placemaking

1. Land Use & Placemaking: Provide a mix of residential and commercial uses and activities to create a "sense of place," with active street life, safety, convenience, and amenities.

New development will happen primarily at the northern end of the Study Area, close to the JFK/ UMass MBTA Station.

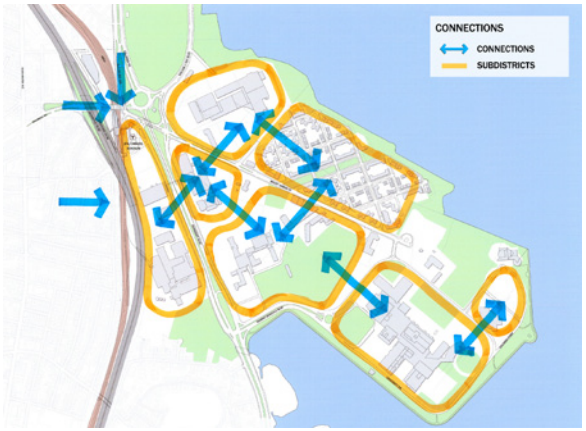
The mix of land uses and public amenities, as well as the handsome and varied architecture, should draw in people to live, work, shop and recreate. Retail spines where walking, strolling, shopping, dining, and recreating are all part of a daily mix of activity will help to enliven the district.

2. Diversity: Provide housing for a full range of income groups and household types, such as housing for families, seniors, and disabled persons.

In addition to creating housing types for a diverse population, amenities such as open space and community facilities also will be designed to attract and serve this broad population.

Mixed-use development on attractive pedestrian-oriented streets helps to create gathering spaces, contributing to a district identity.

Rollins Square in Boston's South End (at right) includes a mix of market rate and affordable housing, and both rental and ownership units.



The top diagram illustrates a conceptual open space network, while the bottom diagram highlights important connections throughout Columbia Point and the adjacent neighborhoods.

Connections can include corridors such as the Rose Kennedy Greenway (left), which links a number of neighborhoods throughout downtown Boston, smaller connections such as the passage between Quincy Market and the waterfront (middle), or the landscaped connection between the Mystic Landing mixed-use development and the Mystic River in Medford (right).

3. Open Space and Recreation: Develop a public open space system of active and passive parks, squares and streets, connected both with each other and to the larger open space system.

New open space will be designed to serve existing and future residents, provide amenity for other development, and enhance the larger neighborhood open space system.

Urban Design

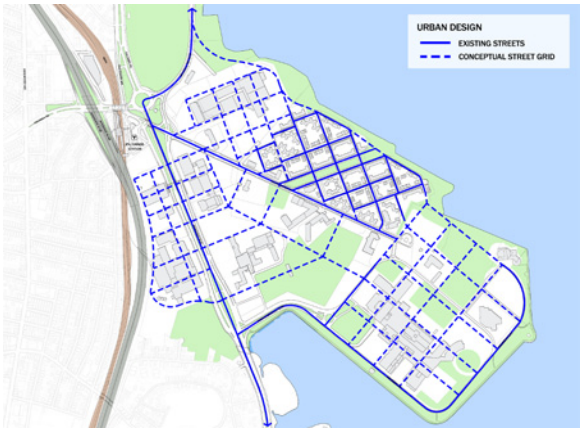
4. Connections: Create strong visual, pedestrian and vehicular connections between Columbia Point subdistricts and between Columbia Point and the adjacent neighborhoods.

Establishing and enhancing these internal connections will support district cohesiveness, and help to create a district identity. Enhancing connections to adjacent neighborhoods will help to make Columbia Point a more integrated part of the larger Dorchester neighborhood.

5. Views: Maximize views from points throughout Columbia Point to Boston Harbor, Dorchester Bay, and the downtown Boston skyline, as well as to notable Columbia Point landmarks such as the Calf Pasture Pumping Station.

These views are an important part of Columbia Point's unique identity. Views can be down streets, through openings in buildings or to distant landmarks.

Views to distant landmarks - Calf Pasture Pumping Station (top left), JFK Presidential Library and Museum (top right), Dorchester Bay (middle left) and the downtown skyline (middle right) - provide orientation.



While ideally, a consistent grid would be established across the entire district, the top right diagram represents a more realistic grid attempting to reconcile the varied existing grids on Columbia Point. The lively streetscape (bottom right) illustrates mixed-use, varied architectural design and an active street frontage.

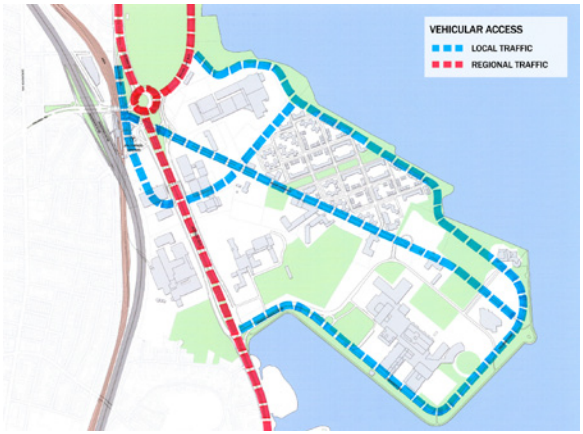
6. Street and Block Pattern: Develop a familiar street and block pattern, with attractive streetscapes, active street frontages, and buildings that reinforce the scale of the streets and blocks.

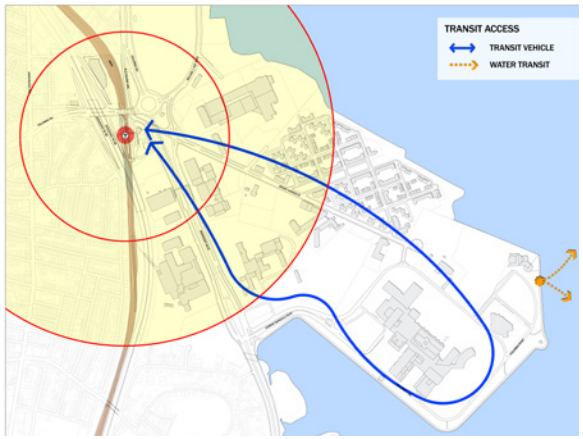
The quality of the attractive and varied architecture, public realm, and other amenities will excite passersby and invite them in. The interconnected, lively and vibrant districts will encourage them to return, and to want to live in the district.

The grid of pedestrian-scaled blocks will provide clear paths to destinations, with multiple pedestrian and bicycle routes.

7. Pedestrian and Bicycle Access: Create a pedestrian and bicycle network, which encourages walking and biking, both for recreation and daily transportation.

This network builds off the street and block pattern described at left.





Conceptual roadway network separating local and region traffic (top). The two rings, representing a 1/4 mile and 1/2 mile walking radius from the JFK/UMass MBTA Station, encompass much of the area available for development on Columbia Point (bottom).

Mayor Menino at the ribbon cutting for the rooftop solar array at the Boston Arts Academy in the Fenway.

Transportation

8. Vehicular Access: Create a roadway network that ensures good access and circulation for local residents and visitors while continuing to serve regional circulation needs.

Separating local and regional traffic will help increase mobility options, reduce congestion, and aid in pedestrian and bicycle circulation.

9. Transit Access: Maximize bus, rail, and water transit use by providing direct, convenient, safe, clear, and attractive connections to stations.

Increasing the attractiveness of transit will help to reduce traffic congestion, promote a sustainable mode of transportation, and reduce the need for parking facilities.

Sustainability

10. Sustainability: Create a sustainable community on a broad level by achieving principles 1 through 9 above; and, by incorporating sustainable building and land development practices, as well as social sustainable elements.

Overarching Principle

The site plan for each subdistrict should meet these principles and should not inhibit or negatively influence the development of other subdistricts in a manner that also meets these principles.

4 LAND USE & URBAN DESIGN

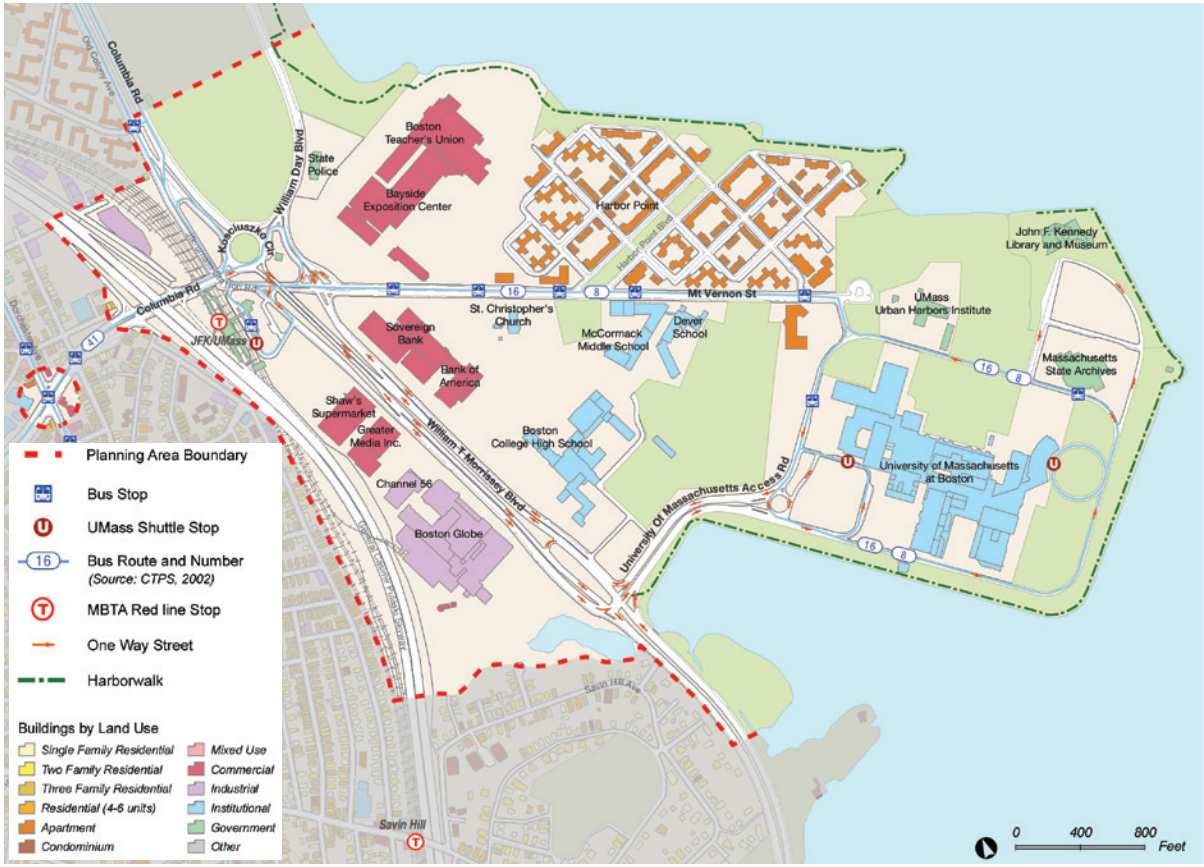
This chapter describes existing land use and urban design conditions, summarizes current development plans by public institutions and private entities, and sets forth a vision and plan for future development of Columbia Point.

The Master Plan projects buildout over a 20 to 25 year time horizon. Because the real estate market and other conditions can shift significantly over this timeframe, the Land Use Plan is intentionally broad and flexible so that it may serve to support a clear vision of the future while at the same time accommodating inevitable change.

Background

Land Use

Columbia Point is home to major institutional and public uses, including UMass Boston, Boston College High School, the JFK Presidential Library and Museum, the Massachusetts State Archives and Commonwealth Museum, St. Christopher's Church, the JFK/UMass MBTA Station, the Boston Teachers Union, and the McCormack and Dever Schools. UMass Boston is currently developing a master plan which calls for significant changes and expansion to the campus. The UMass Boston



Existing land use on Columbia Point.

Building Authority is also helping develop the new Edward M. Kennedy Institute for the United States Senate adjacent to the JFK Presendial Library and Museum. For its part, the JFK Presidential Library and Museum is undergoing the construction of a two-story, 30,000 square foot addition, which will be used for archival storage. The other institutions have no expansion plans at the present time.

The Land Use & Urban Design Chapter focuses on specific properties within the Study Area that have some possibility — if not an already stated goal — of redeveloping during the timeframe of the Master Plan. Properties for which owners have either filed redevelopment plans or expressed a strong interest in so doing include the Synergy parcel and the JFK/UMass MBTA Station air rights parcel. UMass Boston recently purchased the former Bayside Exposition Center property and intends to commence a planning process for the site in 2011. Synergy has begun developing plans for a mixed-use retail, office and residential project on the site of the existing Shaw's Supermarket and adjacent parcels. Meanwhile, the MBTA is interested in leasing the ground and air rights over the JFK/UMass MBTA Station for development and had issued an Invitation to Bid (ITB) prior to the start of this Master Plan project. The ITB was later suspended pending the completion of this Master Plan. Although the owners of Sovereign Bank and the Boston Globe sites have no plans to redevelop their parcels at this time, given the constantly shifting nature of the real estate market the Master Plan addresses what might happen on these parcels should the owners' plans change. The location of all of these parcels - collectively referred to as the "redevelopment parcels" - is shown on page 3.

It turns out that all of the redevelopment parcels are located within ¼ to ½ mile of the JFK/UMass MBTA Station. The close proximity of these large parcels to a multi-modal transit station provides a unique opportunity for transit-oriented development (TOD). TOD takes maximum advantage of access to transit by concentrating a varied mix of complementary land uses next to the transit station and designing the physical environment to facilitate and encourage walking, bicycling, and transit use.

The breakdown of existing land use at Columbia Point is shown on Table 4.1 and illustrated on the plan on the previous page. Educational uses represent a disproportionately high percentage of total building square footage and retail uses represent an exceptionally low percentage. Surface parking takes up 24% of the developable land area. Approximately 25% of the total land within the study area is open space.

The most notable aspect of land use within Columbia Point is the segregation of uses. Although the Study Area includes a variety of land uses, they are spatially very separate - educational and cultural uses are located on the southern end of the peninsula, residential uses are all located in the middle, and commercial uses are located at the northern end along Morrissey Boulevard. Ideally, these uses would be integrated, encouraging significant pedestrian activity between uses.

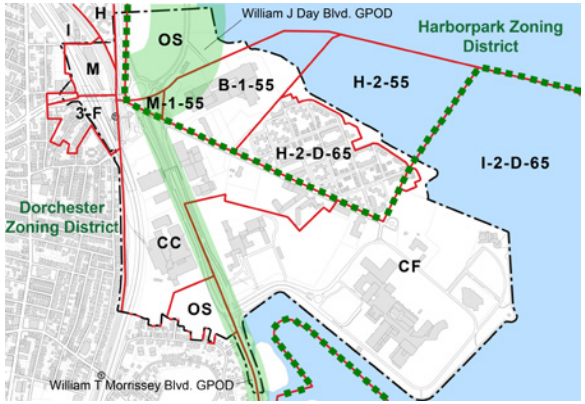
Use	%Total Building SF
Educational	37%
Residential	28%
Office	22%
Bayside Expo	5%
Hotel	3%
Cultural	4%
Retail	2%
Industrial	0.4%

Table 4.1: Existing Land Use.

This land use pattern leads to a lack of vitality on the streets - there are very few people trying to walk between land uses; residents at Harbor Point and the Peninsula, students and faculty at UMass Boston, and visitors to the JFK Presidential Library and Museum do not walk to neighborhood shops and restaurants because Columbia Point lacks these amenities.

Existing Zoning

As shown on the Existing Zoning Map on the following page, Columbia Point is located within two zoning districts; within these are six zoning subdistricts. Harbor Point and the Bayside Expo



Existing Zoning Map.

Zoning Subdistrict		Max. FAR	Max. Building Height
CF	Community Facilities	2	65'
CC	Community Commercial	2	45'
B-1-55	Business (General)	1	55'
H-2-D-65	Residential (Apartment)	1	65'
M-1-55	Manufacturing	1	55'
3-F	Residential (3 Family)	.05	35'

Table 4.2: Existing Allowable Heights and FARs by Zoning Subdistrict.

Center are in the Harborpark Zoning District, while the remainder of the Study Area is within the Dorchester zoning district. In addition to defining allowable uses, zoning regulations control density through maximum allowable Floor Area Ratio (FAR) (ratio of gross floor area of a structure to the total area of the lot) and building height. These redevelopment parcels are shown on the following page. The general parameters of the zoning regulations are summarized in Table 4.2. Appendix B provides a brief description of the Columbia Point rezoning process, which was completed in 2002.

Issues & Opportunities

Land Use

As discussed above, the existing eccentric land use mix and separation of uses limits the potential synergy between uses and results in an environment lacking in vitality. This Master Plan represents the opportunity to change that land use mix into one that creates a lively pedestrian-friendly environment and a vibrant district in which people can live, work, shop, and recreate.

Market Analysis

For a Master Plan to be implementable, it must be based on the realities of the market and well planned public investment. Conducted in Fall 2008, the market analysis supports the realization of the Master Plan's vision of an active, mixed-use district. The conclusions are summarized below.

Competitive Advantages

- The MBTA Red Line and Interstate 93 (I-93) provide excellent access to the Study Area.
- Direct waterfront access and water views are amenities that add value to the properties.
- UMass Boston, the JFK Presidential Library and Museum, and the proximity to Downtown Boston and City of Cambridge via the MBTA all strengthen the demand for new development.
- Columbia Point is a competitive alternative to the South Boston Waterfront (better value) and Marina Bay in Quincy (better accessibility).

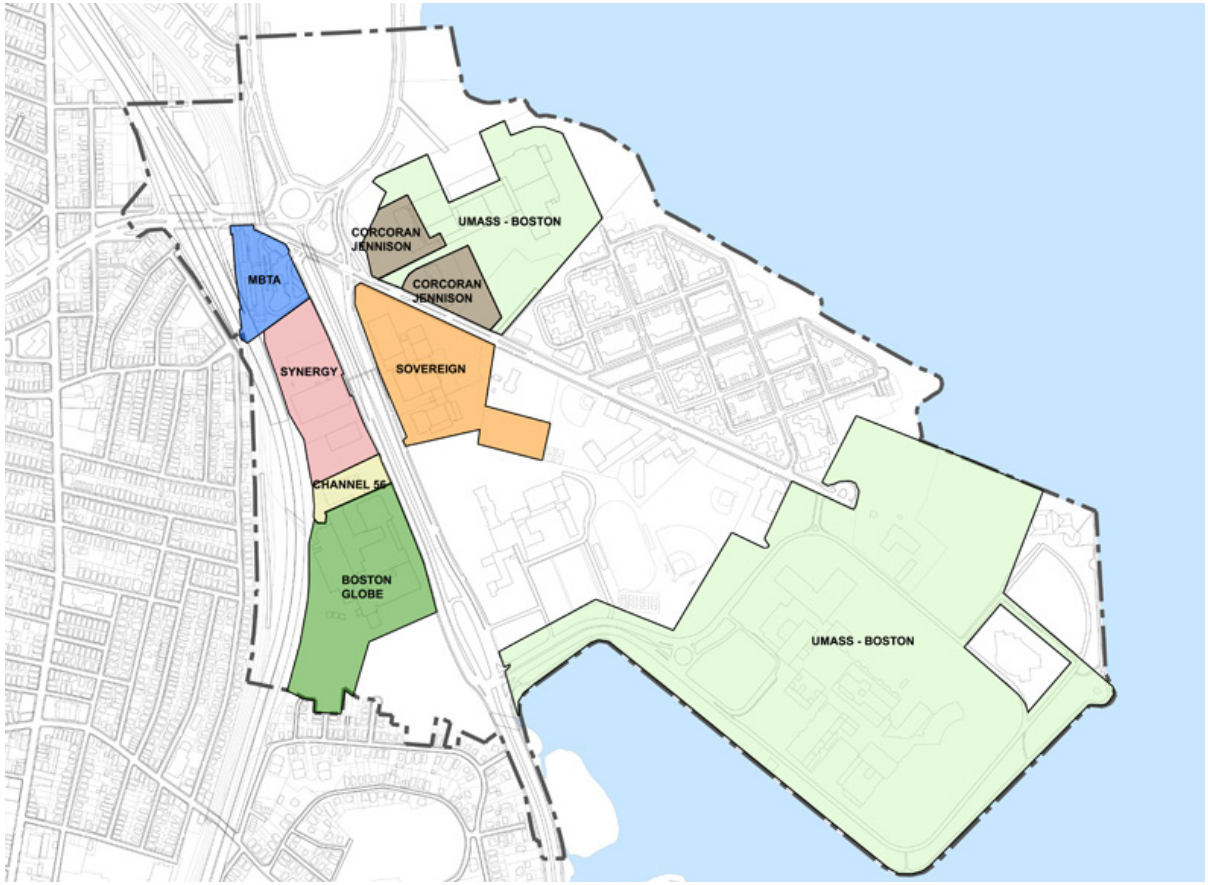
Significant Challenges

- The relative isolation of the district from the rest of the City.
- Traffic congestion at vehicular gateways.
- The vulnerability of the location in a volatile marketplace.

The conclusions with regard to specific uses are summarized below.

Office

- The market is improving - vacancy rates are under 10%.
- Rent levels will not support speculative office



Potential redevelopment sites.

development, but a build-to-suit strategy would be viable.

Retail

- The location will capture additional demand, and to succeed, must capture demand from outside the Study Area.
- Sufficient parking to serve shoppers from outside the Study Area will be important. At the same timing, parking strategies must serve the ultimate goals for sustainable, transit-oriented development.

Residential

- MBTA and potential acess to the waterfront make the Study Area a competitive residential location.
- The rental market is stronger than the condominium market.
- A mixed-use program will make residential uses more competitive with other neighborhoods.

Hotel

- Excellent MBTA and highway access improve the viability of hotel uses.
- Revenues and occupancy are relatively stable, but the current market is a somewhat volatile.
- Hotel use would benefit from mixed land uses.

Biotech and Life Sciences

- Excellent MBTA access improves the Study Area's competitiveness for these uses.
- Employees want to be close to a vibrant, mixed-use district, similar to that being proposed for the Study Area.
- These uses tend to develop in clusters – Columbia Point would compete with existing

Colliding grids (top) and superblocks (bottom).

and proposed clusters in other locations in and around Boston (*e.g.*, Kendall Square, Crosstown, Boston Marine Industrial Park).

Recommendations to Reduce Market Risk

- Leverage the site's waterfront location and good access.

I-93, the MBTA tracks, Morrissey Boulevard, and large buildings all create visual and/or physical barriers.

- Allow adequate density and height.
- Allow for a broad mix of uses to generate synergies between uses.
- Ensure quality design and construction.
- Provide straightforward and predictable permitting.

Urban Design

Since the construction of the Calf Pasture Pumping Station in 1883, the Columbia Point peninsula has been altered to accommodate each new project, with little thought given to the character and environment of the peninsula as a whole. Although the natural beauty of the Columbia Point setting in Dorchester Bay and its views to Boston and Boston Harbor are spectacular, existing development patterns have created a number of issues.

Individual uses/developments on Columbia Point are disconnected from each other, and many of these projects further cut Columbia Point off from the adjacent Dorchester neighborhoods. The specific issues outlined below all relate to connections:

Colliding Grids

The two major roads within the Study Area are Morrissey Boulevard and Mt. Vernon Street. These two roads meet at an acute angle near Kosciuszko Circle, creating two conflicting street grids. Buildings at Harbor Point are aligned on yet a third grid, with the UMass Boston campus creating a fourth grid. The result is that development occurs at varying, unplanned angles, making through connections difficult. These conflicting street grids impair both visual and physical connections.

Superblocks

The Study Area is now broken into large "superblocks," rather than smaller, more pedestrian-scaled blocks. These superblocks greatly limit pedestrian and vehicular circulation through the Study Area, both within individual parcels as well as between parcels. In addition, the lack of through streets greatly limits visual connections through the site.

Barriers

I-93 creates a significant visual and physical barrier between the Dorchester neighborhood and Columbia Point, while Morrissey Boulevard, with

I-93 and the MBTA tracks create a barrier from the from the Sydney Street neighborhood (top). View of the harbor, South Boston and the downtown skyline (bottom) from the Harborwalk.

fast moving vehicular traffic and a guardrail along the center, creates a physical barrier. The alignment of buildings along different grids creates numerous visual barriers both to the water and between blocks within Columbia Point.

Views

Columbia Point has unparalleled water views to the harbor and to the Boston skyline, and opportunities for views to several beautiful historic iconic buildings such as the Calf Pasture Pumping Station and the JFK Presidential Library and Museum. Unfortunately, few of the existing buildings are sited to take advantage of the magnificent water views, and potential views are frequently blocked by existing buildings.

Pedestrian Environment

Pedestrian issues include poor gateways into Columbia Point, an unpleasant pedestrian environment, and compromised connections within Columbia Point.

Gateways

- Old Colony Avenue, Columbia Road, William J. Day Boulevard, and Morrissey Boulevard provide pedestrian and vehicular access to the Study Area. These roadways converge either at or near Kosciuszko Circle, creating a gateway at the north end of the Study Area. Unfortunately, the complex roadway geometry, highway on- and off-ramps, and numerous disconnected pedestrian crossings together create an inhospitable pedestrian environment.
- The JFK/UMass MBTA Station is an important gateway for visitors arriving by transit. Riders heading to Columbia Point can exit the station either at Columbia Road, which puts them on a viaduct leading down into Kosciuszko Circle, or at the corner of Morrissey Boulevard and Mt. Vernon Street. In both cases, views down Morrissey Boulevard and Mt. Vernon Street are obstructed, and pedestrian routes are difficult and unclear. Riders heading to the residential neighborhood to the west must walk under the I-93 viaduct and through a parking lot to access Sydney Street.
- I-93 and the MBTA railroad tracks create a barrier between the Dorchester residential neighborhoods to the west and Columbia Point, resulting in only three points of entry to Columbia Point between Columbia Road and Savin Hill (a distance of about ¾ mile).

Pedestrian Infrastructure

- With the exception of the Harborwalk, sidewalks and the few existing paths are generally neglected, underused, and disconnected. For the most part, sidewalks

Crossing from Mt. Vernon Street to JFK/UMass MBTA Station is daunting for pedestrians.

within Columbia Point do not provide pedestrian amenities (*i.e.*, benches, pedestrian scaled lighting, plantings). In addition, existing sidewalks, pedestrian bridges, and underpasses are deteriorating, unattractive, and in unfavorable condition.

Opportunities

Columbia Point offers many significant and exciting opportunities for transformation over the next 20 to 25 years:

- Access to Dorchester Bay and the Harborwalk, both physical and visual, offers tremendous aesthetic and recreational value and amenity.
- The availability of large parcels of land within such close proximity to the JFK/UMass MBTA Station offers a unique opportunity to transform Columbia Point and plan for walkable, vibrant, mixed use, transit-oriented development.
- The presence and physical proximity of some of Boston's most venerable institutions offers the potential of an exciting synergy between these institutions. Improving physical connections would greatly enhance this potential.
- The opportunity to reconnect Columbia Point to its neighbors in Savin Hill and South Boston.

Recommendations

Principles

Land Use and Placemaking: Provide a mix of residential and commercial uses and activities at the northern gateway of Columbia Point to create a "sense of place," with active street life, safety, convenience, and amenities.

Open Space: Develop a public open space system of active and passive parks, squares and streets, connected both with each other and to the larger open space system.

Connectivity: Create strong visual, pedestrian and vehicular connections between Columbia Point redevelopment parcels and between Columbia Point and the adjacent neighborhoods.

Views: Maximize views from points throughout Columbia Point to Boston Harbor, Dorchester Bay and the Downtown Boston skyline, as well as to notable Columbia Point landmarks such as the Calf Pasture Pumping Station.

Block and Street Pattern: Develop a familiar street and block pattern, with attractive streetscapes, active street frontages and buildings that reinforce the scale of the streets and blocks.

Pedestrian and Bicycle Access: Create a pedestrian and bicycle network that encourages walking and biking both for recreation and daily transportation.

Transit Access: Maximize bus, rail and water transit use by providing direct, convenient, safe, clear, and attractive connections to stations.

Land Use Policies

Mix of Uses: The land use mix should create a vibrant, mixed-use, lively community, with 18-hour activity and street life. Residential, office, retail, hotel, life sciences, and open space uses are integrated throughout the Study Area to promote pedestrian activity, allow shared parking, and reduce auto dependency. All of these factors contribute to the sustainability and vibrancy of the neighborhood.

	Total Units or SF	%Total Bldg. Area
Residential Units	4,100	72.3
Hotel Rooms	410	4.3
Office SF	833,000	14.7
Retail SF	492,500	8.7
Total SF	**5,671,500**	**100**
Parking Spaces	6,130	

Table 4.3: Potential Development on Redevelopment Parcels

Community Facilities: In addition, there is a strong desire for community facilities, such as indoor recreation facilities or a community center. These uses should be incorporated into the land use mix for individual development projects to support the existing and new residential population.

Significant Residential Share: Although the final land use mix built on any particular parcel, and throughout the Study Area, will be a function of market factors and changes in land use demand over time, it is strongly recommended that approximately 65 to 70% of new building square footage be in residential use, to create a strong, diverse residential population that can enliven the district and help to support non-residential uses. This mixed-use with an emphasis on residential use also helps to reduce traffic impacts. Table 4.3 shows the breakdown of new uses shown in the illustrative plan.

Parcels are designed to be flexible enough to accommodate a variety of land uses and uses shown on the illustrative plan could change as parcels are developed. For example, buildings could change from residential to commercial, and in many places, commercial could be retail, office or life sciences. Locations where retail is strongly recommended to create lively streets are indicated in the discussion of individual redevelopment parcels.

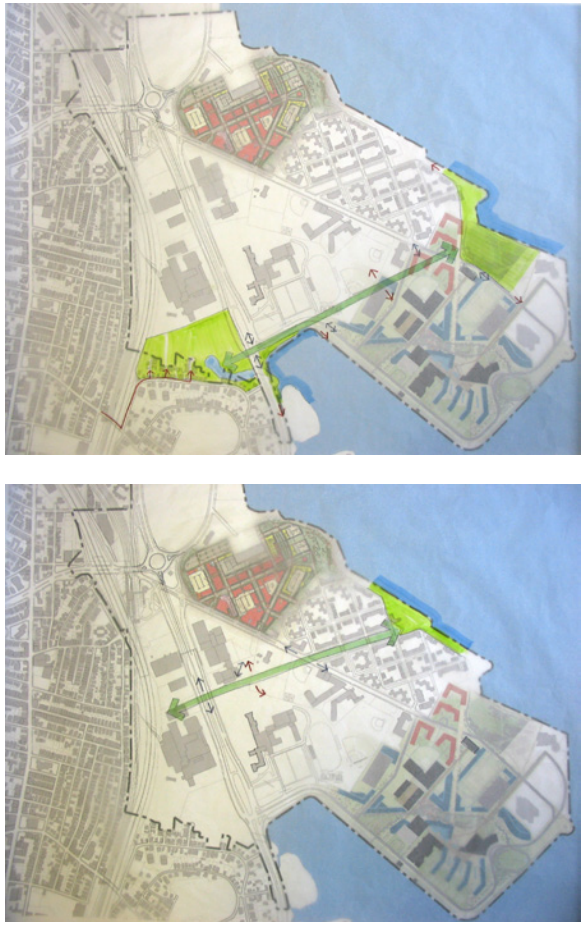
Diverse Housing: As discussed in Chapter 5, Housing, residential development should provide housing opportunities for a diverse population, including a mix of unit types (*e.g.*, townhouses, multifamily dwellings in buildings of varying heights, senior housing); sizes (*e.g.*, studios and one to four bedroom units); rental and ownership units; and affordability.

The Plan

Framework

The Master Plan is developed around a framework of open space and vehicular and pedestrian circulation connections and improvements. These improvements are summarized below and described in more detail in the following sections of this chapter.

The diagrams at right illustrate the key components of this initial framework:



Expanded Calf Pasture and Patten's Cove, linked with a multi-use path (top). Extension of Harbor Point mall as a multi-use path (bottom).

Multi-use path linking UMass Boston campus to the new gateway park and JFK/UMass MBTA Station and improved connections to the Savin Hill and Sydney Street neighborhoods (top). New roadway network, separating local and through traffic (bottom).

1. Expand DCR's Patten's Cove Park as part of the potential redevelopment of the Boston Globe site, improve/expand Calf Pasture as part of the development of the UMass Boston Master Plan, and connect these two destinations with a multi-use path.
2. Provide a continuous pedestrian/bicycle connection and major visual corridor from the Harbor Point mall to new development on the west side of Morrissey Boulevard.
3. Provide a multi-use path from the center of the UMass Boston campus, north through the Boston College High School playing fields, to a new gateway park across from the JFK/UMass MBTA Station.
4. Separate local and regional traffic and provide new connections to allow the narrowing of Morrissey Boulevard and the potential elimination of "the Chute" connecting Morrissey Boulevard to Day Boulevard.

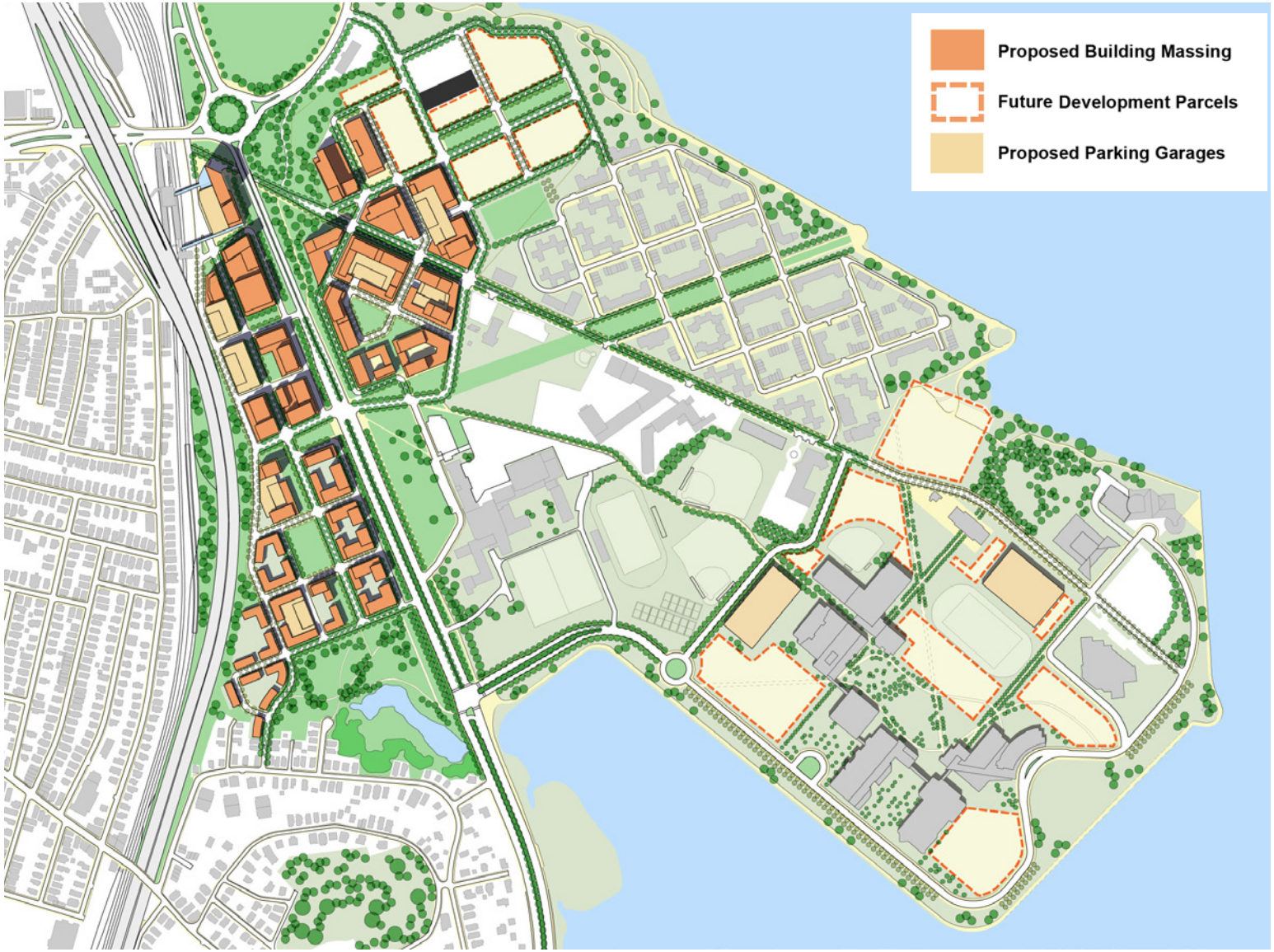
The final Illustrative Plan shown on the following page includes a number of open space and transportation-related recommendations detailed below.

Open Space

The open space improvements described below are in addition to new open space recommendations for each of the redevelopment parcels (described later in this chapter and highlighted on the figures on pages 74 and 76 in Chapter 7, Open Space, Recreation & Watersheet Activation).

4.1. Provide attractive, useable, active, and passive open space to serve both existing and new residents and visitors to the area.

- 4.1.1. Create internal parks within redevelopment parcels, including the Bayside, Synergy, Boston Globe, and Sovereign Bank sites. Developers should strive to include play lots, courts, and fields, where possible.
- 4.1.2 Maintain and preserve all new parks developed on privately owned land through Chapter 91 licensing, Article 80 approvals, zoning approvals, and/or conservation restrictions, as appropriate.
- 4.1.3 Expand DCR's Patten's Cove Park as part of the potential redevelopment of the Boston Globe site.
- 4.1.4 Improve/expand Calf Pasture as part of the development of the UMass Boston Master Plan.
- 4.1.5 Create a new gateway park adjacent to the Bayside and Sovereign Bank parcels, across Morrissey Boulevard from the JFK/UMass MBTA Station to create a dramatic and inviting entry



Illustrative Plan.

into the district. The rectangular park, proscribed on two sides by buildings on the Bayside and Sovereign Bank parcels, is divided into two triangles by the northern end of Mt. Vernon Street (see 7.3.4 below). The park is shown with a paved area adjacent to buildings on the Bayside and Sovereign Bank parcels to provide outdoor seating or gathering areas for adjacent uses. The interior of the triangles has planting beds with raised seating edges and fountains.

Because the existing northbound Morrissey Boulevard northbound frontage road and "the Chute" both cross the park, it would not be possible to establish this gateway park until circulation issues around Kosciuszko Circle have been addressed and resolved. To allow development of the park and adjacent buildings to move forward, it is proposed that, in the interim, the existing northbound frontage road (north of the point where the mainline Morrissey Boulevard ramp to Kosciuszko Circle begins to rise) be narrowed to two lanes and relocated as close to the Morrissey Boulevard embankment as possible.

Similarly, in the interim, "the Chute" would be narrowed to two lanes and realigned, and the intersection of the Morrissey Boulevard frontage road and "the Chute" at Mount Vernon Street would be simplified and reconfigured in a more compact layout. In the long term, when the frontage road and "the Chute" are no longer needed for vehicular access, they will become a multi-use path connecting Morrissey Boulevard, Mount Vernon Street and Day Boulevard.

4.1.6 Provide a publicly available indoor facility for community meetings and cultural events (such as dances, small festivals and community plays) in a convenient, accessible and central location such as the Synergy or Bayside sites.

4.1.7 Continue and expand programs to make athletic facilities at UMass Boston and Boston College High School available for community use when not in use by these institutions. This shall include asking private developers to contribute financially to support such programs. Currently, Boston College High School rents space to local groups and organizations for a fee. UMass Boston has a similar arrangement; periodically, they allow use of facilities by community groups or organizations and charge a nominal fee for security and personnel.

4.2 Provide physical and visual links between key open spaces and across Columbia Point to Boston Harbor.

4.2.1 Create a direct physical and visual link from DCR's Patten's Cove Park to the Calf Pasture by realigning Bianculli Boulevard and designing it to incorporate a sidewalk (at a minimum of 7 feet wide) and a 12-foot off-road multi-use path in each direction.

4.2.2 Create a new main street through the Bayside site, connecting pedestrians from Mt. Vernon Street to the Harborwalk.

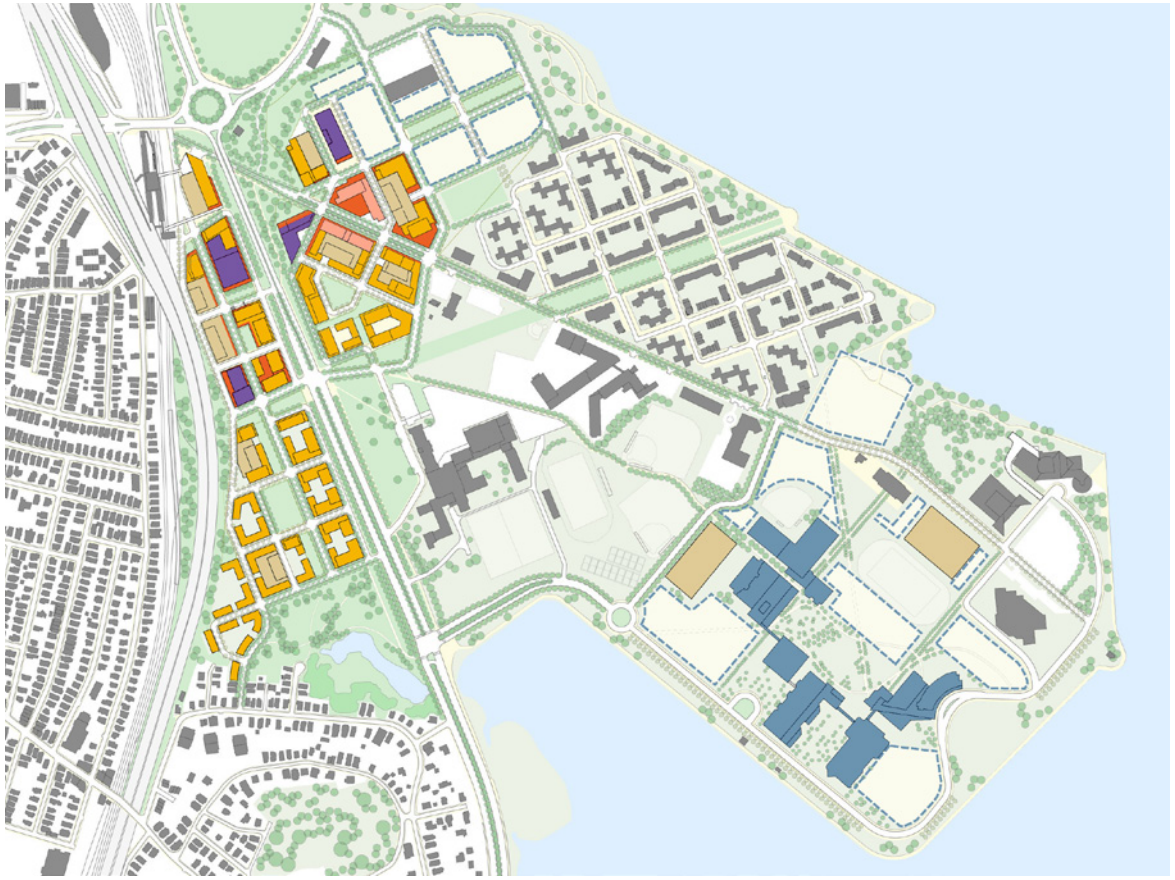
4.2.3 Create a new main street through the Synergy site, which ultimately connects to the park/square in the Boston Globe site.

4.2.4 Create useable open space link along the Bayside/Harbor Point border, which at a minimum provides for visual and pedestrian permeability with the ultimate goal of offering street connections.

4.2.5 Create a green link between the new central green space on the Boston Globe parcel and Patten's Cove.

4.2.6 If the Boston Public Schools sites are redeveloped, extend the Harbor Point mall as a pedestrian/bicycle and visual connection from Morrissey Boulevard to the harbor.

4.2.7 Improve connections to Joe Moakley Park.



Land use plan.

4.3 Create a system of pedestrian and bicycle paths throughout Columbia Point, linking open spaces, as well as other destinations.

4.3.1 Provide a pedestrian/bicycle link ("North-South Path") from the JFK/UMass MBTA Station through a new plaza (described above), continuing through the Sovereign Bank site and then on between the Boston College High School playing fields to the proposed central green space on the UMass Boston campus. This link would also provide an attractive connection to Boston College High School, UMass Boston, the JFK Presidential Library and Museum, and the planned Edward M. Kennedy Center for the Study of the Senate.

4.3.2 Work with state agencies to redesign Morrissey Boulevard to reduce the scale of the paved area and improve

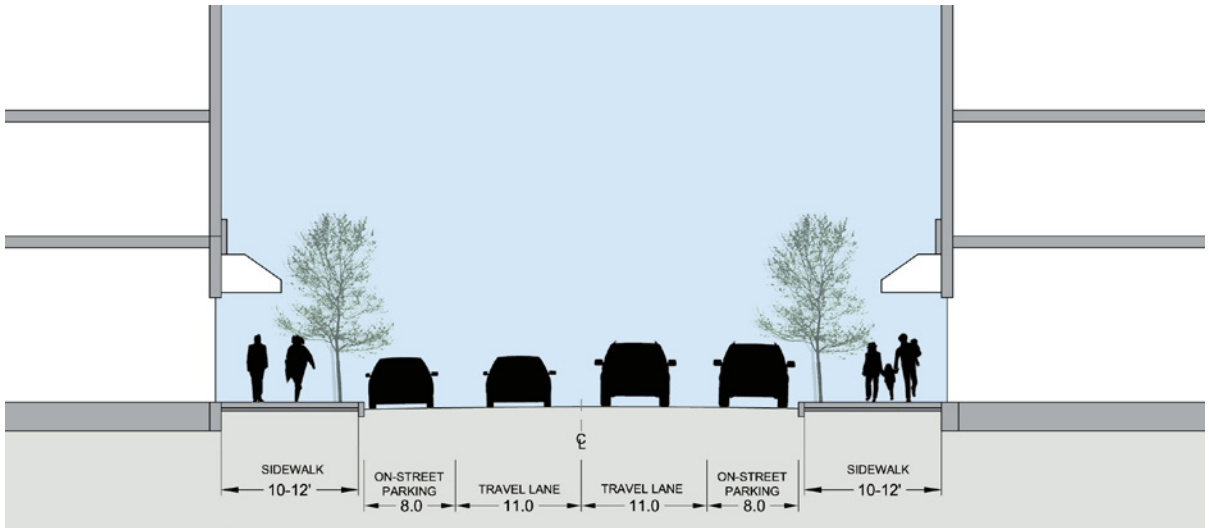
Section through Morrissey Boulevard illustrating wide sidewalks, frontage roads with bicycle lanes, and on-road bicycle lanes.

the pedestrian/bicycle environment. A number of alternatives for modifying Morrissey Boulevard were explored as part of the Master Plan planning process, most of which involved reducing the paved area devoted to travel lanes and increasing the amount of usable open space, with the ultimate goal of creating a true boulevard. These alternatives are shown in Appendix C. Under the Master Plan, the existing roadway is reduced to three travel lanes in each direction (plus an additional turning lane at major intersections), an on-road bicycle lane and a one-lane local access road in each direction. The local access road (26 feet wide) is shown with one 8-foot on-street parking lane and one 18-foot lane that can be paved to indicate a vehicular lane and a bicycle lane. The combined 18 feet allows for the passage of emergency vehicles. Alternatively, bicycle paths could be situated in the open space medians between the local access roads and main travel lanes. Where Morrissey Boulevard rises to meet Kosciuszko Circle at the northern end of the Study Area, the roadway is reduced to two lanes with with a frontage road only on the southbound side. Until Morrisey Boulevard is re-designed, work with state agencies to explore restriping Morrisey Boulevard to include bicycle lanes.

View of redesigned Morrissey Boulevard facing north, with new multi-use paths and bicycle lanes. Synergy development is shown at left, and new development on the Sovereign Bank parcels is shown to the right.

4.3.3 Organize new development along an expanded street grid that provides more convenient pedestrian and bicycle routes along pedestrian-scaled, active, tree-lined streets and bicycle lanes. All of the roadways are shown with wide (7 to 10 feet, depending on location and anticipated pedestrian activity) tree-lined sidewalks. To the maximum extent feasible, maintenance of street trees shall be the responsibility of each adjacent property owner. On- and/or off-road bike lanes are included on almost all roads with the exception of the smaller roads internal to specific developments. In addition to street trees and tree lawns shown on the illustrative plan, all of the streets should have decorative pedestrian scale lighting. With the exception of smaller internal residential streets, all of the streets should have attractive street furniture including benches, planters and trash receptacles.

4.3.4 Redesign Mt. Vernon Street (see section on page 28) with generous tree-lined sidewalks and a cycle track in each direction. At its northern end, as it passes between through the final block of development on the



Section of typical two-way internal street with 7' sidewalks, street trees and on-street parking.

Bayside and Sovereign Bank parcels and through the new gateway park to the Morrissey Boulevard overpass, it is recommended that special paving be used to indicate the pedestrian focus of the street. The existing Morrissey Boulevard underpass should be improved with lighting and public art to create a much more pedestrian friendly and inviting connection to the JFK/UMass MBTA Station.

4.3.5 Create a new multi-modal path (at a minimum of 12 feet wide) from Mt. Vernon Street to the Harborwalk through the open space located along the Bayside/Harbor Point border. This path should be a continuation of the multi-modal paths along the new street situated between the Sovereign Bank site and Boston College High School, extending from Morrissey Boulevard to Mt. Vernon Street.

Examples of attractive underpass treatments using lighting and paint (top) and public art (bottom).

4.4 Use open space to provide orientation for both pedestrians and drivers.

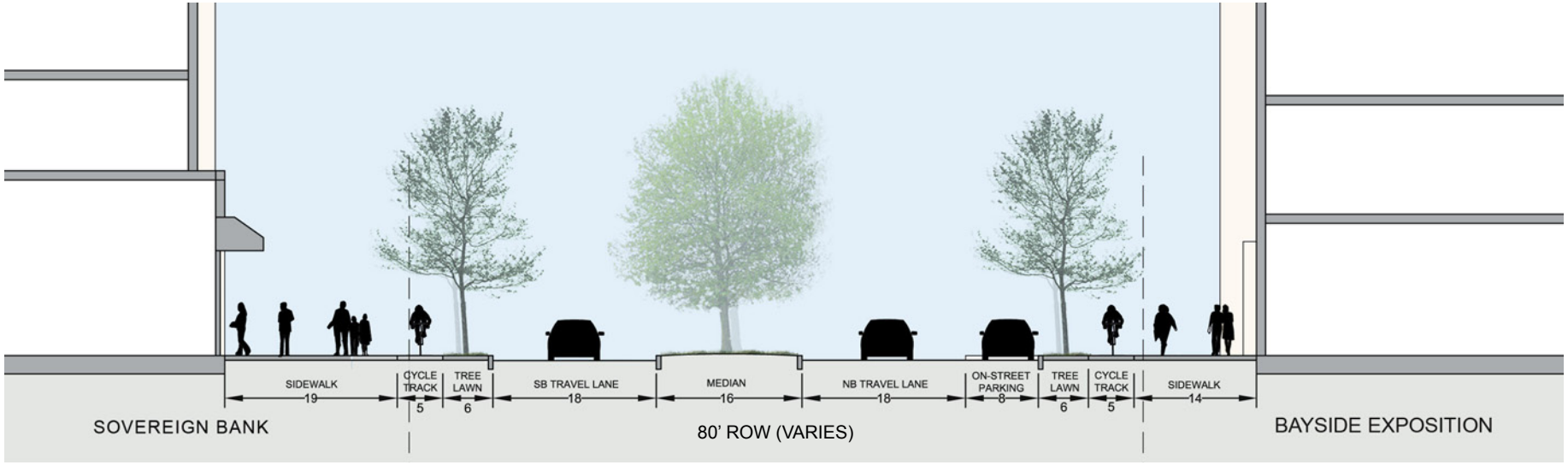
7.4.1 Provide visual connections from a new central green space on the Boston Globe site to the JFK/UMass MBTA Station, and to Boston College High School.

4.4.2 Provide a view from a new central green space on the Sovereign Bank parcel to Boston College High School and in the future, any new development on the Bayside parcel by UMass Boston.

4.5 Provide multiple pedestrian, bicycle and vehicular connections where appropriate to neighboring communities, such as Sydney Street, Crescent Avenue, and Savin Hill.

4.5.1 Provide improved pedestrian connection(s) from the Sydney Street neighborhood (over the railroad tracks and under I-93) to the JFK/UMass MBTA Station and through the station to Morrissey Boulevard. These improvements should incorporate Crescent Avenue, which provides an important connection out to Dorchester Avenue and beyond.

4.5.2 Extend Wave Avenue one way north to provide a continuous pedestrian and bicycle route from Savin Hill to Patten's Cove; to potential future open space on the Boston Globe parcel; to multi-use paths on Morrissey Boulevard; and to the JFK/UMass MBTA Station via the extension of Old Colony Avenue.



Section through Mt. Vernon Street illustrating wide sidewalks, one-way cycle track on both sidewalks, on-street parking on the southbound side, and landscaped median. South of New Street, the right-of-way narrows and there is no landscaped median.

Vehicular Circulation/Connections

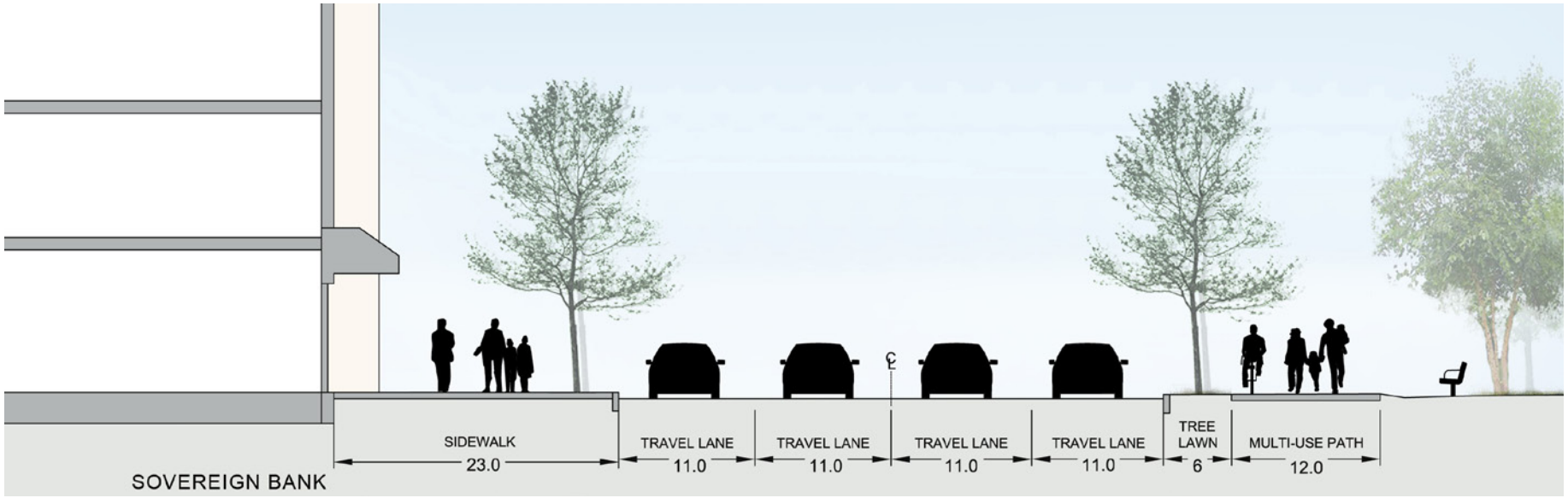
In addition to creating a more regular grid system within each of the individual redevelopment parcels, three key vehicular connections are recommended (see diagram on page 63).

4.6 A new north/south roadway extending Old Colony Avenue south through the JFK/UMass MBTA Station, Synergy, Channel 56, and Boston Globe parcels. In addition, a new north/south secondary road against the I-93 right-of-way would provide service vehicle access through these parcels.

4.7 A new road (referred to as New Street) from the north/south road adjacent to I-93, crossing Morrissey Boulevard and Mt. Vernon Street and then heading north through the Bayside parcel to connect to Day Boulevard (see section). The alignment shown on the illustrative plan exhibits the preferred approach to the intersections at both Morrissey Boulevard and Mt. Vernon Street.

These roads allow the narrowing of Morrissey Boulevard and the potential elimination of "the Chute" connecting Morrissey Boulevard to Day Boulevard.

4.8 A realigned Bianculli Boulevard at the UMass Boston entrance to connect as a two-way road to the southern end of Mt. Vernon Street, and a two-way UMass Boston perimeter road, continuing northwest

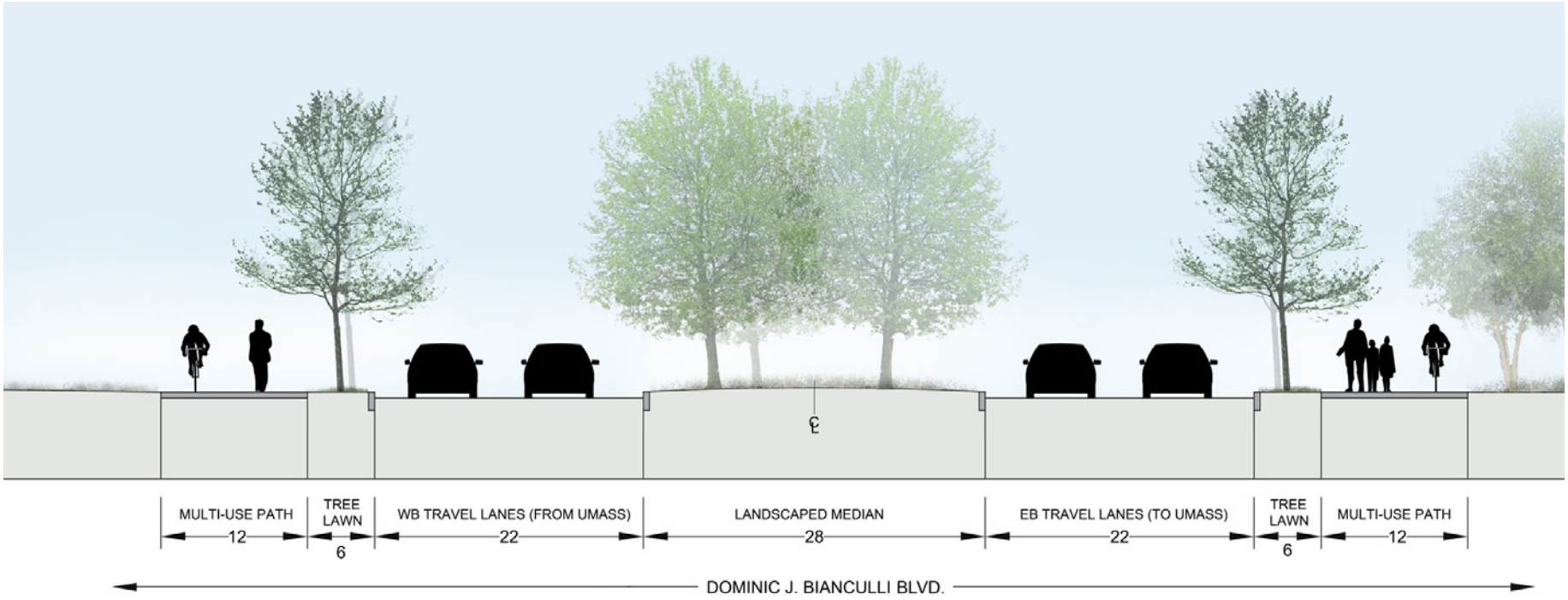


Section through New Street illustrating wide sidewalks, two travel lanes in each direction, and a 12' two-way multi-use path on the right (new buildings on Sovereign Bank parcel at left and Boston College High School on right). Alternatively, the road could be designed with two 7' one-way bike paths with separate sidewalks. The dotted line in the diagram above illustrates an alternative alignment that avoids the existing buildings on the Sovereign Bank parcels.

between the Massachusetts State Archives and Commonwealth Museum and the JFK Presidential Library and Museum parking lot to connect to the southern end of Mt. Vernon Street. These changes would provide a direct connection to Mt. Vernon Street, the Massachusetts State Archives and Commonwealth Museum, the JFK Presidential Library and Museum and the planned Edward M. Kennedy Center for the Study of the Senate from the southern end of the Study Area, as well as better circulation around the UMass Boston campus and better access to the Harborwalk.

Area-wide Design Guidelines

New developments within the Study Area should adhere to the following design guidelines, which were used in developing the conceptual site plans for each of the redevelopment parcels.



Section through Bianculli Boulevard near the intersection with Morrissey Boulevard. The diagram shows two 12' multi-use paths. Alternatively, these could be separate 7' bicycle paths with 5' sidewalks.

Street Grid

- New internal streets should be introduced to create a grid system that relates to the larger street network, and establishes pedestrian-scaled blocks (illustrated at approximately 200 feet by 300 feet).

Building Placement

- Buildings should be parallel to the streets on which they face, to create a continuous street wall and support the street grid, which would provide orientation.
- Each commercial use or tenant should have an individual entrance from the street to create more on-street pedestrian activity. The primary entrance(s) for every building should be from the street, rather than from parking areas. At a minimum, functional building entries should occur at an average of 75 feet along non-residential or mixed-use buildings.
- Buildings should be sited with minimal setbacks to create a continuous street wall.
- A minimum of 50% of all ground floor residential units should have an elevated finished floor a minimum of 24 inches above the sidewalk grade, to provide for "front stoops."

Active Streets

- Ground floor retail or other active uses, such as community facilities, are encouraged in commercial and mixed-use buildings and parking garages to create more pedestrian activity and add to the vibrancy of the street life.
- Outdoor seating areas for restaurants, as well as small plazas/gathering areas, are encouraged to increase street life.
- Ground level non-residential space should have clear glass on a minimum of 60% of the façade between 3 and 8 feet above grade and no blank walls (without doors or windows) longer than 50 feet.

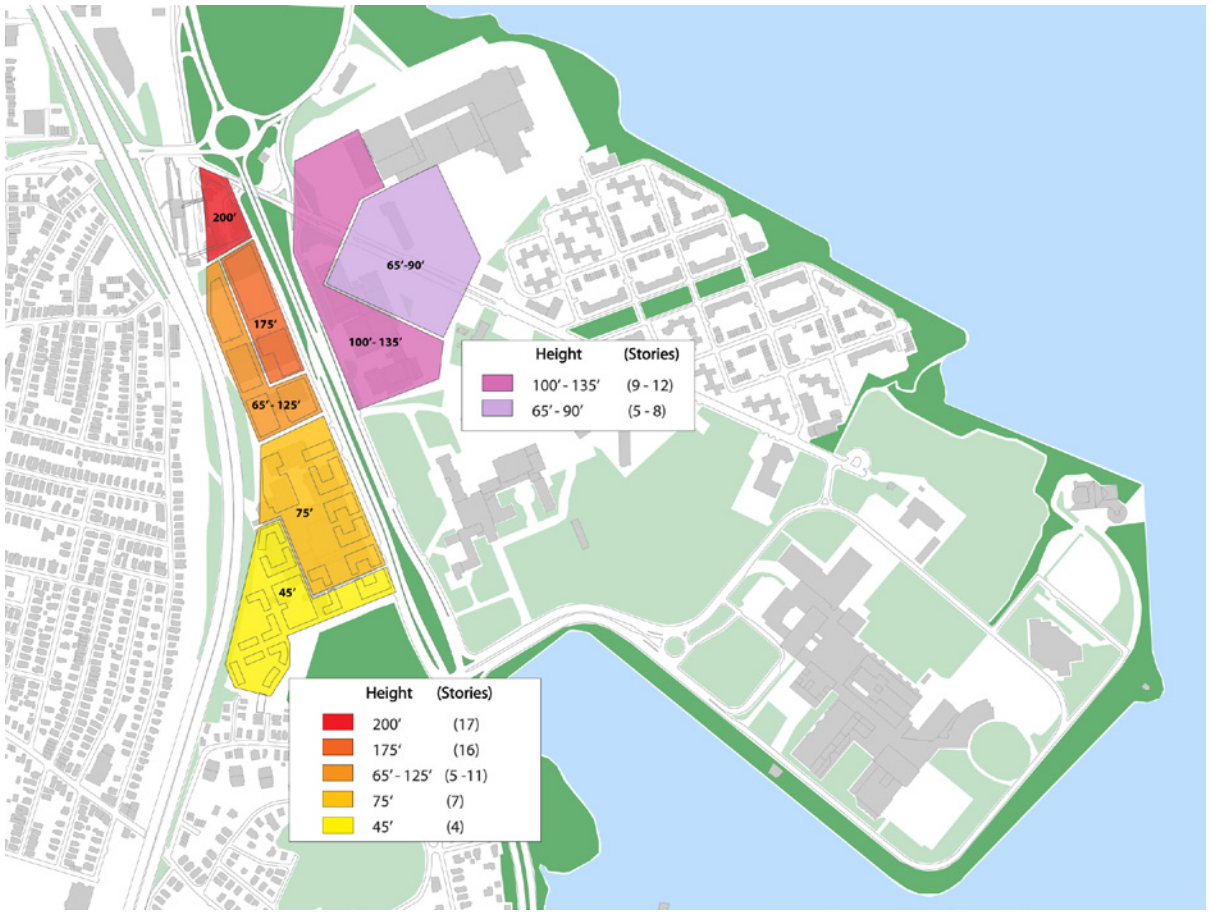
Massing/Height

- In general, density and height should increase within close proximity to the JFK/UMass MBTA Station to encourage increased transit use, and thereby reducing vehicular demand and the need for parking.
- Buildings heights should provide orientation, with taller buildings at corners to indicate important intersections.
- Cornice lines should reinforce the street line and vary in height and design to add variety to long, continuous streets.

The top photo illustrates buildings with minimal setbacks defining the street wall, frequent entrances, and ground floor retail with predominately glass facades. Taller buildings at corners, as shown here along Exeter Street in Back Bay (bottom), aid in orientation.

Aerial view from the north illustrating varied heights, taller buildings at corners and continuous street walls. The tallest buildings are located near JFK/UMass MBTA Station to facilitate access to transit.

- Building heights should be varied to create interest and to allow sunlight to penetrate. Specific height guidelines for individual redevelopment parcels are discussed below. Wind impacts can be a function of individual building heights and the relationship of building heights on adjacent or nearby buildings. The City's Article 80 Review Process (see Chapter 11, Phasing & Implementation) may require information indicating pedestrian level wind impacts for buildings over 150 feet or at least twice as tall as any adjacent building.
- Buildings should be articulated with setbacks and stepbacks to provide interest to the streetscape and roofscape. Setbacks and stepbacks also help to reduce the perceived mass of a building. To be effective, setbacks used for articulation should be of a significant scale, rather than minimal offsets of the building plane. In order to create a noticeable change in massing, stepbacks should be in increments of at least two floors.
- Building massing should reflect the scale of the street on which it faces. For example, on the Bayside and Synergy "Main Streets," which are approximately 80 feet and 95 feet wide (from building face to building face), respectively, there could be a datum baseline



The figure illustrates height ranges and limits on the redevelopment parcels. Further information about height ranges and limits for each redevelopment parcel is provided in the Individual Redevelopment Parcel Conceptional Development Plans later in this chapter.

Building articulation (including setbacks, stepbacks and bays) adds interest to the building and roofscape, as well as reduce the bulk of the building massing (top). Signs within the sign band clearly relate to individual stores, while large windows help to add to the street vibrancy (bottom).

Bird's eye view hovering above I-93 looking northeast. Savin Hill, Patten's Cove and the Boston Globe parcel are in the foreground.

of 3 to 5 masonry stories at the back of the sidewalk with predominately glass at the ground level and deep set windows above. The upper floors could be steel and glass, or metal and glass of a lighter color to meld with the lighter color of the sky. On Morrissey Boulevard, where the building face to building face dimension is much wider (up to 255 feet) and buildings are perceived from longer distances, the street wall should reflect this larger scale. For example, the datum line here could be in the 6 to 8 story range. Building height should be scaled down near the water's edge, to minimize shadow impacts. On the smaller, internal streets, the appropriate building massing will vary depending on the scale and use of the buildings.

Building Quality

- Garage exteriors visible from the street should include materials, details and articulation that will bring the façade into scale with adjacent buildings.
- Setbacks, corner treatments, projecting bays, balconies, and other design details should

be used to minimize the sense of bulk of structures, and the use of ornamental and decorative elements appropriate to the urban context is encouraged.

- Roofs of buildings should be designed to minimize the visibility of roof structures normally built above the roof and not designed to be used for human occupancy.
- A zone for signs on the building facade should be established, clearly defined by a change in façade color and/or materials or by an articulation of the façade. All permanent signs mounted on the building facade should be located within such a sign band. In buildings with multiple stories, the sign band should be subdivided, so that each section clearly relates to an individual store. Signs should be designed and located so as not to obscure architectural elements or ornamental details of the building façade. Internally lit signs should be designed so as not to create a hazard or nuisance through excessive brightness, and such signs should be constructed so that bulbs, wires, and other lighting equipment located inside the sign are not visible through the face of the sign.

Parking

- Wherever possible, parking should be provided on-street or in structured parking facilities.
- Structured parking facilities should be designed with active ground floor uses, where appropriate, to create a more interesting pedestrian environment. Garages should be designed with floor-to-floor heights that allow for potential conversion to other uses to accommodate future changes in parking demand.
- Surface parking is discouraged. Any surface parking should be located behind buildings and surrounded by buildings on a minimum of three sides. Building entrances facing parking lots should be secondary entrances, with primary entrances facing the street. In no case should surface lots occupy more than 20% of the development footprint.

Individual Redevelopment Parcel Conceptual Development Plans

The Illustrative Site Plan on Page 22 articulates the recommendations contained throughout this chapter. However, it is important to note that this is just an illustrative plan and represents one way to respond to the recommendations. Many of the recommendations could be achieved in a variety of ways. For example, the location of open space within a redevelopment parcel could change to correspond to different building footprints or land uses, and building footprints and massing could change depending on the intended building use.

For each redevelopment parcel, there is a set of Key Concepts that represent the framework of the redevelopment concept. These concepts, and specific height requirements, should be incorporated into any redevelopment plans for the redevelopment parcel. The text also contains a further explanation of the redevelopment shown in the illustrative site plan. Again, the illustrative site plan represents one of many potential options for incorporating the recommendations and design guidelines included in this Master Plan. In redevelopment parcels where the owner has a development concept for the site, the BRA and its consultants have worked closely with the owners to ensure that the drawings shown represent general consistency with both the owner's plans and the Master Plan vision for Columbia Point. However, in some instances, the Master Plan includes recommendations for modifications to the owner's plans.

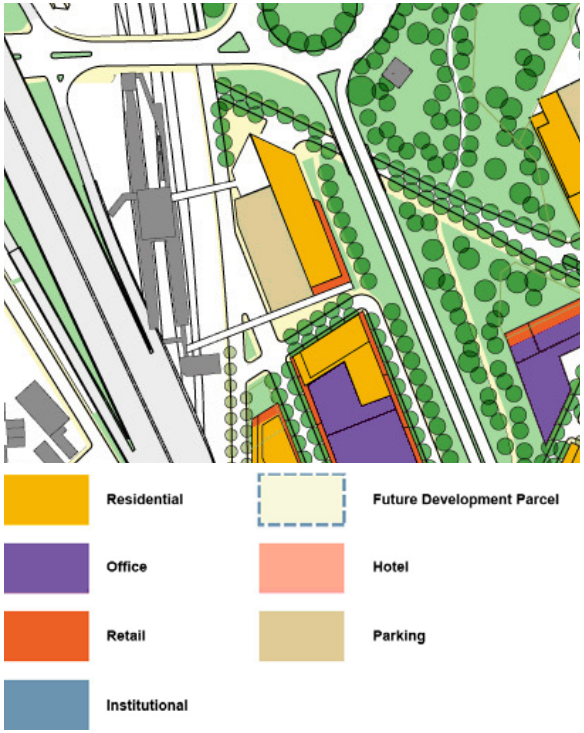
In cases where the owners do not have redevelopment plans, the development concepts shown have been reviewed by the property owner but do not represent a concept endorsed by the owner. Conceptual redevelopment plans for these parcels were included in the Master Plan because

it is a long-term plan and it is important to ensure that the proposed open space and circulation improvements would support the long-term redevelopment of those parcels should they be redeveloped during the timeframe of the Master Plan. The implementation of the Master Plan will be phased over time and the proposed public improvements and private redevelopment can move forward in a number of different sequences (see Chapter 11, Phasing & Implementation).

JFK/UMass MBTA Station

The MBTA intends to reissue its Invitation to Bid for development of the air rights over the MBTA facilities on this 4.7-acre site. Development of this site would provide the opportunity to create a gateway into the Columbia Point area, with greatly improved pedestrian connections both to Dorchester and Columbia Point. This major multi-modal transit center will be the heart of new transit-oriented development in the Study Area. Any development on the site will have to maintain all existing transit operations, as well as a 25-foot right-of-way for a potential additional commuter rail track. In addition, development has to provide a 19 to 22-foot clearance (approximately two floors) above existing rail operations.

Because of the proximity to transit, its gateway function, and its potential for beautiful views of the Boston skyline from upper floors, this site provides a prime location for a point tower with either residential or office uses. Development of the site also provides the opportunity for rebuilding the existing MBTA station to create a much more attractive, pedestrian-friendly station connecting the Dorchester neighborhoods west of the rail corridor and I-93 through the station to Columbia Point.



Land use plan of the JFK/UMass MBTA Station area.

Key Concepts

- A new commercial and/or residential building incorporating an improved passenger waiting area. To the extent feasible, ground floor retail should be included.
- Strong, improved pedestrian connections between the Dorchester neighborhood to the west and the station, also providing fare-free connections between the Dorchester neighborhood and Columbia Point. This should include significantly improving the existing I-93 underpasses with improved lighting and surfacing.
- A viewing opportunity within the station to provide orientation to Columbia Point for arriving passengers. This function could be met with a glazed atrium or other element and should provide views down Morrissey Boulevard and across Morrissey Boulevard to Mt. Vernon Street and the harbor.
- Accommodation of the extension of Old Colony Avenue south through the MBTA parcel to the Synergy parcel.
- Maximum building height: 20 floors.

Illustrative Plan

The diagram illustrates a new station with the following components:

- A 17-story residential tower, which can have a smaller, more slender floorplate, and therefore a more elegant structure, than an office tower.
- Parking for the tenants is provided in structured parking on floors 2 through 4 of the 17-story building.
- Two new pedestrian bridges connecting from the platforms, across the tracks to a reconfigured station fronting on the Morrissey Boulevard southbound frontage road. The bridges provide views south along the Old Colony Avenue extension through the Synergy and Boston Globe parcels and lead into a second floor glass gallery, which provides views to Morrissey Boulevard, the new plaza, Bayside, and Boston Harbor.
- New MBTA bus platforms, indoor waiting areas, and pick-up/drop-off area.

View looking north on Old Colony Avenue Extension - the Synergy "Main Street."

Buildout Shown in Diagram

- 230 Residential units*
- 250,000* SF Office
- 7,500 SF Retail
- 200 Parking Spaces

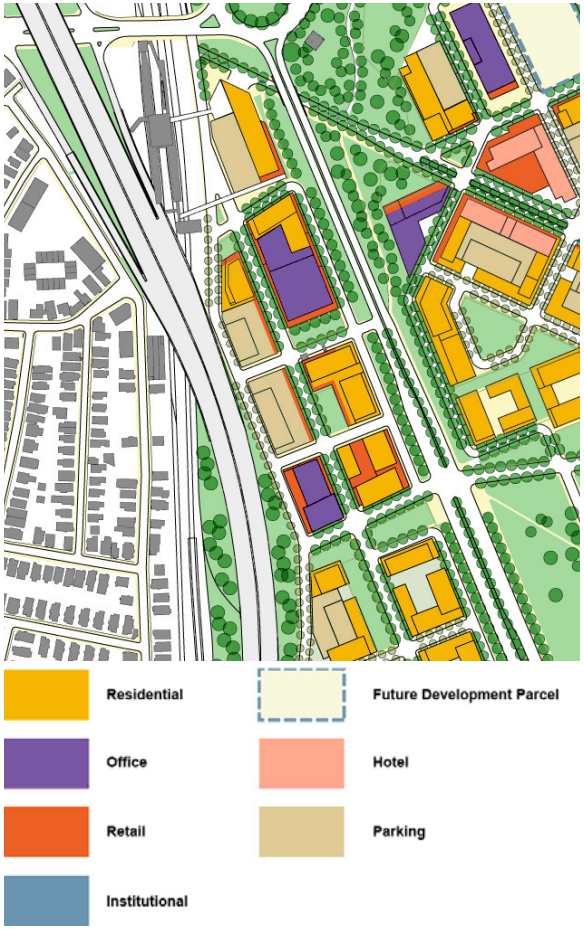
* Plan could accommodate either the residential or office uses shown above.

Synergy Parcels

The Synergy site includes the Shaw's Supermarket and parking lot, as well as adjacent vacant parcels and the Greater Media building. Because of its adjacency to the MBTA parcel, this site is viewed as an excellent location for a transit-oriented development with a mix of residential, office and retail uses. The drawings represent the owner's most recent conceptual plan for the site, developed in collaboration with the BRA.

Key Concepts

- Internal north/south "Main Street" (Old Colony Avenue extension) lined with active commercial uses, outdoor seating areas, and pedestrian amenities, ultimately linking to Old Colony Avenue to the north.
- Buildings fronting on and defining the street edge of the new internal "Main Street" and the new Morrissey Boulevard frontage road.



- A view down the Old Colony Avenue extension to the JFK/UMass MBTA Station to the north and potential open space on the Boston Globe parcel to the south.
- Tallest buildings located close to the MBTA station.
- Parking garages located adjacent to the highway.
- A minimum of two street level passive recreation spaces, 0.20 acres in size each, with seating areas and landscaping. The parks could provide a meeting space for visitors and residents in the district, as well as a place for shoppers to enjoy a snack.
- Maximum Building Height: 16 floors along Morrisey Boulevard ; 5-11 stories along I-93 and at the Southern end of the site.

Illustrative Site Plan

The diagram illustrates a mixed-use district as described above, with a mix of office and residential buildings, and two parking garages (one 6-story and one 8-story), with additional parking under one of the office buildings and one of the residential buildings. All of the buildings have ground floor retail on the "Main Street" frontage.

Buildout Shown in Diagram

- 500 Residential units
- 350,000 SF Office
- 150,000 SF Retail
- 1,200 Parking Spaces

Land use plan of the Sovereign Bank parcels.

Sovereign Bank Parcels

The Sovereign Bank parcel occupies a prime location with frontage on both Morrissey Boulevard and Mt. Vernon Street, adjacent to the proposed new gateway park across from the JFK/UMass MBTA Station. The owner has no plans to redevelop these parcels at the current time. The illustrative plan includes a mix of office, residential, and retail uses, as well as a hotel.

View looking north on Mt. Vernon Street with conceptual Sovereign Bank site development on the left and conceptual development on the Bayside Exposition parcels on the right.

Key Concepts

- Buildings fronting on and defining the street edge on Morrissey Boulevard, Mt. Vernon Street and New Street, helping to resolve these colliding grids and defining the two major Columbia Point streets.
- A signature tower fronting on the gateway park across from the JFK/UMass MBTA Station, preferably with an active ground floor use on the gateway park.
- Small scale, ground floor retail along Mt. Vernon Street and facing the new gateway park.
- A central green space enclosed by the buildings described above. The park should be a minimum of 0.5 acres, and could include a small totlot and/or seating area to serve local residents and area employees.
- The southern portion of the new gateway park, described in 4.1.5 on page 21.
- Maximum Building Height: 12 floors.

Illustrative Plan

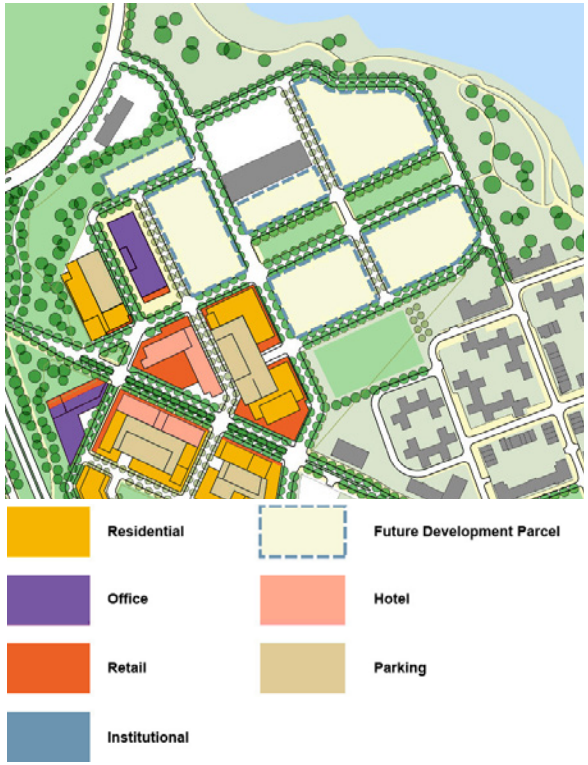
The diagrams illustrate a 12-story office building facing the new plaza with ground-floor retail and restaurant uses spilling out onto the plaza, a new 5 to 8-story hotel on Mt. Vernon Street with ground floor retail space, and residential uses in the remaining buildings. Residential buildings along Morrissey Boulevard are 8 to 10 stories with a 12-story building on the corner of Morrissey Boulevard and New Street, and 5 to 8-story buildings along New Street. Parking is located in structures wrapped with residential buildings.

Buildout Shown in Diagram

- 610 Residential units
- 135 Hotel Rooms
- 262,000 SF Office
- 42,000 SF Retail
- 1,100 Parking Spaces

Bayside Parcels

The Bayside redevelopment parcel is located at the northern end of the Study Area, between Mt. Vernon Street and the Harborwalk, with beautiful views out to Boston Harbor, Carson Beach and the Boston skyline. For purposes of future modeling, the Master Plan reflects the development plan proposed by the former owner of the Bayside Exposition Center. In the absence of new plans by UMass Boston, this plan contains reasonable development assumptions and puts forth a number of compelling concepts for the future of the site. The plan would replace the Bayside Expo Center with a mixed-use development that has new retail, residential, and office uses, and an expanded hotel. The existing



Conceptual land use plan for the Bayside parcels.

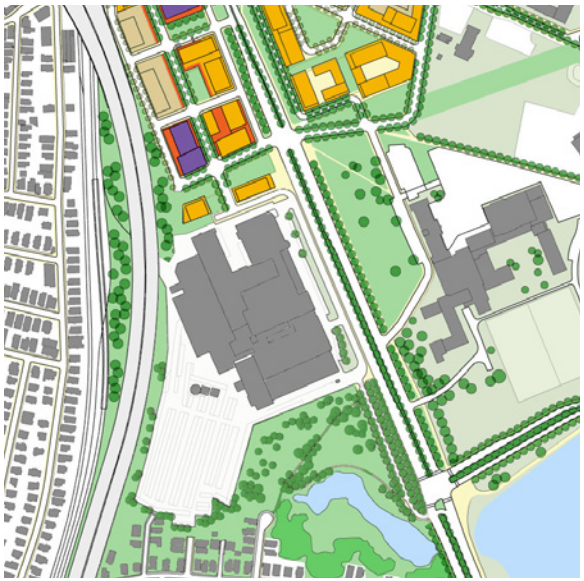
Bayside Conference Center and Office Building and Doubletree Hotel would remain. The Boston Teachers Union Building, which is surrounded by the Bayside parcels on three sides, is also shown as remaining.

Key Concepts

- A central commercial street connecting Mt. Vernon Street and the new plaza to the Harborwalk, lined with active ground-floor uses, wide sidewalks, street trees, and outdoor seating.
- A taller building fronting on the new plaza, preferably with active ground floor uses.
- Buildings sited to reinforce the street wall on major spines.
- Parking in structures wrapped by other uses (on the ground floor at a minimum).
- Pedestrian connections and potential future vehicular connections to Harbor Point.
- New usable open space for the community, including, at a minimum, the northern portion of the new gateway park described in 4.1.5 on page 21, a 1.0 acre park along the retail spine, and open space along the border with Harbor Point.
- Maximum building heights: 14 floors.

Illustrative Plan

The diagram shows a 9 to 12-story residential building fronting on the new gateway park, the existing Corcoran Jennison office building, and an expansion of the existing hotel with new ground



Illustrative plan with Boston Globe remaining.

floor retail space along Mt. Vernon Street. The remainder of the diagram is illustrated with a network of streets, open spaces, and placeholders for development sites. The development sites will be considered as part of UMass Boston's community planning process. The public squares, rectangular in shape, flanking the central commercial street should allow for a wide variety of uses including active recreational uses. The park located on the eastern edge of the site adjacent to Habor Point should also provide active recreational uses as well as pedestrian and bicycle access from Mt. Vernon Street to the waterfront, Harbor Point to the Bayside site. The street grid should provide multi-modal connectivity within the Bayside site and to other parts of Columbia Point.

Buildout Assumes

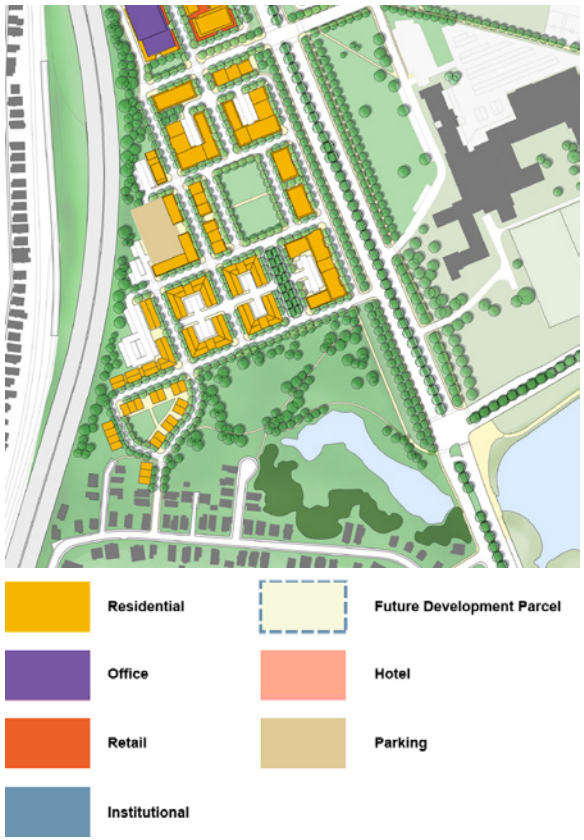
- 1,230 Residential units
- 275 Hotel Rooms
- 221,000 SF Office
- 293,000 SF Retail
- 2,100 Parking Spaces

Boston Globe/Channel 56 Parcels

The Boston Globe/Channel 56 parcels are at the southern end of the Study Area, bounded by Morrissey Boulevard and I-93 on the east and west, Patten's Cove and Savin Hill on the south, and the Synergy parcels on the north. It should be noted that the Boston Globe has no plans to redevelop the property at this time.

Because of the location adjacent to Savin Hill and Patten's Cove, this redevelopment parcel makes an excellent location for residential use, although office or life science uses could also work in this location.

The figure to the above left illustrates the ability of the Boston Globe to continue to operate in



Conceptual land use plan of development on the Boston Globe and Channel 56 parcels.

its current configuration as the master plan is implemented. The existing southbound Morrissey Boulevard frontage road would stay in it's current configuration from just south of New Street to the southern end of the Globe parcel. Vehicles would enter the Globe site from New Street, via either the Old Colony Avenue Extension or the new north/south street adjacent to the I-93 right of way. They could then travel to the existing parking areas and loading docks via the existing frontage road.

Key Concepts

- Extension of Wave Avenue (outbound from Savin Hill only) to connect to the internal street grid with new residential development along the west side of the street and facilitate access for the Savin Hill neighborhood north toward JFK/UMass Station. This new street shall be a one-way street north and shall be designed to strongly discourage regional cut-through traffic. Prior to City approval of a design, a detailed traffic study shall be conducted to assess the potential for attracting unwanted, regional traffic. The street shall be designed for low speeds and minimal traffic. The design shall be submitted for review by the surrounding neighborhood prior to formal City approval.
- Extension of Patten's Cove into the southern portion of the parcel east of the Wave Avenue extension (see diagram on page 74).
- A central green space, located in the new housing district, with a strong visual and physical connection to Patten's Cove and visible as the terminus to the Old Colony Avenue extension The park should also provide a visual connection to the JFK/UMass MBTA Station and to the Boston College High School Tower, serving as a central orientation point. The park should be a minimum of approximately one acre, and should include both a play area and passive recreation area to serve surrounding residential development as well as to provide a play area for visitors to Patten's Cove.
- A series of linear parks along New Street and the main new north-south street traversing the site. These open spaces could be re-configured and/or consolidated to improve their usability for active recreation, as long as the overall amount of open space is not reduced.
- Buildings sited to reinforce the street edge on Morrissey Boulevard.
- Parking garage(s) sited by I-93.
- Taller buildings sited along New Street and around the eastern edge of the central green space, with the lowest buildings along the Patten's Cove/Savin Hill edge.

- Pedestrian/bicycle connection from Savin Hill to the JFK/UMass MBTA Station provided by the connection of Wave Avenue to the new street grid and the Synergy "Main Street."
- Maximum building heights: 7 floors at northern end and 4 floors at the southern end and along the Wave Avenue extension.

Illustrative Plan

The illustrative plan shows all residential use with up to 7 story buildings facing the Synergy parcel and Morrisey Boulevard. Buildings facing Savin Hill and Patten's Cove, including those along the Wave Avenue extension, are four stories. Low-rise residential buildings continue along the western side of the Wave Avenue extension. Parking is provided on-street, in small surface lots in the middle of residential blocks, and in one parking structure sited next to the I-93 right-of-way and wrapped in a residential structure on the sides facing out to the rest of the parcel.

Buildout Shown in Diagram

- 1,100 Residential units
- 1,100 Parking Spaces

Sketch plan of the St. Christopher's Church/Boston Public Schools parcels.

St. Christopher's Church / Dever and McCormack Schools

These parcels are located along Mt. Vernon Street, directly across from Harbor Point. At the current time, none of the existing institutions have plans to redevelop these parcels and continuation of school uses may be appropriate over the long-term. However, because of the long-term nature of this plan, consideration was given to other appropriate uses of the parcels, should they one day become available.

Because of the proximity to Harbor Point and the Boston College High School playing fields, these parcels were deemed most appropriate for residential use, although retail or office uses along Mt. Vernon Street could also be developed on the site.

Key Concepts

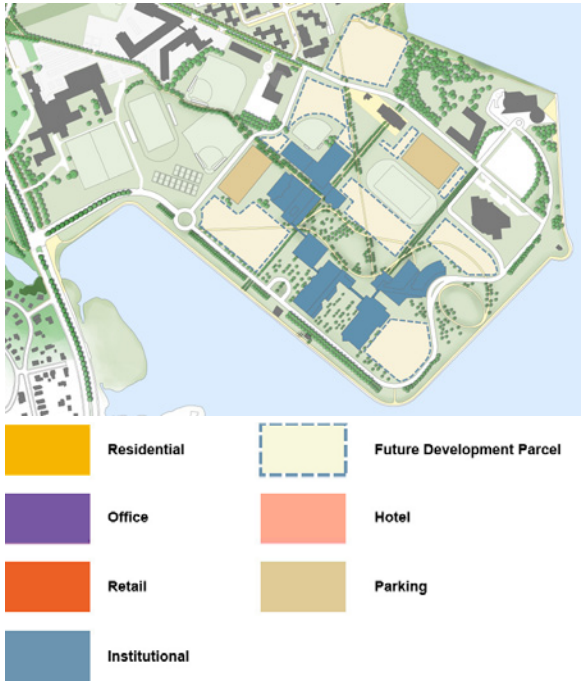
- Buildings sited to reinforce street wall along Mt. Vernon Street.
- Continuation of the Harbor Point mall as a green spine with a visual connection through to Morrissey Boulevard.
- Maximum Height: 6 floors.

Illustrative Plan

The sketch above illustrates potential residential development on the site, with the church building remaining. The buildings line Mt. Vernon Street and a new interior street grid and are 3 to 4 stories with surface parking in the interior of the blocks. The use of structured parking would allow for taller buildings and higher density.

Buildout Shown in Diagram

- 430 Residential units
- 430 Parking Spaces



UMass Boston site plan.

UMass Boston Campus

The UMass Boston campus occupies much of the southern end of the peninsula. The university ihas recently prepared a new master plan for the redevelopment of the campus. The most recent version of that plan is incorporated into the overall illustrative plan for Columbia Point, with a few changes summarized below.

While the UMass Boston Master Plan is not subject to BRA approval, the university and the Massachusetts Division of Capital Asset Management have attended several working sessions with the BRA and the project team to discuss ways to integrate the campus plan with this Columbia Point Master Plan.

Key Concepts

- A realigned two-way Bianculli Boulevard providing a clear sight line and pedestrian/ bicycle connection between Calf Pasture and Patten's Cove (the realignment shown in the illustrative plan is not included in the University's master plan at this time).
- Parking garages wrapped in active uses.
- A multi-use pedestrian connection (at a minimum of 16 feet wide) from the central green continuing between the Boston College High School playing fields to Morrissey Boulevard and through the Sovereign Bank parcel to the new plaza and the JFK/UMass MBTA Station.
- A two-way perimeter road and new connection from the perimeter road to Mt. Vernon Street between the Massachusetts State Archives and Commonwealth Museum and the JFK Presidential Library and Museum, providing access to the planned Edward M. Kennedy Center for the Study of the Senate.

Implementation Actions

Implementation of the recommendations in this chapter primarily includes working with developers to ensure that new development is consistent with this plan and that infrastructure improvements and community benefits associated with specific redevelopment parcels are implemented with the development of those districts. More specific implementation steps for the transportation and open space recommendations are included in Chapters 6 and 7, respectively.

4.1 Review of individual development proposals to ensure consistency with the design guidelines set forth in this Chapter and the key concepts outlined for the specific redevelopment parcel.

4.2 Coordination with developers and other public agencies to ensure the implementation of public realm improvements at the appropriate time to support new development.

4.3 Ongoing monitoring of development on Columbia Point to ensure that the overall land use mix is consistent with the goal of 65-70% residential use as new developments occur.

Harborwalk section near the JFK Presidential Library and Museum.

5 HOUSING

A diverse supply of housing is the foundation of a vibrant community. This chapter assesses existing housing on Columbia Point and provides recommendations for growing the housing stock to meet the neighborhood's future needs.

Background

Highlighted in this section are key demographic, socio-economic and housing characteristics of the Study Area. These data are intended to provide a basis for evaluating existing conditions and making policy recommendations.

Data sources include: the 2000 U.S. Census, 2005 Claritas Census updates, and the BRA Research Department. The Study Area includes only one census tract: #090900. Where available, 2000 and 2005 census data have been supplemented with more recent data from other sources.

Population

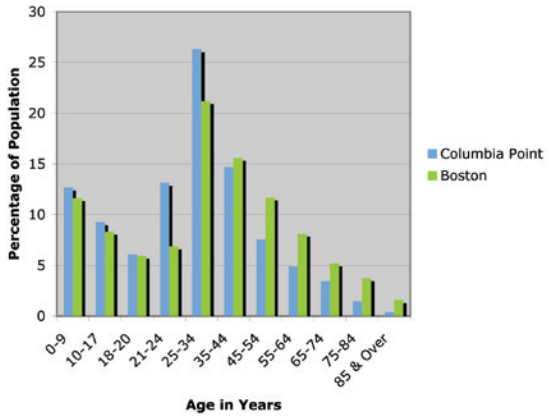
According to the 2005 Claritas Census updates, Columbia Point had a population of 2,441 persons in 2005.

However, more recent data from the two developments in Columbia Point, Harbor Point and the Peninsula, indicate the population is now significantly higher. The resident population of Harbor Point comprised 2,915 persons as of February 2009. In October 2006, an additional 204 housing units were added to the housing stock with the completion of the Peninsula Phase I. As of January 2009, the Peninsula housed 378 residents. Therefore, based on the current information from Harbor Point and the Peninsula, the estimated 2009 population of Columbia Point is 3,293 persons.

Age

The population in Columbia point is generally younger than the City of Boston overall. Both the median age (27.6 years in Columbia Point compared to 33.1 years in the City of Boston) and the average age (29.4 years compared to 35.7 years) are lower in Columbia Point.

The graph to the right shows that 41% of the population living in Columbia Point is between the ages of 21-34, compared to 28% in the City of Boston overall. Most likely this reflects the large number of college students living in Columbia Point. The management of Harbor Point reports that approximately 700 of their residents are college and university students.



Population by Age (Source: Claritas Census Update 2005)

Educational Level

The average level of education is higher in Columbia Point than the Boston average. More Columbia Point residents have completed a Bachelor's Degree (25.15% compared to Boston's 20.22%) or higher (22.6% in Columbia Point compared to Boston's average of 15.8%).

Household Size & Composition

In 2005, there were an estimated 938 households (occupied housing units) in Columbia Point (not including the Peninsula Phase 1, since it was not

The recently built Peninsula Phase I on Mt. Vernon Street has 204 apartments.

completed until October 2006). Of these, 432 (46.1%) were family households. A family household consists of two or more individuals who are related by birth, marriage, or adoption, although it may also include other unrelated people. Columbia Point has a much lower rate of single-female households (12.2% compared to Boston's 20.7%).

The average household size in Columbia Point in 2005 was 2.5 persons per household. However, more recent data suggest that the average household size has declined since 2005. With an estimated 2009 population of between 3,278 and 3,378 persons, and with 1,487 housing units, the average household size range is currently estimated between 2.2 and 2.3 persons per household.

An estimated 60% of the residents of the Peninsula Phase I, or approximately 227 residents, are college and university students. As indicated above, an estimated 700 of the residents of Harbor Point are college and university students. Thus, of the total estimated population of between 3,278 and 3,378, between 27-28% are college and university students.

Housing Tenure

As of January 2009, there were 1,487[1] housing units in Columbia Point. Of these, 1,283 were located in Harbor Point and 204 were located in the Peninsula Phase I.

All of these housing units are rented; there are no owner-occupied housing units in Columbia Point. As a comparison, approximately 32% of the housing stock in the City of Boston overall is owner-occupied, as shown in Table 5.2.

Income

In 2005, the estimated median household income in Columbia Point was $36,064, compared to $46,362 for the entire City of Boston. Of the family households in Columbia Point, 32.3% had an income below the federal poverty line, as compared to 16%[2] in Boston.

Of the 938 households in Columbia Point in 2005, 254 (27%) had an income of less than $15,000 in 2005; 167 (18%) had an income of $75,000 or greater.

Harbor Point has a variety of building types ranging from 3 to 8 stories.

The per capita income in Columbia Point in 2005 was $18,158, compared to $27,524 for the entire City of Boston. Because students are generally under- or unemployed during their years of study, the concentration of students in the Study Area likely accounts for the lower per capita income.

Housing Stock & Affordability

All of the housing in Columbia Point is contained in two developments, Harbor Point and the Peninsula. Harbor Point contains 1,283 units, representing the vast majority of housing in Columbia Point. Originally built in 1954, Harbor Point was one of the largest federally-funded low-income housing developments in New England. In 1986, after a major redesign and financial restructuring by Corcoran, Mullins, Jennison, Columbia Point was redeveloped into mixed-income housing.

Of the 1,283 units in Harbor Point, 400 are subject to long-term (99 years) affordability restrictions as a condition of a 1986 ground lease between the Boston Housing Authority and Harbor Point Apartments Company Limited Partnership. Of the 400 affordable units, 350 units also carry Section 8[3] contract subsidies through December 30, 2019. The ground lease also requires that when the subsidy contract expires, the Boston Housing Authority and Lessee must work cooperatively to have the subsidies extended or renewed [Section 8.7 (ii)]. The Section 8 contracts effectively mean that the federal government provides a subsidy amounting to the difference between the fair market rent [as determined by the United States Department of Housing and Urban Development (HUD)] and the amount each Section 8 household can afford to pay. Separate and apart from the Section 8 contract subsidy for 350 of the units, all 400 affordable units are restricted to households earning 80% or less of the Area Median Income (AMI) until 2085.

The remaining 204 housing units on Columbia Point are located in the Peninsula Phase I, a private development completed in 2006 by the Corcoran Jennison Companies. (Peninsula Phase II contains an additional 134 units and is currently under construction. It will be completed and ready for occupancy in May 2009. These units are not included in the overall tally because they are not yet occupied.)

Of the 204 units in the Peninsula Phase I, 21 are deed-restricted units affordable to households earning 70% or less of the Boston AMI. Pursuant to the City's Inclusionary Development Program (IDP), these units are deed-restricted for 50 years. There will not be any deed-restricted affordable units in Peninsula Phase II.

Inclusionary Development Program

The City of Boston requires a certain percentage of affordable housing in any new market rate development of 10 or more units. Adopted by an Executive Order of Mayor Thomas M. Menino in February 2000, the City's IDP requires that 15% of the market rate units in any development of 10 or more units (in effect, 13% of all the total units) be affordable to low and/or moderate income households. If the new development consists of homeownership housing, half of the affordable units must be affordable to households earning 80% or less of the AMI; the other half must be affordable to households earning between 81 and 100% of the AMI. If the new development consists of rental housing, all of the units must be affordable to households earning 70% or less of the AMI.

The IDP further provides that, subject to the approval of the BRA, developers may propose to achieve the affordable housing obligations through the direct construction of affordable units off-site or by making a monetary contribution (an in lieu fee).

Relative Isolation of Housing

Harbor Point is a gated community with limited access via security gate. It is surrounded on three sides by a fence and Dorchester Bay on the fourth. On the north, it is flanked by a large sea of surface parking, part of the current configuration of the Bayside Exposition Center. In front, traffic often speeds by on Mt. Vernon Street. Although Harbor Point does have an on-site convenience store and a drop-off dry cleaner, and there is an Au Bon Pain bakery at the nearby Doubletree Guest Suites Hotel,

it is otherwise isolated from other shops and services in Dorchester.

The Peninsula, lacking an active ground floor, is isolated as well, and is similarly situated a long walk from shopping or services. As a result of their relative isolation, these developments do not feel as though they are part of a larger neighborhood.

Issues & Opportunities

What follows is a summary of the issues and concerns related to housing that have been identified through a combination of research and public input, including the Master Plan Task Force and the community-wide meetings held on the Master Plan.

Isolation from Other Uses

- Housing on Columbia Point is segregated from other uses and is generally isolated. During the evening and night, there is little activity to contribute to a vibrant street life. The limited number of shops, restaurants, cafés, and other active uses contributes to the sense of isolation.
- With the number of large parcels that are ready for redevelopment, there is an opportunity to increase housing and mixed-use development to create more vitality in Columbia Point.

Ownership Housing

- There is currently no ownership housing in Columbia Point.
- Many members of the Task Force and the public expressed the view that ownership housing would help provide stability, since homeowners tend to have a greater investment in the neighborhood than renters.
- Homeownership provides opportunities for upward mobility and wealth creation.

Affordable Housing

- The existing affordable housing on Columbia Point is well protected over the life of the Master Plan due to long-term affordability restrictions.
- Many expressed the concern that the Master Plan could displace working residents and families and result in gentrification.
- Some felt that the Master Plan should call for a high proportion of affordable and subsidized housing, in order to maintain diversity and thwart gentrification.
- Alternately, an opposing view was that Columbia Point already has enough affordable housing and that more market-rate housing is needed to breathe increased economic vitality into the community.
- Chapter 40R of Massachusetts General Law (MGL) makes provision for substantial payments to municipalities in exchange for adopting Smart Growth Zoning Overlay Districts. Smart Growth Zoning Overlay Districts are intended to increase allowable residential and mixed-use development in areas near major transit hubs. In order to qualify for the State payments under Chapter 40R, municipalities must require that 20% of all new housing in such districts be made available to households earning no more than 80% of the AMI. A minimum residential density of 20 units per acre and other requirements also apply. State payments include: 1) a housing incentive payment, payable upon adoption of the new Smart Growth Zoning Overlay District, the amount of which is tied to the number of new residential units allowed (for example, $350,000 for 201-500 units; and $600,000 for 501 or more units of housing); and 2) a one-time density bonus payment of $3,000 per unit, payable upon issuance of a building permit. Due to its location next to a transit station and the type of development allowed under the Master Plan, Columbia Point would be a good candidate for a Smart Growth Overlay District under Chapter 40R.

Family Housing

- Many members of the community expressed the view that families and children embody the future, and that the Master Plan should ensure plenty of housing for families.
- Some fear was expressed that the Master Plan would result primarily in smaller housing units (studio, one-, and two-bedroom units), thereby preventing families from moving in.

Amenities to Support Housing

- Providing new housing will create a need and demand not only for neighborhood commercial services (such as a pharmacy or dry cleaners) but also for community, cultural, and recreational services such as community meeting spaces, athletic facilities, and recreational facilities.
- To the extent that community, cultural, and recreational services and facilities can be provided in new, mixed-use development, these will add value and amenities.

Student housing

- The UMass Boston Master Plan is recommending up to 2,000 new student dormitory beds.
- Like any new housing, dormitories will create a demand for services for students, including demands for food and entertainment.

Recommendations

Principles

Land Use and Placemaking: Provide a mix of residential and commercial uses and activities at the northern gateway of Columbia Point to create a "sense of place," with active street life, safety, convenience, and amenities.

Diversity: Provide housing for a full range of income groups and household types, such as housing for families, seniors and disabled persons.

Objectives

5.1 Increase Housing Opportunities: Strive to ensure that 65-70% of new development overall in the Master Plan is housing.

5.2 Ownership Housing: Strive to ensure that at least 30% of all new housing in Columbia Point is ownership housing, consistent with the overall mix in the City of Boston.

5.3 Socially Equitable Housing: Promote diverse housing types for a wide range of economic levels, household sizes (from single persons to large families), and age groups.

5.4 Family Housing: Ensure that new development throughout the Master Plan contains a range of unit sizes (as represented by number of bedrooms) that can accommodate a range of household sizes representative of the City of Boston's current or projected future demographic profile.

5.5 Affordable Housing: Strive to ensure that 20% of all new housing is affordable to a range of incomes at and below 100 percent of the area median income (AMI). All other requirements of the City's Inclusionary Development Program shall apply. To create vibrant, diverse, and economically sustainable neighborhoods, developers will be strongly encouraged to build the affordable units on-site. To facilitate financial feasibility, developers should consult with the BRA Housing Director about City, State, and Federal funding resources available to finance affordable housing. Developers will be encouraged to create Chapter 40R Smart Growth Zoning Overlay Districts, which would result in on-site affordable housing while yielding financial payments to the City. Should Chapter 40R payments accrue to the City as a result of the adoption of a 40R

district in Columbia Point, City legislative action should be taken such that the funds would be earmarked for improvements in Columbia Point related to implementation of the Master Plan.

5.6 Senior Housing: Encourage housing for seniors in locations that are easily and directly accessible to public transportation, shopping, and community services.

5.7 Support Services and Amenities: Provide services and amenities, such as shopping, recreational and community services, in close proximity to residential uses to reinforce a sense of community vitality.

5.8 Affordable Housing Preservation: Continue to ensure the preservation of all existing deed-restricted affordable housing.

Implementation Actions

5.1 Affordable Housing: As part of Article 80 review of any development, require residential developments to prepare a report indicating how they are consistent with the numeric objectives of the Columbia Point Master Plan.

5.2 Greater Permeability for Harbor Point: Over the long-term and through the appropriate regulatory means (such as development permitting), seek to encourage Harbor Point to create a more open edge for greater permeability and ease of access and egress, particularly on foot.

5.3 Leveraging Funding for Affordable Housing: The BRA shall work with future developers on Columbia Point to provide access to local, state and federal resources to maximize affordable (low and moderate income), senior, and homeownership housing on Columbia Point.

5.4 Assistance to Extend Section 8 Contracts: Prior to the expiration of the Section 8 contract in December 2019, work with the City's Department of Neighborhood Development and the Boston Housing Authority to ensure extension of the contracts.

5.5 Diversity Through Article 80 Review: Through the Article 80 development review process, the BRA shall require a report from proponents of residential development demonstrating how proposed projects shall meet the housing objectives of this chapter, particularly those related to a mix of housing for a range of household types and incomes.

Footnotes:

[1] BRA Research Department. This includes 1,283 units in Harbor Point and 204 units in the Peninsula Phase I.

[2] Information regarding poverty and income in Columbia Point applies only to family households. A family household is defined as a household maintained by a family (as defined above), and any unrelated persons (unrelated subfamily members, other individuals, or both) who may be residing there. Thus, these descriptive statistics do not account for households of only non-related, unmarried individuals.

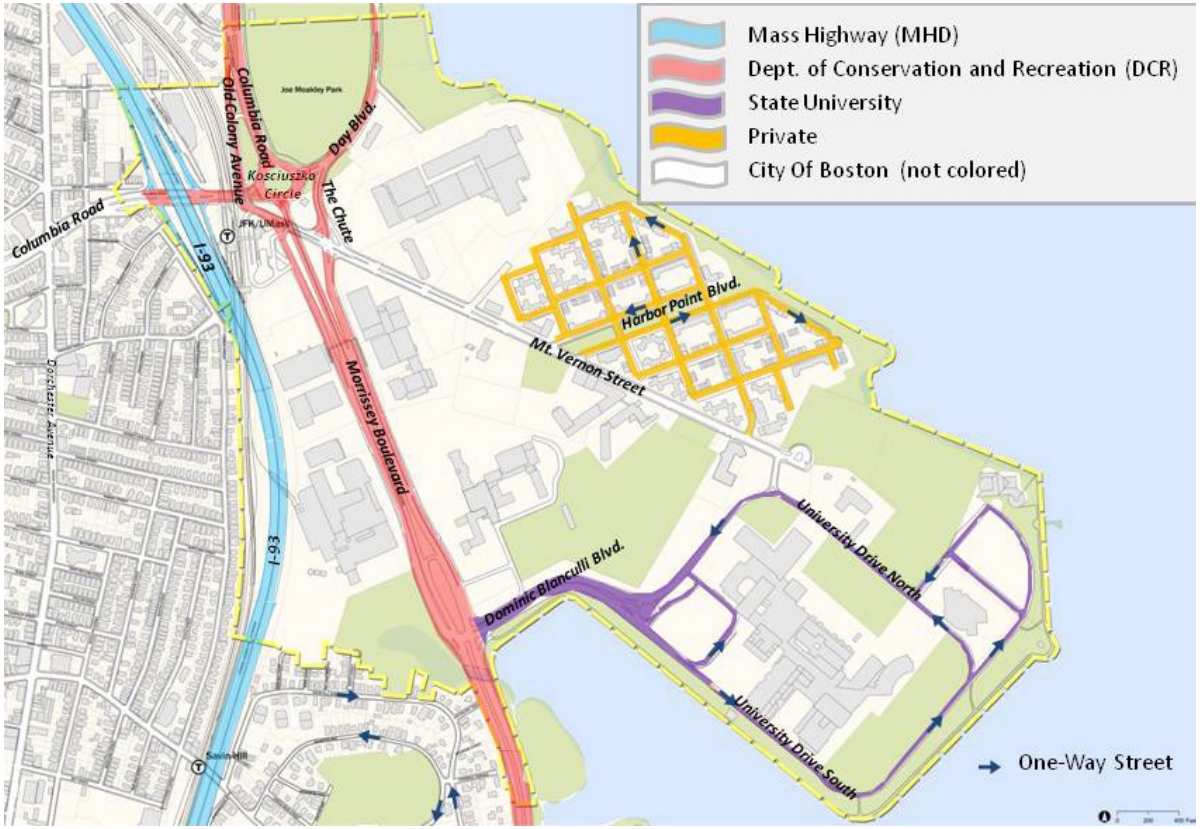
[3] Privately-owned rental dwelling units participating in the low-income rental assistance program created by 1974 amendments to Section 8 of the 1937 Housing Act. Under the program, landlords receive rent subsidies on behalf of qualified low-income tenants, allowing the tenants to pay a limited proportion of their incomes toward the rent.

6 MULTI-MODAL TRANSPORTATION

Although it is bounded substantially by Boston Harbor, Columbia Point is strategically located in relation to both the regional and the local transportation networks. In addition to the proximity of I-93, Morrissey Boulevard, Day Boulevard, and Columbia Road traverse the western and northern edges of the Study Area. MBTA Red Line and Commuter Rail service is available at the JFK/UMass MBTA Station, where several local bus routes also connect. Perhaps most lacking for transportation in and around Columbia Point are bicycle and pedestrian infrastructure, including connections to adjacent neighborhoods and wider area non-vehicular networks.

Background

Roadways in the Study Area are under several different ownerships/jurisdictions, as shown in Figure III-1. While I-93 and its ramps are controlled by Massachusetts Highway Department, the Department of Conservation and Recreation (DCR) has jurisdiction over Morrissey Boulevard, Day Boulevard, Old Colony Avenue, and Columbia Road. Roadways in and around the UMass Boston campus area are controlled by the university, and roadways within the Harbor Point development are privately owned. Mt. Vernon Street is the only significant roadway owned by the City of Boston.



Study Area roadways and ownership.

Most key intersections in the Study Area are controlled by traffic signals, although on Columbia Road the northbound I-93 off-ramp is under "Stop" control, as is the intersection of the "Chute" and Day Boulevard. The "Chute" is a short roadway segment connecting Mt. Vernon Street to Day Boulevard and the northbound Morrissey Boulevard frontage road. Also notable is Kosciuszko Circle, the rotary intersection of Morrissey Boulevard, Columbia Road and Day Boulevard.

Existing peak hour traffic volumes are included in the Appendix. Traffic counts were conducted in September and October 2007 (with the exception of the counts at the intersection of Morrissey Boulevard and Freeport Street which were conducted in April 2008). Counts were based on the peak one-hour period between 7-9 a.m. and 4-6 p.m. on weekdays and 11 a.m. and 2 p.m. on Saturday. The highest peak hour traffic volumes prevail at Morrissey Boulevard/Bianculli Boulevard (5,000 – 5,900) and Kosciuszko Circle (4,200 – 4,400), compared with only 500 – 1,100 peak hour vehicles on Mt. Vernon Street. Morrissey Boulevard carries approximately 4,500 – 5,000 vehicles (2-way) in the weekday peak hours, while Day Boulevard carries approximately 1,200 – 1,900 vehicles during the same periods. It is worth noting that, typically, a single traffic lane has a maximum capacity of about 1,800 vehicles per hour, but of course at intersections the capacity is reduced by either the relative amount of time allocated by a traffic signal or the delay caused by waiting for a gap in un-signalized opposing traffic movements.

Level of Service (LOS), a measure of the quality of intersection traffic operations expressed in vehicular delay, also varies significantly across the Study Area. While LOS D (generally acceptable in urban areas) or better prevails at many locations during the peak traffic hours, critical LOS E or F conditions are experienced during the peak hours at several key signalized locations, as shown in the figure below.

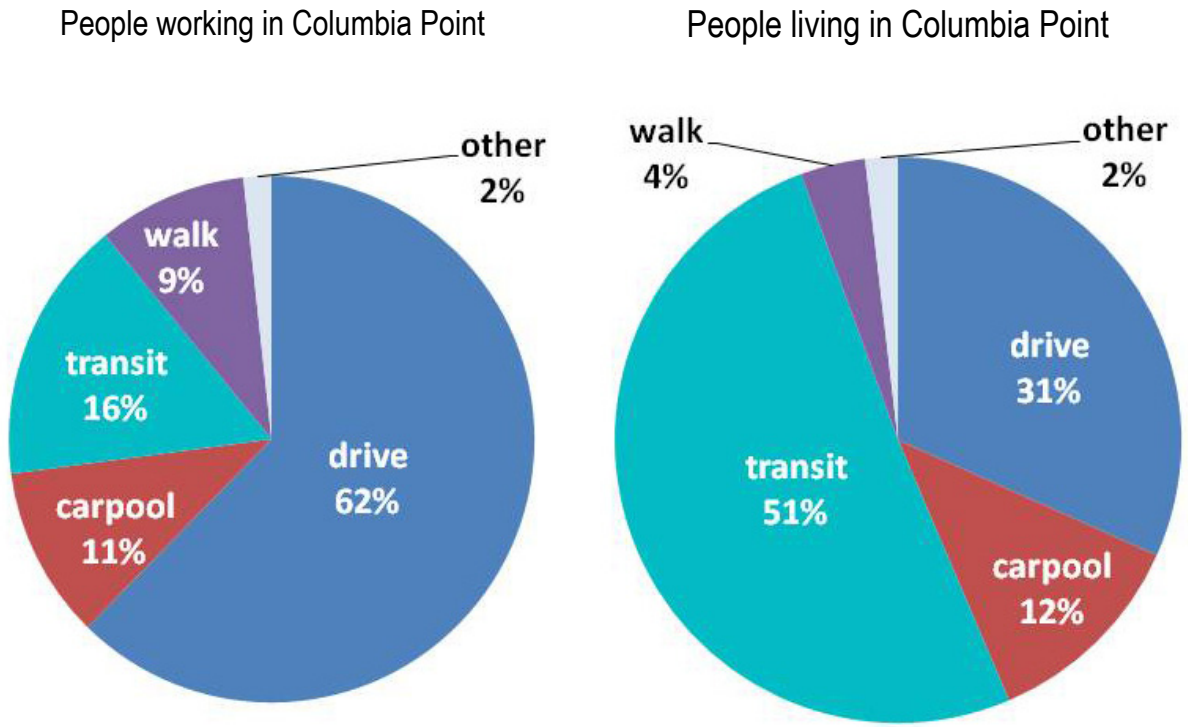
Problem intersections within the Study Area.

These include Columbia Road/I-93 southbound ramps, Morrissey Boulevard/Bianculli Boulevard, Morrissey Boulevard/Freeport Street (off the map at the next intersection south), and Mt. Vernon Street/the "Chute." Critical movements at several un-signalized intersections also experience deficient LOS, in particular at the northbound I-93 ramp to Columbia Road and the left turn from the "Chute" to Day Boulevard. LOS analysis results are included in the Appendix.

While analysis suggests that Kosciuszko Circle operates in isolation at a generally acceptable LOS overall, observations reveal that in practice operations at the Circle are significantly impacted by queuing and interaction with other nearby intersections in this portion of the Columbia Road/ Day Boulevard corridor.

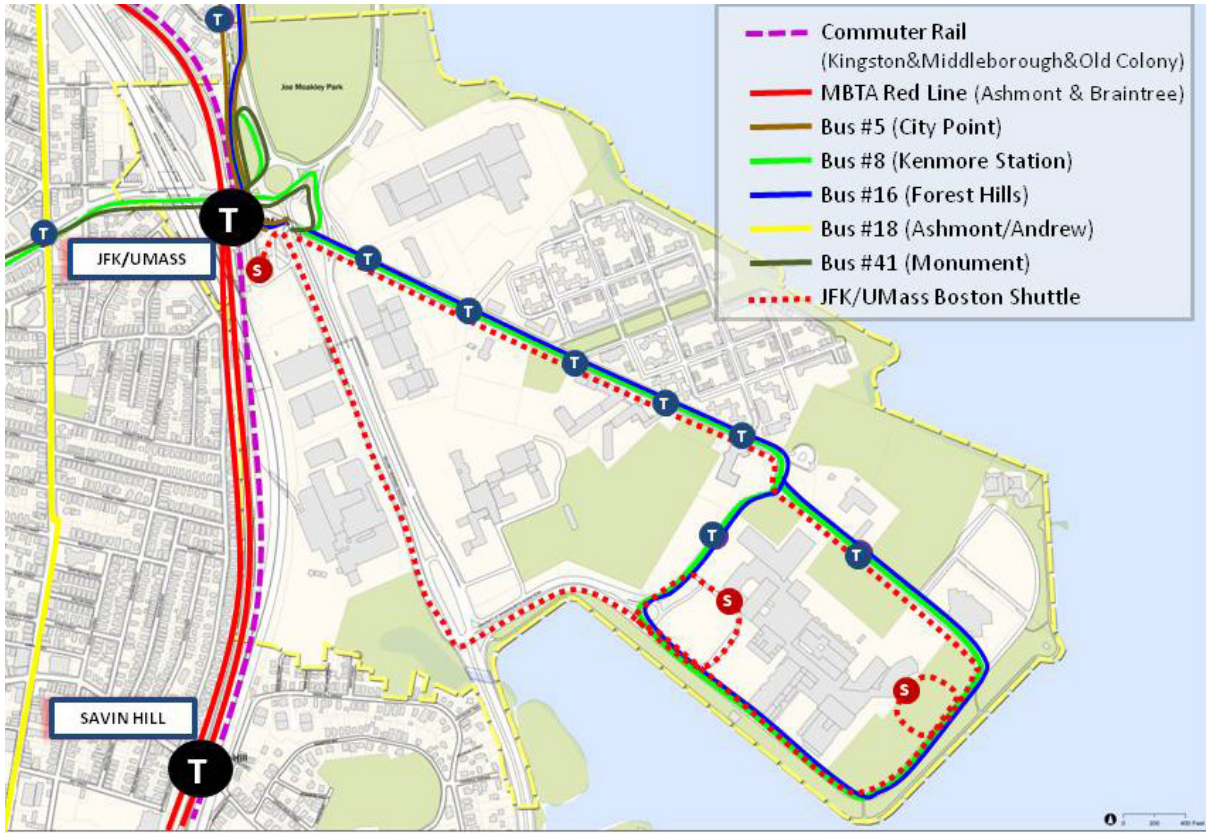
Much of Columbia Point is dominated by surface parking lots, with a total of approximately 9,600 off-street parking spaces currently in the Study Area. The magnitude of the largely free parking supply reflects the current auto-dependence of the area's travel needs. Almost 75% of employees in Columbia Point commute by car, and over 40% of residents in Columbia Point commute to work by car. The current journey-to-work mode shares for Columbia Point are shown in the figure at right.

Transit service for Columbia Point is concentrated at the JFK/UMass MBTA Station at the northwest corner of the study area, as shown in the figure on the next page. Transit service characteristics, including frequency, boardings and capacity, are included in Appendix D.



Existing journey-to-work mode share.

There is Red Line service between both Ashmont and Braintree to the south and, through downtown, to Alewife in Cambridge to the northwest. To the north, the Red Line provides strong transit connections to rail, Silver Line and bus services at South Station, the Orange Line at Downtown Crossing, and the Green Line at Park Street. In addition, Commuter Rail service between South Station and the Middleborough, Kingston and Greenbush Lines stops at the station.



Existing transit service.

The JFK/UMass MBTA Station currently operates at approximately 85% capacity during peak hours, with 4-minute headways. There are approximately 870 peak hour and 8,170 daily boardings at JFK/UMass MBTA Station. By contrast, there are fewer than 100 daily Commuter Rail boardings at the station. The MBTA plans to construct an additional Commuter Rail track in the future which will enhance service.

The figure on the following page also shows bus lines that service Columbia Point. While the rapid transit lines are radial, circumferential bus service is provided to Forest Hills, Jackson Square, Monument, Ruggles, Kenmore Square, and City Point by MBTA bus routes Nos. 5, 8, 16, 18, and 41, respectively. The peak and off-peak headways/frequencies are generally limited on the bus routes, and only routes 8 and 16 penetrate Columbia Point to serve the Mt. Vernon Street corridor and UMass Boston. In addition, UMass Boston operates shuttle bus service including 2 routes to and from the JFK/UMass MBTA Station; the Number 2 route serves the JFK Presidential Library and Museum and the Massachusetts State Archives and Commonwealth Museum.

As described in Chapter 4, pedestrian infrastructure in Columbia Point is limited to sidewalks on main roadways and the Harborwalk. A recently refurbished pedestrian bridge spanning over Morrissey Boulevard between Soverign Bank and the Shaw's Supermarket is used by many Boston College High students traveling to and from the MBTA station. Shaw's Supermarket helps support maintenance of this bridge. Apart from this, there is an absence of pedestrian connections and satisfactory crossing facilities on major roadways. Other than the designation of Columbia Road as a Priority Bicycle Corridor, a limited bike lane on the southbound Morrissey Boulevard frontage road,

and the Harborwalk, there are no specific bicycle accommodations in the study area.

Issues & Opportunities

Based on an analysis of existing conditions, as well as input from the Task Force, members of the community and other stakeholders, a number of existing transportation issues have been identified in the Study Area. Major issues include the following:

- The roadway network supporting Columbia Point is dominated by "through" traffic that does not have a local origin or destination in Columbia Point. At Kosciuszko Circle, between 80 – 95% of peak hour traffic is through traffic, while on Morrissey Boulevard approximately 70% of peak hour traffic comprises through traffic. These patterns reflect the use of Kosciuszko Circle and the Morrissey Boulevard corridor by regional traffic as an alternate to I-93.
- The local roadway network supporting Columbia Pont is extremely limited, and access relies substantially on Mt. Vernon Street, which in turn connects with the much more heavily trafficked strategic roadway network. With the exception of Harbor Point, the roadway grid within Columbia Point is very sparse.
- Operational deficiencies result in peak period congestion, delays and queuing at key locations, in particular at the I-93 ramps on Columbia Road, Kosciuszko Circle, the "Chute", and Morrissey Boulevard at Bianculli Boulevard. Congestion in the Columbia Road corridor as a whole frequently results from relatively closely-spaced intersections impacting each other.
- Major developments will attract substantial new traffic to the area, and with no infrastructure plan in place, roadway conditions will deteriorate even under the existing zoning scenario.
- The existing parking supply in Columbia Point is unconstrained and is generally available at no cost to authorized users. This is a significant factor in the choice of driving as a mode of transportation, particularly for employees in the area.
- In addition, despite the abundance of parking available for specific land uses in Columbia Point, there is a complete lack of short-term public parking to support public access to waterfront resources and any potential future retail uses.
- The resolution of regional traffic issues will require the collaboration of all stakeholders, including the various highway agencies and the community.
- The pedestrian network is very limited in Columbia Point, and there are major barriers to pedestrian linkages such as Morrissey Boulevard and the "Chute." Roadway crossings, pedestrian connections and access to the JFK/UMass MBTA Station are challenging for users, and contribute to a poor pedestrian environment overall. There is a lack of pedestrian connections not only within Columbia Point, but also with adjacent neighborhoods, such as the remainder of Dorchester to the west and nearby recreational facilities such as Joe Moakley Park in South Boston.
- There is a dearth of public bicycle accommodations in Columbia Point, with virtually no on- or off-street bike lanes or paths, with the exception of the Harborwalk. As is the case for the pedestrian environment, bicycle access and connections are very poor and there are major barriers to bicycle linkages.
- While multiple transit services are available at JFK/UMass MBTA Station, bus route connections with the station from within Columbia Point are very limited. As previously noted, pedestrian and bicycle access to the station is extremely poor.

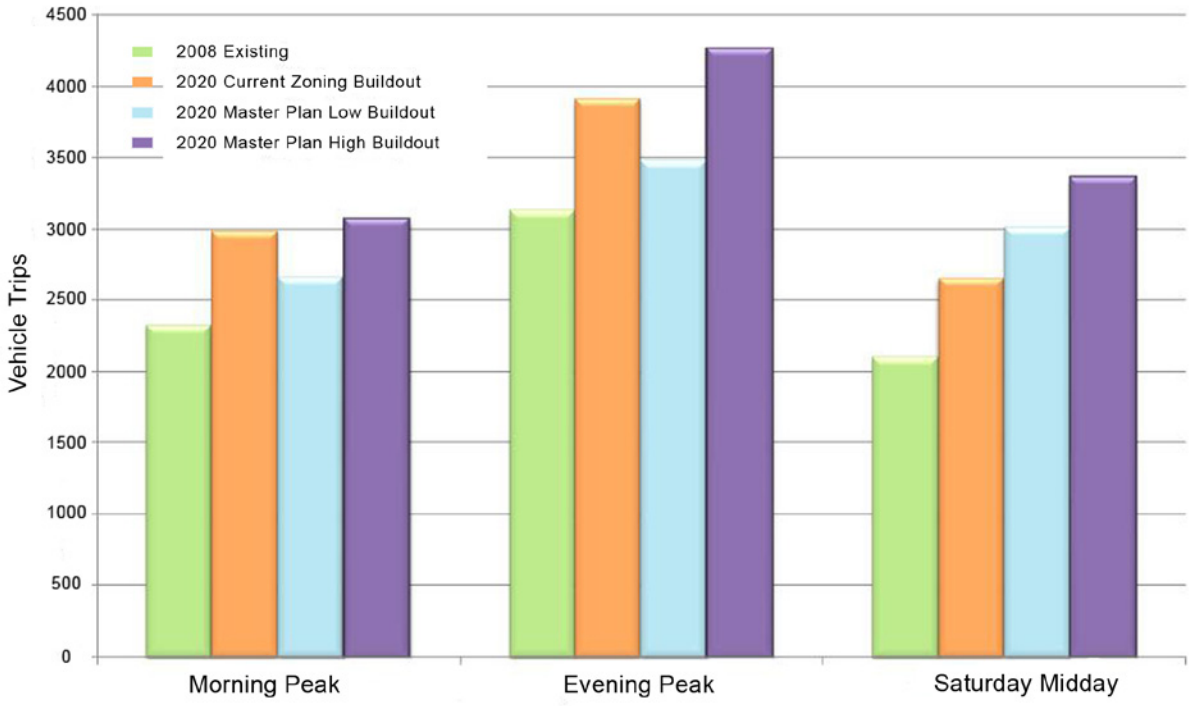
Recommendations

Principles

At the outset of the master planning process, a series of principles was established in collaboration with the Task Force, stakeholders and members of the community, to guide the development of the plan. Three of these principles refer specifically to transportation considerations, as follows:

- Vehicular Access: Create a roadway network that ensures good access and circulation for local residents and visitors while continuing to serve regional circulation needs;
- Transit Access: Maximize bus, rail, and water transit use by providing direct, convenient, safe, clear, and attractive connections to stations; and
- Pedestrian and Bicycle Access: Create a pedestrian and bicycle network which encourages walking and biking for both recreation and daily transportation.

Overall, these principles capture the need to address existing and expected transportation issues as articulated in the preceding section. To accomplish these principles, four key transportation goals are identified that individually consider different transportation aspects, but which in combination offer a comprehensive approach to the transportation challenges facing Columbia Point.



Peak hour vehicle trip generation.

Goals

To optimize the effectiveness of the Master Plan, it is necessary to do much more than simply identify potential "capacity fixes" for the existing and future transportation system. Rather, it is necessary to consider not only what roadway and traffic improvements might be possible, but also how vehicular trip generation can be minimized in the first place, how multi-modal mobility can be enhanced, and how the roadway network might better fulfill its function in providing good access for local traffic in and around Columbia Point. Indeed, in light of the dominance of regional traffic, it is likely that additional roadway capacity alone might simply be absorbed by through traffic.

6.1 Support a "smart growth" mix of land uses that minimizes vehicular traffic.

The type and mix of land uses play a significant role in demand for movement. Not only do different types of uses generate differing intensities of travel demand, but the combination of certain uses can often eliminate the need for "external" trips (i.e. trips with an origin or destination outside the immediate neighborhood). For example, residential development generates lower peak hour travel demand than a comparable size of commercial development and the inclusion of a mix of retail use with residential often eliminates the need for "external" trips to be made out of the area for day-to-day shopping needs. Moreover, if some shopping needs are satisfied within a neighborhood, those trips are much more likely to be made by non-auto modes.

Policies:

The Master Plan includes four key policies designed to accomplish this goal, as follows:

6.1.1 Emphasize residential development that generates less concentrated peak hour traffic.

As described in Chapter 4, Land Use and Urban Design, the Master Plan buildout scenarios for Columbia Point significantly increase the proportion of residential development compared with what might otherwise be built out under existing zoning. The figure at left presents a comparison of peak hour trip generation for the development parcels in the study area under existing and future year 2020 buildout (which includes the former buildout assumptions for the Bayside Expo site). This analysis shows that on weekdays peak hour trip generation would be lower under the Master Plan "Low" buildout scenario than for buildout under existing zoning.

6.1.2 Plan for land uses that encourage "internal" trip making.

Again as described in Chapter 4, Land Use and Urban Design, the Master Plan includes a mix of residential, retail and commercial/office uses, intended not only to create lively spaces, but also to increase the number of "internal" trips (i.e. trips with an origin and destination within the immediate neighborhood) that can be made by walking or biking, and reduce the number of "external" trips that are more likely to be made by car.

6.1.3 Reduce parking ratios, consistent with BTD's Access 2000-2010 parking ratios.

The availability of ample low-cost or free parking plays a significant role in the choice of driving as a mode of transportation. This is especially the case for journey-to-work, where an employee's choice to drive is influenced much more by the availability of parking at the workplace rather than the availability of parking at the home-base. Accordingly, constraint on parking supply to meet demand is an effective tool to reduce auto travel, particularly for single occupant vehicles (SOVs). The presence of relatively few property owners on large sites should facilitate management of the supply of parking into the future.

Under existing zoning, more generous parking ratios are permitted. These ratios are generally inconsistent with the more constrained parking ratios for Dorchester recommended as follows by BTD in the Access 2000-2010 report:

	Residential	Non-Residential
Near MBTA Station	0.75 - 1.25 space per units	0.75 - 1.25 spaces per 1000 SF
Distant from MBTA Station	1 - 1.5 spaces per unit	1 - 1.5 spaces per 1000 SF

Table 6.1: BTD (Access 2000-2010) Parking Ratios.

In addition to parking supply constraint, the amount of parking can be reduced by exploring opportunities for shared parking. For example, commercial development such as offices, with its heavy daytime demand, can often share parking spaces with residential or hotel uses where the demand is concentrated in the evening, night-time and weekend periods.

6.1.4 Implement parking management/ pricing strategies to discourage auto use.

As previously noted, the cost of parking is a major factor in the choice of driving as a mode of travel, particularly as it relates to parking at the workplace. Accordingly, implementing a consistent strategy of parking pricing has the potential to significantly reduce auto use.

To accomplish this, all parking for employees should be priced consistently throughout the area at a level that represents a meaningful disincentive for commuters. In addition, it is essential that this cost be borne by the individual commuter rather than absorbed by the employer, either by a real payroll deduction for parking or by providing a "cash" incentive for non-auto commuters.

The strategy for managing and pricing on-street or public parking needs to balance the discouragement of auto use with the requirement to support local business/retail activity and provide for other short-term visitor needs. This is typically accomplished through regulation of on-street parking and public parking facilities by a combination of type of user groups, time of day, time limitations, and pricing strategy, to ensure that resident and visitor needs are met but that commuter parking is not provided for.

6.1.5 Require development to incorporate sound multi-modal planning.

Multi-modal mobility needs to be reinforced through appropriate planning of individual developments as well as by master planning guidelines. The success of providing mode-choice alternatives for residents, employees and visitors at Columbia Point must be supported by ensuring that the planning and permitting of individual developments incorporate designing for all modes and commit to sound transportation demand management (TDM) strategies.

6.2 Enhance mobility by non-auto modes.

Availability of non-auto alternatives must complement any other strategies to reduce auto travel. Incorporating disincentives for driving on its own cannot shift the balance to non-auto modes if such alternatives are not available, feasible and attractive to users.

Policies

The Master Plan includes seven key policies designed to accomplish this goal, as follows:

6.2.1 Create new pedestrian and bicycle connections within Columbia Point.

As described and illustrated in Chapter 4, a network of new pedestrian and bicycle routes is proposed, including off-street paths and on-street bike lanes. These new networks not only provide better connectivity for pedestrians and

bicycles within Columbia Point, but also create a strong connection to the JFK/UMass MBTA Station.

6.2.2 Create connections to surrounding neighborhoods.

Again as described in Chapter 4, several new non-auto connections are proposed, including connections between Harbor Point and the former Bayside Expo site, a pedestrian/bicycle connection to Columbia Point from the Savin Hill neighborhood adjacent to Patten's Cove, and an enhanced connection to the Dorchester neighborhoods west of I-93 to be accomplished in conjunction with the redevelopment of the JFK/UMass MBTA Station site.

6.2.3 Improve pedestrian accommodations at traffic intersections and crossing points.

In addition to addressing existing difficult or absent pedestrian crossings, pedestrian crossing accommodations should be a priority in future planning and design for Columbia Point. Several existing locations, including the "Chute" at Mt. Vernon Street, and Morrissey Boulevard at Bianculli Boulevard, are particularly difficult for pedestrians with long crosswalks, multiple islands/crossing points and heavy vehicle turning movements. Future improvements should address these issues, and new locations should be designed to accommodate pedestrian (and bicycle) needs with the same priority as vehicular traffic.

6.2.4 Incorporate detailed planning for pedestrian access in all development.

Pedestrian accessibility requires careful planning and attention to detail beyond just the connectivity provided by a pedestrian network. To be successful, pedestrian needs also require attention to design details such as locations of entries, adequate width of sidewalks clear of obstructions, smooth walking surfaces, and compliance with the Americans with Disabilities Act of 1990 (ADA), among many others.

6.2.5 Provide bicycle parking and supporting facilities as an integral part of all development.

Bicycle parking is as important for commuter and recreational bicycle riders as auto parking is for drivers. Typically, bicycle parking needs are based on a percentage of auto parking, and therefore bear little relationship to actual bicycle parking demand. More realistically, bicycle parking needs should be based on the size of user group populations such as residents or employees. Long-term and short-term parking needs should be considered, and indoor or sheltered bicycle racks of an appropriate design and supported by shower, changing or locker facilities should be incorporated in all developments.

For larger projects, bicycle stations or other supporting facilities should be considered. The JFK/UMass MBTA Station is a location where bicycle facilities should be provided to meet the needs of transit riders who might cycle as part of their overall trip. Further, the possibility of a bike-sharing program should be considered where bicycles are available for pick-up or return at key destinations in and around Columbia Point, including at the station.

6.2.6 Build upon existing MBTA and UMass Boston shuttle service to provide enhanced service that better integrates transit access with the wider public transit network.

As previously noted, many transit services are available at JFK/ UMass MBTA Station, but bus route connections with the station from within Columbia Point are very limited. MBTA bus routes Nos. 8 and 16 currently penetrate Columbia Point at certain times, but with relatively long headways that do not meet the needs of residents or employees in the area.

The Urban Ring project will ultimately connect JFK/UMass MBTA Station with the entire radial transit network serving the Boston core, thereby better connecting Columbia Point with other work, residential, institutional, and recreational destinations in the region. The Master Plan should strongly support this transit/connectivity opportunity.

In addition to improved service frequency, the possibility of a shuttle service (using small, alternate-fuel vehicles) should be investigated in conjunction with new development. The possibility of building upon the shuttle service currently operated by UMass Boston should be investigated, perhaps as part of yet-to-be created Transportation Management Association (TMA).

Moreover, any new development should be located within a 1/4 mile of a transit or shuttle stop that offers frequent and direct connections to the JFK/UMass MBTA Station.

6.2.7 Incorporate mode share goals in development permitting supported by a concrete plan to accomplish these goals.

While the desire to reduce SOV travel can be supported by the types of initiatives already identified, the incentive to effectively accomplish reductions in auto mode share could be formalized by the incorporation of mode share goals in development permitting. Typically, such goals would be tracked by a mandatory monitoring program, with requirements for additional actions if goals are not met.

6.3 Provide a roadway/traffic hierarchy that will benefit local traffic and enhance accessibility for Columbia Point.

As previously noted, the strategic roadway network supporting Columbia Point is dominated by through traffic that does not have a local origin or destination in Columbia Point. Furthermore, the local roadway network supporting Columbia Point is extremely limited, and access relies substantially on Mt. Vernon Street, which in turn connects with the much more heavily trafficked strategic roadway network. With the exception of Harbor Point, the roadway grid within Columbia Point is very sparse.

Policies

The Master Plan includes two key policies designed to accomplish this goal, as follows:

6.3.1 Intensify/supplement roadway grid within Columbia Point.

As indicated in Chapter 4, Land Use and Urban Design, several large parcels within the study area are likely to be redeveloped during the timeframe of the Master Plan, including the former Bayside Expo/existing Boston Teachers Union parcels, MBTA air rights parcels, and the Synergy parcels. Neither the Boston Globe nor the owners of the Sovereign Bank parcel have any plans at this time to redevelop these sites. Nevertheless, in the event that these parcels are to be redeveloped, the Master Plan contemplates the type and scale of development that should be allowed to occur there.

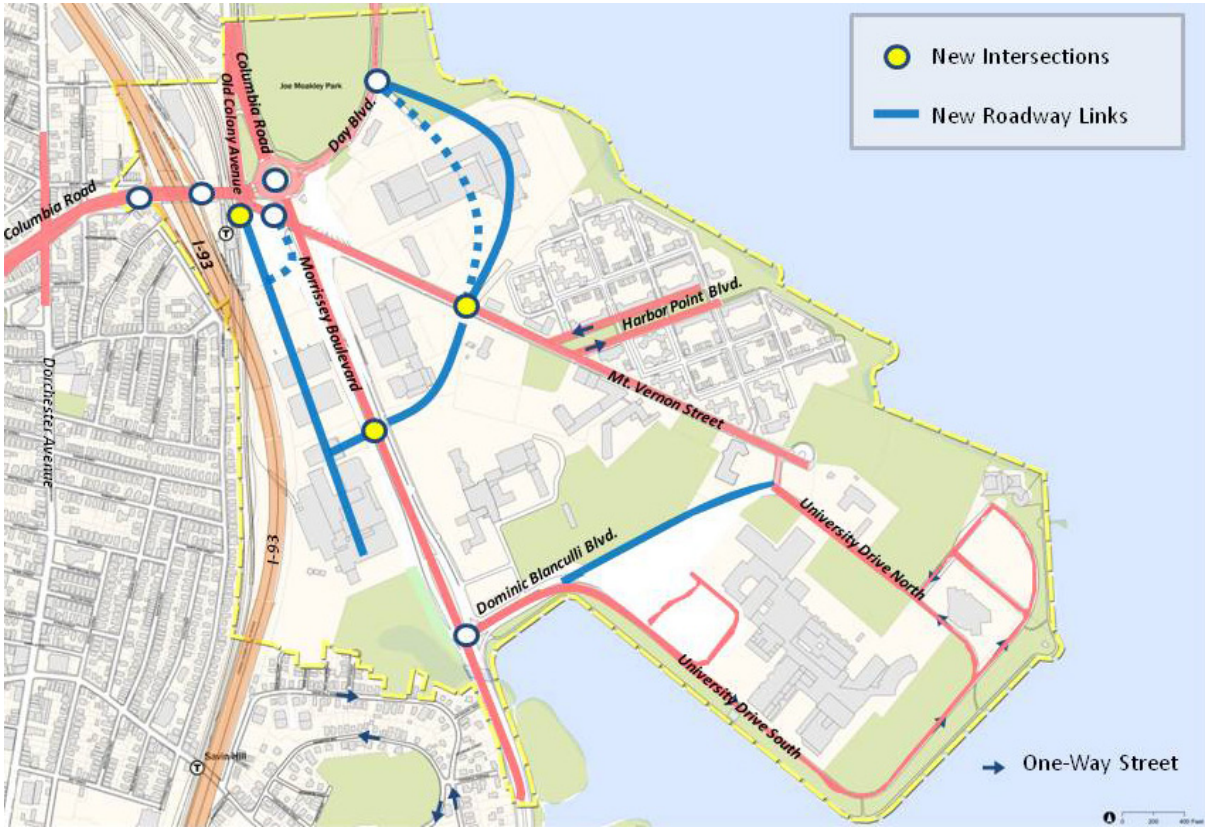
To distribute local traffic within these areas and facilitate convenient access for vehicles, bicycles and pedestrians,

a new roadway grid is required. New roadways within each development area will likely be built as surrounding development moves forward, and the completion of an entire grid for Columbia Point will be accomplished in multiple phases.

The concept for the new grid is illustrated in Chapter 4. It is critical that future planning for Columbia Point adheres to such an overall concept to facilitate its realization.

6.3.2 Modify roadway network to accomplish better separation between local and through traffic.

The creation of a new street grid within Columbia Point is only one component in facilitating better accessibility for local needs. For traffic accessing the area from the wider roadway network, more strategic changes are proposed in the long-term to better separate local and regional traffic, and provide a much-expanded choice of access from the regional roadway system to relieve the primary dependence on Mt. Vernon Street and Kosciuszko Circle. The concept for this roadway network is presented on the following page. Although the cross-section of each of the roadways (including the number of travel lanes and the accommodation of on-street parking) is described below, these cross-sections will need to be addressed in more detail during final design.



Ultimate conceptual roadway network.

Three new connector roadways are proposed, as follows:

(i) Between Morrissey Boulevard and Mt. Vernon Street, providing a more direct connection between Mt. Vernon Street

and the Morrissey Boulevard corridor. It is projected that this new roadway will attract approximately 1,000 – 1,300 peak hour trips that would otherwise use existing roadways. The roadway is shown as four lanes - one travel lane and one parking lane in each direction - with four travel lanes at the intersection and an off-road multi-use path.

(ii) Between Mt. Vernon Street and Day Boulevard through the former Bayside Expo parcel (and possibly the Boston Teachers Union parcel) providing direct access from both Day Boulevard and Mt. Vernon Street. In turn, those parcels would be more directly connected to Morrissey Boulevard via the connector roadway described in (i) above. It is projected that this new roadway will attract approximately 1,400 – 1,600 peak hour trips. The roadway is shown as four lanes - one travel lane and one parking lane in each direction - with four travel lanes at the Mt. Vernon Street intersection and three at the Day Boulevard intersection. Access to the State Police facility at Day Boulevard will need to be addressed during the design of this connection.

(iii) Between Old Colony Avenue and Morrissey Boulevard through the MBTA station, Synergy, Boston Globe, and Channel 56 parcels west of Morrissey Boulevard, providing direct access from Morrissey Boulevard and Old Colony Avenue/Mt. Vernon Street for all of those parcels. The roadway is shown as four lanes - one travel lane and one parking lane in each direction.

In turn, depending on the conclusions of the comprehensive traffic study and plan recommended in Implementation Action 6.10 below, the proposed new roadway connectors may allow certain modifications to the existing primary roadway network intended to better separate through and local access traffic and relieve a number of critical traffic locations such as the "Chute" and Kosciuszko Circle. As is the case for the internal roadway grid, the new connector roadways will likely be built as and when surrounding development moves forward. The completion of the entire new network is a long-term objective. However, as each new roadway connector is available, it may be possible to eliminate the following roadway links, as follows:

(a) The northbound frontage road on Morrissey Boulevard, when the new roadway link between Morrissey Boulevard and Mt. Vernon Street is complete.

(b) The "Chute", when the new roadway link between Mt. Vernon Street and Day Boulevard is complete.

(c) The southbound frontage roadway on Morrissey Boulevard, when the new link between Old Colony Avenue and Morrissey Boulevard is complete. In turn, this would allow the creation of a new dedicated bus loop around a reconfigured JFK/UMass MBTA Station.

The elimination of the existing roadway links identified above would be accomplished in several phases. Accordingly, there may be interim or temporary changes that will be possible or necessary as the timing of development and infrastructure evolves over the long-term. However, again it is critical that future planning for Columbia Point adheres to such an overall concept to facilitate its ultimate realization.

(iv) Finally, certain changes in the roadway network supporting the UMass Boston campus are recommended, including the conversion of the existing one-way peripheral roadway to two-way traffic operation, and the introduction of a two-way extension of Bianculli Boulevard to Mt. Vernon Street. These changes would be implemented by UMass Boston, and are independent of the changes previously described above.

Traffic analysis of the proposed roadway network in 2020 with buildout under the Master Plan has been compared with 2020 buildout under existing zoning assuming no infrastructure changes. In general, this analysis shows that, while traffic volumes will increase and intersection operations will worsen over time under both existing zoning and under the Master Plan, the changes are less under the Master Plan buildout scenarios with the proposed infrastructure changes (e.g., new and modified roadways) than would prevail under the existing zoning scenario with no roadway changes.

6.4 Address existing and future traffic deficiencies at key roadways and intersections.

The new future roadway network will result in much better traffic and roadway conditions than would otherwise prevail under existing zoning with no Master Plan in place. Existing problem locations and future traffic growth must be addressed separately under any scenario. In light of the complexity of specific potential traffic and roadway improvements, it is neither appropriate nor realistic to identify and make recommendations at the master planning level other than acknowledging the fact that these locations need to be improved through focused efforts.

Policies

The Master Plan includes three key policies designed to accomplish this goal, as follows:

6.4.1 Incorporate traffic/transportation performance standards in development permitting.

As noted previously, the accomplishment of reduced auto mode shares is a critical step in reducing traffic generation, and mode share goals should be incorporated in development planning and permitting. It is also possible to incorporate performance standards for developments that require achievement of certain LOS at specific locations. Phase roadway planning and transportation infrastructure in a timely way to serve new development.

As discussed previously in relation to Goal 6.3, the timing of changes to the roadway network can occur in many different sequences, depending on the timing of development, but it is critical that future planning for Columbia Point adheres to such an overall concept to facilitate its ultimate realization. New development should only be permitted when it is consistent with this concept plan.

6.4.2 Identify potential strategies to address capacity and operational problems.

At several locations, existing difficulties would no longer prevail as a result of the elimination of certain roadways such as the "Chute." In other locations, the relocation of existing intersections such as Old Colony Avenue/Mt. Vernon Street/Morrissey Boulevard frontage road, or the creation of new intersections that do not exist today, in itself creates the opportunity to design intersections that will satisfy operational needs.

Potential improvement strategies at key problem locations include the following:

Kosciuszko Circle

- Comprehensive signage and striping to maximize operational efficiency.
- Eliminate left turn from the "Chute" (Short-term).
- Eliminate Columbia Road U-turn (required by northbound I-93 off-ramp traffic).
- Create "slip lanes" so "right turns" do not enter the rotary.
- Signalization and conversion to a "T" intersection.
- Underpass or overpass to separate through traffic.

Columbia Road/I-93 Southbound Ramps

- Comprehensive signage and striping.
- Revise lane designations.
- Optimize signal phasing/timing.
- Coordinate with northbound I-93 ramps.

Columbia Road/I-93 Northbound Ramp

- Comprehensive signage and striping.
- Provide two lanes on northbound on-ramp.
- Right-turn storage lane on westbound Columbia Road.
- Signalize in coordination with southbound ramp intersection.
- Break median to allow northbound left-turn to Columbia Road (only in conjunction with signalization).

Morrissey Boulevard/Biancuilli Boulevard

- New layout can be designed to required capacity.
- Relocate turning lanes & U-turn to allow simplified signalization.
- Pedestrian accommodations including a strong continuous connection to the Savin Hill neighborhood.

Implementation Actions

6.1 As part of the Article 80 review process, the BRA and BTD shall require development proponents to commit to a minimum 10% reduction in existing SOV mode shares in Columbia Point. Proponents will be required to monitor the actual mode share on an annual basis and implement additional strategies if goals are not met.

6.2 As part of its Article 80 review of proposed new development in Columbia Point, the BRA will adopt and enforce constrained parking ratios recommended by BTD in the Access 2000-2010 report.

6.3 The BRA shall require development to incorporate sound, "complete" multi-modal planning, to include pro-active planning, design and implementation of infrastructure and management strategies that specifically promote walking, bicycling and use of transit as described in other relevant implementation actions.

6.4 As part of the Article 80 review of proposed new development, the BRA shall require detailed planning for pedestrian access in all development, including, but not limited to, locations of entries, adequate width of sidewalks, clearance from obstructions, placement of street furniture, smooth walking surfaces, street crossing accommodations, and ADA compliance. Proposals for maintenance and snow removal strategies will also be required.

6.5 As an integral part of all development, provide bicycle parking and supporting facilities, consistent with the City of Boston Bicycle Facilities Standards (currently being developed by the City).

6.6 Through the City's Director of Bicycle Programs, and as part of the Article 80 review process, the BRA and BTD shall seek

opportunities to implement a bicycle sharing program for Columbia Point.

6.7 BTD, working with the BRA, shall require commitments to effective TDM plans as part of a Transportation Access Plan Agreement (TAPA) with BTD. The goal of the TDM plan is to reduce SOV commuting by encouraging carpooling and vanpooling, commuting by bicycle and walking, increased use of public transportation, and other sustainable modes. Components of a TDM plan should consider, but not be limited to the following:

- Joining a TMA.
- Designation of an Employee Transportation Coordinator.
- Dissemination of transportation information regarding alternatives to auto commuting.
- Hosting an annual transportation fair.
- Providing for pre-tax sale of transit passes.
- Providing transit subsidies.
- Providing spaces for use by a car-sharing company (such as ZipCar).
- "Unbundling" of parking, which means leasing or selling parking spaces separately so that residents who do not need or want a parking space do not have to have it unnecessarily.
- Ride matching/car pooling programs.
- Preferential parking/set-asides for car pools/van pools.
- Emergency ride home programs.
- Secure, covered bicycle parking with access to changing/shower facilities.
- Flexible work schedules.
- Parking pricing and/or cash incentives for non-auto commuters.

6.8 Establish a TMA for Columbia Point. Funding for start-up may be available through State and/or Federal programs. Alternately, the possibility of establishing an extension of an existing TMA, such as the Seaport TMA or A Better City TMA, should be explored.

6.9 The BRA and BTD shall work with the MBTA, UMass Boston, other transit service providers, and stakeholders to explore improved bus service and/or shuttle bus service within Columbia Point. This shall include working to ensure that new bus and shuttle stops are provided such that all development is served by transit stops located within no more than 1/4 mile walking distance and that these stops provide frequent and direct service to JFK/UMass MBTA Station.

6.10 In collaboration with BTD, the BRA shall immediately reach out to relevant State transportation agencies and private stakeholders to initiate a comprehensive Study and Transportation Plan for Kosciuszko Circle, the I-93 access ramps, Columbia Road between Edward Everett Square and Kosciuszko Circle, and Morrissey Boulevard between Bianculli Road and Kosciuszko Circle. Some of the key issues to be addressed by this comprehensive study and master plan should include, but not be limited to, the following:

- A full analysis of existing and future traffic, bicycle and pedestrian conditions.
- An analysis of alternative solutions, including the options listed in Policy 6.4.2 above .
- An analysis of the impacts of Master Plan buildout on these roadways, including the proportional impact of each of the redevelopment parcels

at full Master Plan buildout in the larger regional context. In part, the goal would be to determine levels of responsibility on the part of each development for improvements to these roadways.

- Recommended new design solutions for these roadways to accommodate long term local and regional growth.
- In addition to traffic capacity improvements these recommendations must adhere to the City's "Complete Streets" policies which will require optimal accommodations for bicycles and pedestrians.
- An analysis of applicable US Department of Transportation Section 4(F) regulations concerning the use of publicly served parkland as well as applicable EOEEA land disposition policy.

6.11 The BRA and BTD will establish inter-agency/stakeholder groups to refine proposed Master Plan roadway concepts and to bring them to conceptual design.

6.12 The BRA and BTD shall require dedication of right-of-ways and/or construction of new roadways as defined in concept by the Master Plan where developments are located on these alignments, consistent with phasing and implementation of those infrastructure components.

6.13 As new development is proposed, the BRA shall require developers to analyze and/or design and/or fund roadway improvement strategies at key locations based on potential strategies identified in the Master Plan.

6.14 Eliminate Morrissey Boulevard frontage roadways only when corresponding replacement roadways are in place and operational.

6.15 Eliminate the "Chute" only when corresponding replacement roadways are in place and operational, as well as if the loss in traffic capacity can be adequately absorbed.

6.16 As an alternate, or in addition, to mode share goals, the BRA and the BTD shall consider the application of certain traffic performance criteria as part of the Article 80 review process.

The following items are available in Appendix D.

- Existing peak hour traffic volumes
- Existing LOS analysis
- Transit service operations
- Buildout trip generation analysis
- Buildout link traffic volume projections
- Buildout intersection traffic volume projections
- Buildout LOS analysis
- Buildout trip generation analysis
- Buildout link traffic volume projections
- Buildout intersection traffic volume projections
- Buildout LOS analysis

7 OPEN SPACE, RECREATION, & WATERSHEET ACTIVATION

This chapter addresses open space, recreation and watersheet activation. Blessed with spectacular open space resources, Columbia Point must be poised to both preserve and enhance these resources as part of the Master Plan. Because Columbia Point is surrounded on three sides by the ocean, its waterfront and shoreline form an integral part of the open space system.

Background

Open Space

Open space on Columbia Point - distributed all around the Study Area and owned by a variety of agencies including the City of Boston, DCR, the federal government, and private institutions - totals

The Harborwalk provides beautiful views to the Harbor Islands, Carson Beach and downtown.

Existing open space within the Study Area. Numbers correspond to Table 7.1.

Key Number	Open Space Name	Location	Acreage in Project Area	Total Acreage	Open Space Type	Ownership & Management	Amenties	Neighborhood District	Notes
1	Boston College HS Athletic Fields	William T. Morrissey Boulevard	19.13	19.13	Athletic Field	Private	Baseball Fields, Soccer Field, Tennis Courts, Stadium	North Dorchester	
2	Calf Pasture	University Drive North	10.00	10.00	Natural Area	City of Boston/ Boston Water & Sewer Commission	Nature Trail	North Dorchester	Approximately 8 acres recently paved for parking
3	Carson Beach	William J. Day Boulevard	6.00	24.70	Beach	DCR	Concessions, Passive Area, Parking Area, Promenade, Bathhouse, Fishing Pier	South Boston	
4	Columbia Road/ Day Boulevard	Area near Columbia Road/ Morrissey Blvd. intersection	3.50	17.50	Parkway	DCR	Sidewalks	South Boston	
5	Harbor Point Boulevard	Harbor Point Boulevard & Mount Vernon Street	2.30	2.30	Mall	Private	Passive Area, Tennis Courts, Path	North Dorchester	Approximately 20 percent of total parkway acreage
6	Joe Moakley Park	Between William J. Day Blvd. & Columbia Rd.	13.80	58.68	Park	Boston Parks Department	Baseball/Little League & Softball Fields, Football Field, Soccer Fields, Basketball Courts, Tennis Courts, Street Hocky Rink, Children's Play Lots, Water Spray Feature, Concessions, Field House, Passive Area, Parking Area, Artwork/Monuments, Track & Stadium	South Boston	24 percent of total park acreage
7	Kennedy Library Harborwalk	Columbia Point	3.31	3.31	Plaza & Path	Federal	Passive Area	North Dorchester	
8	Old Harbor Easement	Abuts water's edge in rear of Bayside Expo Center	1.86	1.86	Reser-vation	DCR	Path	North Dorchester	
9	Old Harbor Park	North Point Drive & Ocean View Drive	11.50	11.50	Reser-vation	DCR	Passive Area, Promenade, Ped/Bike Path, Shelters, Picnic Tables	North Dorchester	
10	Patten's Cove	William T. Morrissey Boulevard	9.56	9.56	Reser-vation	DCR		North Dorchester	
11	UMass Boston Athletic Fields	University Drive North & East	11.30	11.30	Athletic Field	Commonwealth	Baseball Field, Soccer Field, Tennis Courts, Stadium	North Dorchester	Recent site work & building expansion approximately 14 acres of useable open space
12	UMass Harbor Walk	University Drive East & South, Dominic J. Bianculli	13.06	13.06	Reser-vation	Commonwealth	Path	North Dorchester	
13	Sharon's Park	Intersection of Columbia Rd. & Buttonwood St.	0.03	0.33	Park	City of Boston	Landscaping, seating wall	North Dorchester	
	TOTAL		105.35	183.23					

Table 7.1: Existing open space (numbers correspond to the figure on the previous page).

DCR's Patten's Cove Park connects the Savin Hill neighborhood to Columbia Point.

Newer portions of the Harborwalk include interpretive elements and steps leading down to the water. The downtown Boston skyline is visible in the distance.

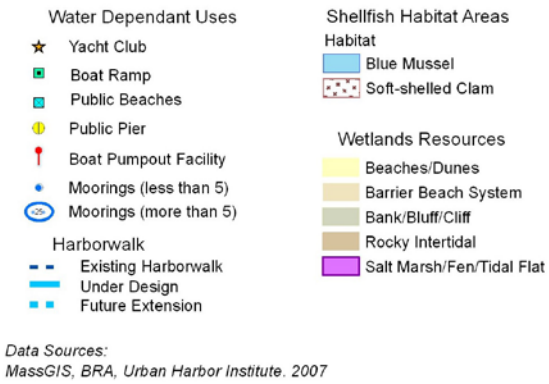
The Harborwalk is actively used by pedestrians and cyclists.

approximately 105 acres (see figure at right and Table 7.1). The area within a 1/2 mile radius of the Study Area has approximately 7.62 acres of protected open space per 1000 residents, well above the City's goal of 2.5 acres/1000 residents in the "inner core" and 5.0 acres/1000 residents outside of the "inner core." Within the Study Area, much of the open space comprises playing fields associated with schools, including Boston College High School, UMass Boston and the McCormack Middle School. Joe Moakley Park on the northern end of the Study Area provides public playing fields. The remainder of the open space is primarily passive recreation areas, such as Patten's Cove Park and the Calf Pasture.

The Harborwalk provides almost uninterrupted access to the harbor around the perimeter of the Study Area, with the exception of the short uncompleted section through the Calf Pasture. The Harborwalk also provides a seamless connection to Carson Beach and other South Boston beaches to the north, and continues a short distance to the south. A link further south to Malibu Beach is planned by DCR, eventually linking Columbia Point to Tenean Beach and the Neponset River Greenway.

Watersheet

The figure on the following page provides information about the watersheet -- that is, water-related uses – on Columbia Point. Public access locations to the water include two boat landing areas, primarily consisting of pile-supported piers and floats. The John T. Fallon State Pier, located near the JFK Presidential Library and Museum, is a full-service facility with shore power, fresh water, crane service, security, safety lighting, two 100-foot floats with gangways, a 171-foot large vessel dock face, and a dredged access channel. The other boat landing, adjacent to UMass Boston, is Fox Point Landing, a year-round, multi-purpose facility with an 80-foot main float, two 60-foot finger floats, decking with shore power, a security gate, safety lighting, a sheltered pavilion, an information booth, and vending machines. Additionally, there is also a



Fox Point Landing.

Watersheet existing conditions (legend at left).

mooring field at the southern point of the shoreline (accessible via Fox Point Landing).

Extensive natural resources lining the shoreline include: rocky intertidal zones; beach resources; Soft-Shelled Clam (*Mya arenaria*), Blue Mussel (*Mytilus edulis*), and Atlantic Jackknife Clam (*Ensis directus*) habitats; salt marsh; and tidal flats.

Issues & Opportunities

Issues

Throughout Columbia Point there is a need for better connections to existing open spaces and a more complete open space system. As a result of poor pedestrian crossings on Day Boulevard and Morrissey Boulevard, connections to Joe Moakley Park and Patten's Cove are particularly difficult. There is also a desire for greater pedestrian connections to the Harborwalk from the Savin Hill and Dorchester neighborhoods.

In addition, Columbia Point's vast shoreline is generally underutilized. The public landing nearby at the Old Colony Yacht Club was closed by National Grid for security reasons. There are only two existing public landings on Columbia Point.

Opportunities

- The redevelopment of much of Columbia Point provides the opportunity to both introduce new open space and to link new and existing open space resources into a peninsula-wide network, as well as into the larger regional open space network.
- The creation of a new roadway system provides the opportunity for a greatly improved pedestrian and bicycle network.
- The inclusion of additional public access ways and facilities along the waterfront, as well as activation of the watersheet via boat rentals (*i.e.*, non-powered, self-propelled small vessels) and additional water-based transit, may be possible at redeveloped sites, such as the Bayside Expo site.
- In terms of harbor planning, there are a number of existing citywide plans that incorporate the Dorchester Bay Waterfront District as a planned area, including the City of Boston Municipal Harbor Plan: Harborpark Plan (MHP). The anticipated renewal of the Harborpark Plan will include a Watersheet Management Plan for Dorchester Bay that will provide further guidance to state regulators on the activation of the Columbia Point watersheet. The City will also update the Boston Inner Harbor Passenger Water Transportation Plan to include water transit planning for Columbia Point. This will be a critical element to establish the blueprint for the development of new uses and public structures along Dorchester Bay.

Recommendations

Principles

Open Space and Recreation: Develop a public open space system of active and passive parks, squares, walkways, and streets, connected both with each other and to the larger open space system.

Goals and Objectives

Open Space Goals and Objectives

Recommendations are illustrated on pages 74 and 76. See Chapter 4 for roadway sections illustrating pedestrian and bicycle paths.

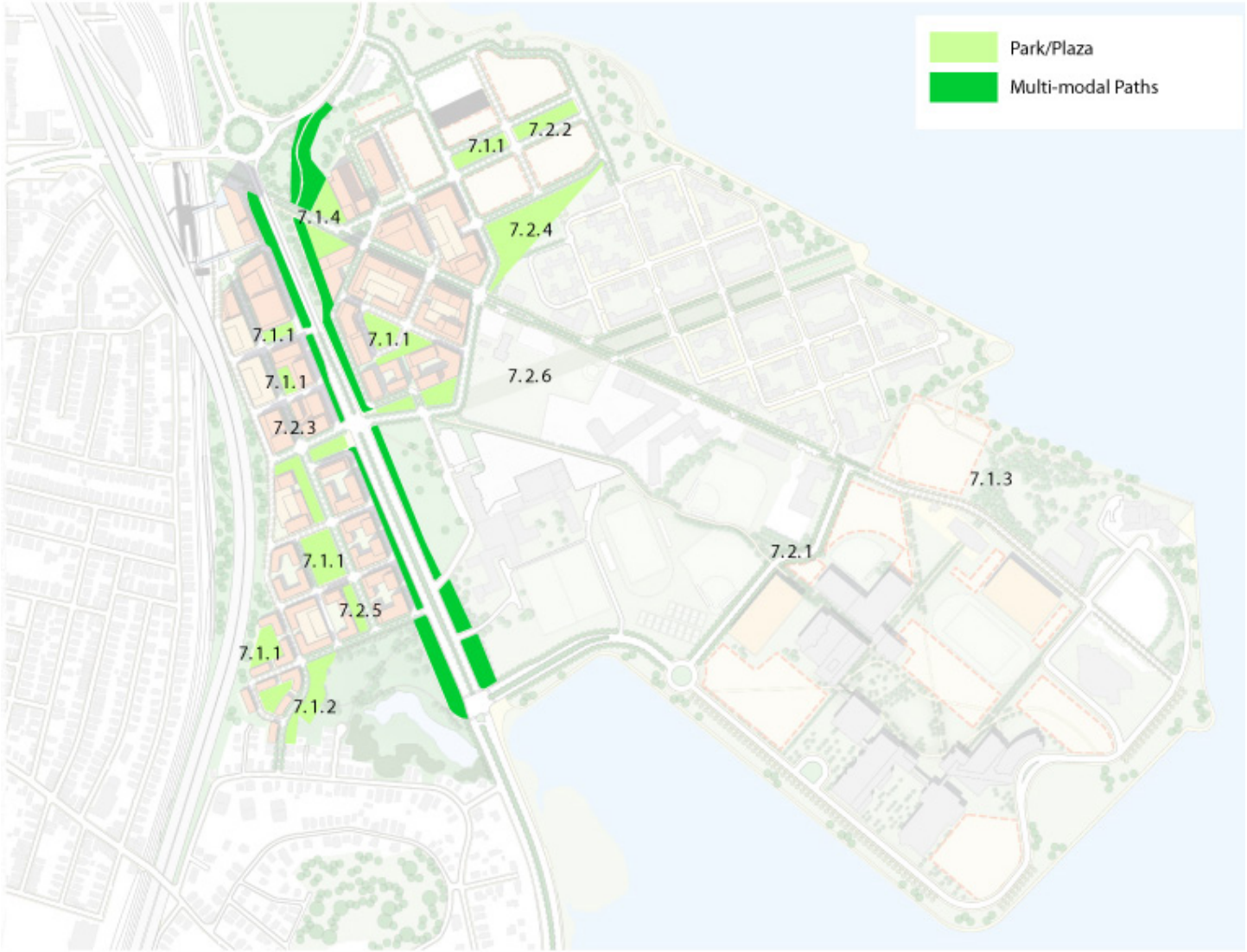
7.1. Provide attractive, useable, active, and passive open space to serve both existing and new residents and visitors to the area.

7.1.1. Create internal parks within redevelopment parcels, including the Bayside, Synergy, Boston Globe, and Sovereign Bank sites. Developers should strive to include play lots, courts, and active playing fields, where possible.

7.1.2 Maintain and preserve all new parks developed on privately owned land through Chapter 91 licensing, Article 80 approvals, zoning approvals, and/or conservation restrictions, as appropriate.

7.1.3 Expand DCR's Patten's Cove Park as part of the potential redevelopment of the Boston Globe site.

7.1.4 Improve/expand Calf Pasture as part



Illustrative site plan with new open space highlighted; numbers correspond to objectives.

of the development of the UMass Boston Master Plan.

7.1.5 Create a new gateway park adjacent to the Bayside and Sovereign Bank parcels, across Morrissey Boulevard from the JFK/UMass MBTA Station to create a dramatic and inviting entry into the district. The rectangular park, proscribed on two sides by buildings on the Bayside and Sovereign Bank parcels, is divided into two triangles by the northern end of Mt. Vernon Street (see 7.3.4 below). The park is shown with a paved area adjacent to buildings on the Bayside and Sovereign Bank parcels to provide outdoor seating or gathering areas for adjacent uses. The interior of the triangles has planting beds with raised seating edges and fountains.

Because the existing northbound Morrissey Boulevard northbound frontage road and "the Chute" both cross the park, it would not be possible to establish this gateway park until circulation issues around Kosciuszko Circle have been addressed and resolved. To allow development of the park and adjacent buildings to move forward, it is proposed that, in the interim, the existing northbound frontage road (north of the point where the mainline Morrissey Boulevard ramp to Kosciuszko Circle begins to rise) be narrowed to two lanes and relocated as close to the Morrissey Boulevard embankment as possible.

Similarly, in the interim, "the Chute" would be narrowed to two lanes and realigned, and the intersection of the Morrissey Boulevard frontage road and "the Chute" at Mount Vernon Street would be simplified and reconfigured in a more compact layout. In the long term, when the frontage road and "the Chute" are no longer needed for vehicular access, they will become a multi-use path connecting Morrissey Boulevard, Mount Vernon Street and Day Boulevard.

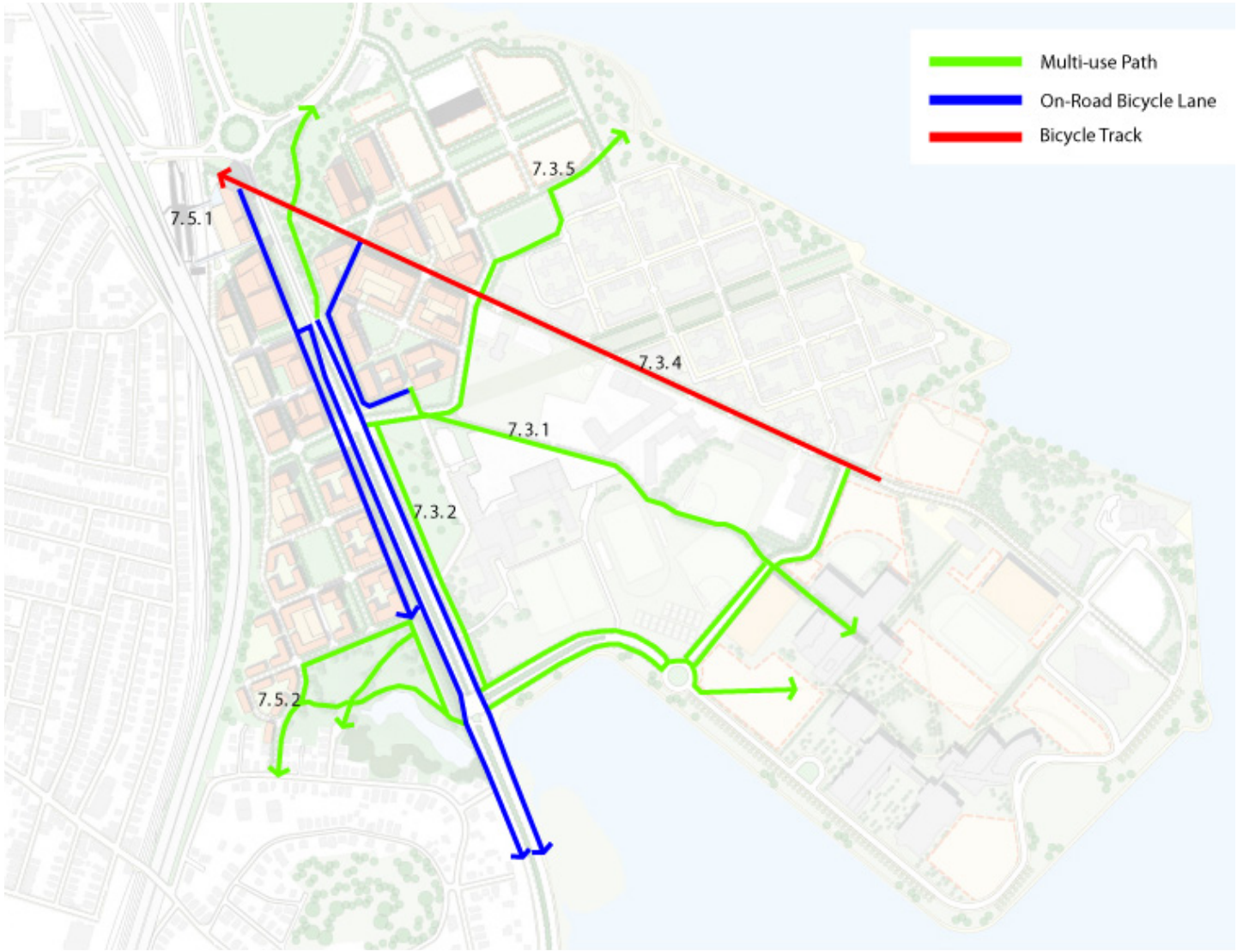
7.1.6 Provide a publicly available indoor facility for community meetings and cultural events (such as dances, small festivals and community plays) in a convenient, accessible and central location such as the Synergy or Bayside sites.

7.1.7 Continue and expand programs to make athletic facilities at UMass Boston and Boston College High School available for community use when not in use by these institutions. This shall include asking private developers to contribute financially to support such programs. Currently, Boston College High rents space to local groups and organizations for a fee. UMass Boston has a similar arrangement; periodically, they allow use of facilities by community groups or organizations and charge a nominal fee for security and personnel.

7.2 Provide physical and visual links between key open spaces and across Columbia Point to Boston Harbor.

7.2.1 Create a direct physical and visual link from DCR's Patten's Cove Park to the Calf Pasture by realigning Bianculli Boulevard and designing it to incorporate a sidewalk (at a minimum of 7 feet wide) and a 12-foot off-road multi-use path in each direction.

7.2.2 Create a new main street through the Bayside site, connecting pedestrians from Mt. Vernon Street to the Harborwalk.



Illustrative site plan with new bike and pedestrian paths highlighted (arrows indicate points of connection to other bike and pedestrian paths, not direction of travel); numbers correspond to objectives.

7.2.3 Create a new main street through the Synergy site, which ultimately connects to the park/square in the Boston Globe site.

7.2.4 Create useable open space link along the Bayside/Harbor Point border, which at a minimum provides for visual and pedestrian permeability with the ultimate goal of offering street connections.

7.2.5 Create a green link between the new central green space on the Boston Globe parcel and Patten's Cove.

7.2.6 If the Boston Public Schools sites are redeveloped, extend the Harbor Point mall as a pedestrian/bicycle and visual connection from Morrissey Boulevard to the harbor.

7.2.7 Improve connections to Joe Moakley Park.

7.3 Create a system of pedestrian and bicycle paths throughout Columbia Point, linking open spaces, as well as other destinations.

7.3.1 Provide a pedestrian/bicycle link ("North-South Path") from the JFK/UMass MBTA Station through a new plaza (described above), continuing through the Sovereign Bank site and then on between the Boston College High School playing fields to the proposed central green space on the UMass Boston campus. This link would also provide an attractive connection to Boston College High School, UMass Boston, the JFK Presidential Library and Museum, and the planned Edward M. Kennedy Center for the Study of the Senate.

7.3.2 Work with State agencies to redesign Morrissey Boulevard to reduce the scale of the paved area and improve the pedestrian/bicycle environment. The existing roadway is reduced to three travel lanes (plus an additional turning lane at major intersections), an on-road bicycle lane and a one-lane local access road in each direction. The local access road (26 feet wide) is shown with one 8-foot on-street parking lane and one 18-foot lane that can be paved to indicate a vehicular lane and a bicycle lane. The combined 18 feet allows for the passage of emergency vehicles. Alternatively, bicycle paths could be situated in the open space medians between the local access roads and main travel lanes. Where Morrissey Boulevard rises to meet Kosciuszko Circle at the northern end of the Study Area, the roadway is reduced to two lanes with with a frontage road only on the southbound side. Until Morrissey Boulevard is redesigned, work with State agencies to explore restriping Morrissey Boulevard to include bicycle lanes.

7.3.3 Organize new development along an expanded street grid that provides more convenient pedestrian and bicycle routes along pedestrian-scaled, active, tree-lined streets and bicycle lanes. All of the roadways are shown with wide (7 to 10 feet, depending on location and anticipated pedestrian activity) tree-lined sidewalks. To the maximum extent feasible, maintenance of street trees shall be the responisbility of each adjacent property owner. On- and/or off-road bike lanes are included on almost all roads with the exception of the smaller roads internal to specific developments.

7.3.4 Redesign Mt. Vernon Street (see Chapter 4, Land Use and Urban Design) with generous tree-lined sidewalks and a cycle track in each direction. At its northern end, as it passes between through the final block

of development on the Bayside and Sovereign Bank parcels and through the new gateway park to the Morrissey Boulevard overpass, it is recommended that special paving be used to indicate the pedestrian focus of the street. The existing Morrissey Boulevard underpass should be improved with lighting and public art to create a much more pedestrian friendly and inviting connection to the JFK/UMass MBTA Station.

7.3.5 Create a new multi-modal path (at a minimum of 12 feet wide) from Mt. Vernon Street to the Harborwalk through the open space located along the Bayside/Harbor Point border. This path should be a continuation of the multi-modal paths along the new street situated between the Sovereign Bank site and Boston College High School, extending from Morrissey Boulevard to Mt. Vernon Street.

7.4 Use open space to provide orientation for both pedestrians and drivers.

7.4.1 Provide visual connections from a new central green space on the Boston Globe site to the JFK/UMass MBTA Station, and to Boston College High School.

7.4.2 Provide a view from a new central green space on the Sovereign Bank parcel to Boston College High School and in the future, any new development on the Bayside parcel by UMass Boston.

7.5 Provide multiple pedestrian, bicycle and vehicular connections where appropriate to neighboring communities, such as Sydney Street, Crescent Avenue, and Savin Hill.

7.5.1 Provide improved pedestrian connection(s) from the Sydney Street neighborhood (over the railroad tracks and under I-93) to the JFK/UMass MBTA Station and through the station to Morrissey Boulevard. These improvements should incorporate Crescent Avenue, which provides an important east/west connection out to Dorchester Avenue and beyond.

7.5.2 Extend Wave Avenue to provide a continuous pedestrian and bicycle route from Savin Hill to Patten's Cove; to potential future open space on the Boston Globe parcel; to multi-use paths on Morrissey Boulevard; and to the JFK/UMass MBTA Station via the extension of Old Colony Avenue.

Watersheet Goals & Objectives

7.6 Create a "sense of place" along the waterfront with active uses, safety, convenience, and amenities.

7.6.1 Create landside public uses and public access points that are easily accessible from the community, are available seasonally and year-round, where appropriate, and provide amenities to waterfront users.

7.6.2 Promote and integrate "Arts on the Point" with the usage of the Haborwalk and with visitation to other cultural and educational facilities on Columbia Point.

7.7 Develop a public open space system of active and passive parks, squares, and streets, connected to the water's edge.

7.7.1 Ensure that waterfront open spaces and pathways to the waterfront are created at new development and redevelopment sites.

7.8 Maximize views from points throughout Columbia Point to Boston Harbor, Dorchester Bay and the downtown Boston skyline.

7.8.1 Ensure that waterfront views are created and/or protected at new development and redevelopment sites.

7.9 Preserve and enhance public access to the waterfront and activate the water's edge.

7.9.1 Include water-based facilities in development and redevelopment projects at Columbia Point, such as public restrooms, boathouses, and fishing-related services. These should be designed to function together with landside public areas, such as public parking and pedestrian amenities, such as the Harborwalk, parks, plazas, and play areas. While a public boat ramp may not be feasible in the study area due to navigation issues, the City and DCR should continue to explore locations for a public ramp in the Dorchester Bay area including improvements to the small DCR boat ramp on Morrissey Boulevard. In addition, the City will work with DCR in the future to identify additional opportunities for recreational fishing.

7.9.2 Enhance existing water-dependent facilities such as the John T. Fallon State Pier and the Fox Point Landing.

7.9.3 Create special destinations to attract the public and generate activity on a year-round basis.

7.10 Enhance navigable areas of the watersheet.

7.10.1 Improve the navigability of Savin Hill Cove, the northern tip of Columbia Point, and other accessible, navigable areas for a variety of existing and new water-dependent uses, such as recreational boating, and as a safe haven for vessels during coastal storms.

7.10.2 Enhance existing public and private water services and/or permit new services appropriate to the Columbia Point watersheet.

Implementation Steps

7.1 Through the Article 80 review process and consistent with Chapter 11, Phasing and Implementation, of this Master Plan, the BRA will work with developers of all of the redevelopment parcels to ensure that new development incorporates the open space and watersheet elements contained in the goals and objectives of this Chapter. More specifically, as part of each development proposal, the proponent shall prepare a report identifying each goal and objective of this Chapter relating to the development parcel and indicate the specific ways in which the project will implement these goals and objectives. This report should also be reviewed by the Parks and Recreation Department.

7.2 The BRA shall work with property owners. such as Sovereign Bank, the Boston Public Schools, Boston College High School, and UMass Boston to ensure the design and construction of the north-south path from JFK/UMass MBTA Station to UMass Boston, the State Archives and Commonwealth Museum, and the JFK Presidential Library and Museum.

7.3 The BRA shall work with UMass Boston to ensure that UMass Boston designs and implements: the proposed east-west path extending from Morrissey Boulevard to the UMass Boston campus between the Boston College High School and Boston Public Schools properties; portions of the north-south path from JFK/UMass MBTA Station to UMass Boston, the State Archives and Commonwealth Museum, JFK Presidential Library and Museum; and completion of the Harborwalk. The goal shall be to complete the east-west path, applicable portions of the north-south path, and improvements to the Haborwalk prior to, or in conjunction with, the first 1,000 dormitory beds.

7.4 As called for in Chapter 6, Multi-Modal Transportation, upon adoption of this Master Plan, the BRA will coordinate with BTD, the Commonwealth of Massachusetts, and private stakeholders to initiate the preparation of a comprehensive study and transportation plan

for Kosciuszko Circle, the I-93 on-ramps, and Morrissey Boulevard between Bianculli Road and Kosciuszko Circle. This comprehensive study and plan shall include specific plans and designs to implement the multi-modal connections envisioned by the goals and objectives of this Chapter.

7.5 The BRA shall encourage UMass Boston to help design and construct the improvements to Mt. Vernon Street envisioned by the goals and objectives herein once they redevelop the Baside Expo site.

7.6 The BRA shall utilize the MHP requirements, Article 80 Development Review process and Chapter 91 Licensing process to ensure that the following implementation actions are applied at development sites.

- Complete Harborwalk at the earliest possible date.
- Ensure that landside watersheet access locations (such as public parking) are created at development sites. Pedestrian amenities, such as waterfront parks, plazas and play areas should also be created.
- Designate and mark key connections to the waterfront, including connections from streets, transit, and parking.
- Provide amenities, such as pushcart concessions (for food, arts and crafts, and souvenirs) and small rental boating information, near dock areas.
- Where feasible and appropriate, mandate that water transit landside support facilities (such as ticketing, information, call boxes, sheltered waiting areas, pay phones, and maintenance storage) are established at development sites.
- Create watersheet performance and exhibit areas at appropriate locations, particularly at waterfront locations adjacent to the JFK Presidential Library and Museum and UMass Boston public access locations.
- Ensure that public restrooms are located near dock access.
- Where feasible and appropriate, provide locations for water-dependent uses at development locations that would be operated and maintained, such as boat rentals (*e.g.*, non-powered, self-propelled, small vessels such as kayaks, canoes, and sailing dinghies), fishing support, museum-related activities, and other permitted activities, particularly within Savin Hill Cove and the northern shore. These areas must be equipped with safety and rescue services.
- Provide locations for pump-out facilities (for vessel waste management) and other supporting uses for visiting vessels at larger public landing locations (*e.g.*, at the John T. Fallon State Pier).
- Establish berthing locations at the John T. Fallon State Pier and Fox Point Landing for visiting historical vessels, floating educational classrooms, and cultural vessels.
- Establish berthing and tie-up locations at new and existing public landings for short-term private small vessel docking to allow for visits to institutions, museums, restaurants, shops, and other waterfront activities that are privately maintained and operated for public use on first-come, first-served basis.

8 SUSTAINABILITY

The term sustainability came into general usage following publication of the 1987 report of the Brundtland Commission (formally, the World Commission on Environment and Development established by the United Nations General Assembly). The Commission defined sustainable development as development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs." Put another way, sustainability is "living on nature's income rather than its capital." The concept of sustainability acknowledges that resources have their limits, and should not be used up faster than they are replenished. To be sustainable, future development must be designed, implemented, and managed, to minimize adverse environmental impacts, conserve natural resources, and enhance the quality of life in the community well into the future.

Sustainability is not just one chapter but rather a central theme of the Columbia Point Master Plan. The Master Plan's entire framework—its orientation around transit, a new network of walkable streets, the focus on compact, mixed-use neighborhoods, and an emphasis on non-automobile transportation—embodies key elements of sustainability. The other chapters of the Master Plan also contain elements of sustainability.

This chapter is organized around five topic areas, including: Energy, Site Planning, Green Building and Neighborhood Design, Transportation Choice, and Social Equity. Because many of the concepts discussed in this chapter may be new to the reader and/or technical in nature, a Glossary of Terms is provided in Appendix D.

Background

In order to establish a baseline of information about existing conditions at Columbia Point, a survey (refer to Appendix# to view the survey, participants, and summary results) of existing sustainability practices was conducted. No data on social equity issues were collected. A summary of the survey results follows:

Energy

- Only one or two properties have been built or retrofitted to meet the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) or U.S. Environmental Protection Agency's (EPA) Energy Star standards, but several have made substantial commitments to sustainable building retrofits under their maintenance programs.
- Several facilities have participated in utility company efficiency audits and most have conducted energy- and money-saving retrofits in the past 5 to 15 years.
- Many of the facilities have various types of energy management systems for building occupancy temperature controls and ventilation.
- Several properties have installed water-conserving toilets and more efficient lighting, and have had major equipment upgrades.
- Only one property practices energy load management between peak- and non-peak usages.
- Only one property purchases electricity from renewable resources.
- There is no significant auxiliary energy provided by on-site generation, although cogeneration units and wind power are being considered, such as at the Harbor Point Apartments.
- Most of the stakeholders are interested in creating a renewable energy users group for Columbia Point focusing on wind, solar, geothermal, and tidewater resources, among others.

Site Planning

- The water supply comes from the DCR's Quabbin Reservoir in the central part of the state, delivered by the MWRA through the BWSC. Most of the facilities reported that they use potable water for irrigation.
- All of the surveyed properties use water-saving fixtures.
- There is no on-site wastewater treatment and all facilities depend on municipal services.
- Public infrastructure is relied upon for stormwater management, with no rainwater harvesting for reuse observed.

Green Building and Neighborhood Design

- Most buildings were built prior to adoption of the LEED standard and recent improvements in the state building code.
- Several facilities report some recycling and/or reuse of construction and demolition (C&D) debris. All of the properties have solid waste recycling, but practices range from volunteer efforts to more dedicated programs.

Transportation Choice

- Most properties have parking capacity limits, but very few enforce monetary restrictions.
- Very few facilities have official commuter assistance programs.
- Most buildings provide some bicycle storage and can document public transit use by both workers and visitors.
- About half of the properties provide or participate in a local shuttle service.
- Only two entities have hybrid vehicles and/or use vehicles with alternative fuels like biodiesel.
- Stakeholders emphasize the need for access to safe paths for pedestrians and cyclists, and the need to reduce roadway congestion.

Issues & Opportunities

The following issues and opportunities have been gathered from a variety of sources: the sustainability survey outlined above, input from the Master Plan Task Force and community meetings, consultation with the staff of various City departments, and the expertise of the planning and consulting team.

If properly planned, future development at Columbia Point has the opportunity to reduce energy and resource use, and enhance the quality of life for residents and visitors, by addressing the following issues:

Energy

Energy Efficiency

Energy consumption surveys from the U.S. Department of Energy confirm that despite more efficient building systems, average energy use per square foot in U.S. buildings has not decreased in the past few decades. As a result, there are many opportunities to use less energy, reduce dependence on oil's finite supply, address concerns about greenhouse gas emissions, and buffer communities from energy price swings. The Green Building and Neighborhood Design section of this chapter details energy efficiency and LEED standards and recommendations, such as:

- Comprehensive building energy audits
- Energy efficient appliances and equipment
- Energy efficient lighting
- Natural building ventilation
- Weatherization (e.g., weather stripping and improved insulation)
- Building practices that exceed the Massachusetts Building Code, such as the LEED standards.

District Heating and Cooling

Heating and cooling are among the largest energy loads in a building. Numerous individual systems

Ceiling skylights in a supermarket provide natural, energy-efficient daylighting (top). Roof-mounted micro-turbines enable harnessing of wind energy in an urban environment, as demonstrated by Massport's project at Boston Logan International Airport (bottom).

are far less efficient than a single, centralized system to heat and cool multiple buildings. District heating and cooling systems sometimes include cogeneration, which is also referred to as combined heat and power, where the heat produced as a by-product of electrical generation is used, instead of wasted. These types of systems are especially efficient.

Renewable Energy

All electricity currently used in Columbia Point comes from distant power plants, most of which use fossil fuels. Out of concern for greenhouse gas emissions and reliance on foreign oil, Mayor Menino has set a City goal of 25 Megawatts (MW) of installed Solar Photovoltaic (PV) and Solar Thermal capacity by 2015. Columbia Point offers an excellent opportunity for on-site renewable energy production and distributed generation, the distribution of excess power to surrounding uses, through:

- Solar PV and Solar Thermal Energy;
- Wind energy;
- Biofuels-based generators; and
- Geothermal energy (including ground source heat pumps).

Smart Grid

The present electric transmission and distribution system delivers electricity to consumers without any feedback regarding demand. Without this information, power companies cannot efficiently balance energy supply and demand and face challenges utilizing customer-based renewable energy resources. Emerging Smart Grid technologies address these issues by enabling data on electricity usage to flow back and forth between the consumer and producer. This allows for demand/response systems that control the use of power to reduce peak-time consumption and help avoid power outages, and time-of-use pricing options that create incentives for customers to save electricity and money. Elements of the Smart Grid include:

- Smart meters installed by utilities to monitor customers' energy usage;
- Utility monitoring of customer-generated electricity, such as local PV panels and wind turbines;
- Sensor equipment/"dashboard" controls to allow consumer-based online energy monitoring and management over usage and conservation at their home or business; and
- Storage of surplus electricity strategies, such as "vehicle-to-grid" technology, the two-way transfer of electricity between the utility and new plug-in hybrid electric vehicles (PHEV) while they are parked and charging or feeding energy back to the grid.

Site Planning

Climate Change Adaptation

Columbia Point is sited on low-lying, filled land surrounded by the sea and is therefore vulnerable to climate change-related impacts. Buildings and infrastructure that are close to the shoreline are more susceptible to the impacts of sea level rise and more intense storms, including storm surge. Only the deployment of specific adaptation strategies for new development, and the assessment and retrofit of existing facilities, can address the realities of climate change.

Ecological Restoration and Green Infrastructure

The natural ecological systems at Columbia Point have sustained many changes since the area's settlement. Many of the attributes of native soils, plants, and wetlands that formerly managed stormwater on-site and which encouraged infiltration and evapotranspiration have been severely degraded. Systems such as rain gardens and stream daylighting, supplemented by reestablishment of native vegetation, are now some of the only ways to revitalize ecological functions while also accommodating new development. Opportunities may exist in some areas for wetland and coastal bank restoration. Something as simple as planting trees provides tremendous environmental benefit.

Rainwater Harvesting and Reuse

Columbia Point's conventional infrastructure and related stormwater management systems tend to quickly move water off-site directly into sewers and the ocean instead of using it productively on-site, as through rainwater harvesting and reuse.

Rooftop Use and Access

When one looks down on the city from above, one is struck by all the dark rooftops and parking lots. Heat retention by dark surfaces is known as the heat island effect, and it contributes to localized warming in urban areas. In addition, rooftops take up a lot of space, which could potentially be used for other purposes, such as:

- Roof-mounted renewable energy using solar PV, thermal panels or micro wind turbines;
- Green roofs or rooftop vegetable gardens; and
- Rainwater harvesting for reuse.

Light Pollution

Light pollution is caused by light shining where it does not need to be, such as up into the sky. Cities often have unnecessary light, which wastes energy and makes it hard to see the stars. Growing awareness of this issue has caused municipalities to develop ways to reduce light pollution, including the restriction of light trespass from buildings and sites, glare effects, and the cumulative sky-glow that affects night sky visibility and nocturnal environments.

Natural infiltation of stormwater is facilitated by bioswales, such as these at a retail store parking lot.

Green Building and Neighborhood Design

Neighborhood Pattern

The existing development on Columbia Point is not very compact or easily traversed due in large part to its "superblock" structure (i.e., long blocks with few cross streets) and fragmented system of sidewalks and pedestrian pathways. Other elements of the urban fabric that compromise Columbia Point's walkability and legibility are the dearth of street trees, poorly marked access to open spaces (such as the Harborwalk), segregated land uses,

and expansive surface parking lots. A continuous pedestrian and bicycle network does not exist, and to date development has not capitalized on the neighborhood's proximity to public transportation facilities.

The LEED and LEED-ND Rating Systems

LEED is a third-party certification program and a nationally accepted rating system for the design, construction, and operation of high performance green (i.e., sustainable) buildings and neighborhoods. Originally established in 1999 by the USGBC, LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. The LEED evaluation system is based upon a numeric rating system tied to specified pre-requisites and credits, which determines the level of certification: Certified, Silver, Gold, or Platinum.

More recently, the USGBC has developed an additional evaluation system to rate neighborhood design, known as LEED for Neighborhood Development, or LEED-ND®. By integrating the principles of smart growth, urbanism, and green building, LEED-ND encourages healthy living, the protection and restoration of threatened environments and species, and increased transportation choices and reduced car dependency. The LEED-ND rating system is being piloted now and a final version is expected to be adopted later this year.

In the City of Boston, Article 37 - Green Building Regulations of the Boston Zoning Code requires all new construction over 50,000 SF to be designed and built to meet the LEED certifiable level. Article 37 also requires multiple-building developments to meet the LEED-ND certifiable level.

Related green building strategies not covered by Article 37 include: local infrastructure sustainability, development that is under 50,000 SF, energy management (e.g., Smart Grid technologies, distributed generation, district heating and cooling), transportation management (e.g., site connections), building operations and management (e.g., building performance, waste handling), and social equity.

Building Performance Reporting

To date, the USGBC has not required reporting of energy use, so it is difficult to tell how buildings designed to the LEED standard are actually performing. LEED also does not require reporting of water consumption performance or the tracking of greenhouse gas (GHG) emissions. GHG emissions reduction is a growing area of government focus, including the Commonwealth's Massachusetts Environmental Policy Act (MEPA) GHG policy for commercial development, which will apply to any new projects above a certain size planned for Columbia Point.

Boston's Seaport Hotel employs an extensive green roof with hardy grasses and sedums to reduce roof stormwater runoff and the heat island effect (top). A high albedo, white TPO membrane (bottom) reflects heat from a supermarket to reduce the need for building cooling and use less energy, as well as to lessen local heat island effects.

The Rossmore Laundromat and JP Carwash in Jamaica Plain has seen great results from its solar hot water heating panels, installed in 2007. The company received utility rebates from National Grid, and was also able to take advantage of a 30% tax credit and an accelerated 5-year tax depreciation schedule from the federal government, as well as a Massachusetts corporate income tax deduction. The project is now a case study with Solar Boston, the City's program to encourage widespread adoption of renewable energy in Boston.

Solar Hot Water

As fossil fuel prices rise for all U.S. energy customers, residential property owners and tenants need alternative solutions to home heating energy needs, including options for retrofitting their properties. Such options are still rather limited using available technology, although solar hot water heating systems have been found to be extremely cost-effective.

Waste Management and Recycling

Of the country's fifty most populous cities, Boston ranks eighteenth for solid waste diversion from landfills, placing it in the ranks of other advanced—but not leading—municipalities. The Columbia Point community does not have any significant composting locations, any specific requirements for construction waste management, or any coordinated recycling programs both within and between properties.

Transportation Choice

Much of the discussion of transportation choice in the Master Plan is found elsewhere in this document: the concentration of new development close to JFK/UMass MBTA Station, allowing easy access to transit; a new, finer-grained system of streets and paths that provides direct access to the transit station and facilitates walking; and a dense clustering of different land uses in close proximity to one another to allow citizens to live, work, and shop without getting into a car. Still, apart from these basic attributes, there are other concepts and measures that could increase transportation options and reduce dependence on the automobile.

Connections

Proximity to the MBTA station is an existing advantage of Columbia Point that enables easy linkage to other parts of the City and reduces vehicle miles traveled (VMT), particularly those from SOV. The current developments do not foster connections to surrounding neighborhoods in Dorchester for broader access to resources, such as non-profit organizations, health centers, public libraries, and places of cultural, historical, and/or ecological significance. Non-motorized transportation has no environmental impact and great social and health benefits, but bicycle and pedestrian connections within Columbia Point are also lacking.

Transportation Options

The existing parking supply at Columbia Point is effectively unconstrained and, with the exception of events at Bayside Expo, is generally available at no cost to authorized users. This is a significant factor in why people tend to drive to and within the neighborhood rather than choose more sustainable options. More parking constraints would encourage alternative modes of travel. TDM plans are often helpful for this purpose, to encourage the use of public transit, shuttle/bus services, ridesharing, carpooling, and bicycle and pedestrian transport. None of the existing stakeholders are actively collaborating for transportation vendor leverage, or to encourage alternative transportation in their operations. Establishment of a TMA might accomplish this through special transit discounts, commuter assistance to facility occupants, and education about transportation options.

Social Equity

The resource conservation that is central to sustainability includes human resources, as well as environmental and economic resources. There is not enough investment in the human capital of Columbia Point at present, in such areas as job creation, local employment, resident education, and local food production, to enhance the quality of life and support social equity.

Green Jobs Training and Educational Partnerships

Sufficient community investment is not occurring at Columbia Point due to a lack of training and related social and educational programs. Part of the issue is that entities in the area do not often join forces (and leverage their respective resources). A partnership for green jobs training, for example, could support the neighborhood's growth via local employment of skilled labor to assist in new building construction, existing building retrofits, and renewable energy installation projects.

Local Business and Employment

Another form of community investment and stewardship is reinvestment through patronage of locally-owned businesses and purchase of locally-produced goods. There is not a significant presence of locally-owned businesses at Columbia Point.

Local Food Sourcing

Columbia Point is almost entirely dependent upon food that is shipped from hundreds of miles away, which has a large ecological footprint. Issues related to this dependency include:

- The large amount of imported goods transported long distances contributes to GHG emissions;
- Without local production, the community is vulnerable to interruptions in the food supply;
- Few existing open space areas are designated for local food cultivation and sourcing, such as farmers markets, community gardens, subscription farms, and food cooperatives as well as backyard or patio/roof gardens; and
- Existing open space is underutilized and could be cultivated to enhance local quality of life, while also enhancing local environment values.

Recommendations

The Master Plan identifies the key requirements and opportunities for improving the sustainability of the community, based upon goals and objectives that stakeholders have identified. The City of Boston, as a major stakeholder, seeks to highlight green building-related goals, as guided by LEED. Following a guiding principle, broad goals are outlined below, with a list of specific, concrete objectives. The objectives are the means to achieve the goals. The chapter concludes with a series of implementation actions needed to realize the sustainability goals and objectives at Columbia Point. Action items that particularly pertain to LEED credits are identified with a green leaf graphic.

The Dorchester Environmental Health Coalition's Winter 2009 newsletter promotes bike rack planning and bike commuting workshops for the area, vacant lot reuse, the Mayor's Energy Saving/Weatherization Program, and community connections to non-profit organizations.

Guiding Principle

Planning for future development at Columbia Point must balance social, environmental, and economic needs through resource conservation.

Goals and Objectives

Energy

8.1 Reduce energy use from buildings and infrastructure.

A low-emission, hybrid bus provides transportation in the vicinity of the JFK/UMass MBTA Station at Columbia Point.

An employee of the IBEW Local 103 welds parts for a wind turbine installation sited on the trade group's property in Dorchester. The IBEW is one of several organizations that trains "green collar" workers near the Columbia Point community.

8.1.1 Retrofit inefficient existing facilities.

8.1.2 Exceed minimum green building and building code energy efficiency requirements.

8.2 Reduce dependency on the electrical transmission grid.

8.2.1 Incorporate on-site renewable energy generation (such as wind and solar) in new development.

8.2.2 Establish district heating and cooling facilities with cogeneration.

8.2.3 Include Smart Grid technology in all new buildings in Columbia Point.

Site Planning

8.3 Reduce the risks associated with climate change.

8.3.1 Design buildings/infrastructure elevations to accommodate expected sea level rise.

8.3.2 Design stormwater infrastructure to retain and reuse water from more intense storms.

8.4 Protect natural ecosystems.

8.4.1 Restore historical and damaged ecosystem areas, including daylighting streams.

8.4.2 Integrate rain gardens and ecosystem features into development design.

8.4.3 Protect shoreline from erosion and flooding.

8.5 Protect water resources.

8.5.1 Use low-impact, natural system approaches to stormwater management.

8.5.2 Permanently protect open spaces and natural areas from development.

8.5.3 Collect rainwater for reuse.

8.6 Increase amount of usable open space and include rooftop uses.

8.6.1 Create new open space areas.

8.6.2 Manage runoff, including through rainwater collection.

8.6.3 Integrate green/vegetated roofs, including roof gardens.

8.7 Reduce light pollution.

8.7.1 Minimize light trespass and glare from buildings and sites.

Green Building and Neighborhood Design

8.8 Reduce overall environmental impacts from building development and operations.

8.8.1 Follow LEED-ND and green building design guidelines.

The community garden at St. Christopher's Church on Columbia Point provides local food.

8.8.2 Go beyond compliance with green building guidelines to achieve maximum feasible offsetting of impacts.

8.8.3 Install on-site renewable power generation.

8.9 Assess sustainability performance.

8.9.1 Report on and benchmark building energy use, water consumption, and greenhouse gas impacts.

8.10 Reduce the volume of solid waste requiring disposal.

8.10.1 Reduce the amount of waste generated.

8.10.2 Reuse waste whenever possible.

8.10.3 Recycle remaining waste whenever possible.

8.10.4 Institutionalize environmentally-preferable waste handling practices.

Transportation Choice

8.11 Reduce use of fossil fuel and resulting air emissions from transportation.

8.11.1 Provide access to and options for public transit alternatives and high occupancy vehicles.

8.11.2 Facilitate infrastructure for alternative modes of transportation (e.g., bicycle lanes, pedestrian paths).

8.11.3 Locate more local amenities and jobs for community members.

8.11.4 Establish a TMA.

8.11.5 Ensure all development is located with ¼ mile of a transit or shuttle stop with frequent and direct connections to JFK/UMass MBTA Station.

Social Equity

8.12 Increase the community's self-sufficiency.

8.12.1 Support the local economy through green job opportunities and training partnerships in the community.

8.12.2 Reduce the need to travel outside of the community to address basic needs.

8.12.3 Increase local food sourcing.

8.12.4 Increase affordable residential opportunities.

8.12.5 Provide opportunities for locally-owned independent businesses.

Implementation Actions

Unless otherwise stated, these implementation actions will be the responsibility of the BRA and, where applicable, City departments such as BTD, PWD, or the Inspectional Services Department as part of the Article 80 review process.

Energy

8.1 Require new building construction to be 10% and major renovations to be 5% more energy efficient than ANSI/ASHRAE/IESENA Standard 90.1-2007 or the Massachusetts Building Code—whichever is more stringent.

8.2 Require development projects greater than 1 million SF, including all phases, to analyze the feasibility of a centralized, cogeneration district heating and cooling plant.

8.3 Require development proponents to incorporate on-site renewable energy generation technologies (such as PVs, solar hot water, geothermal, and building-incorporated wind turbines) to supply a

minimum of 5% and a goal of 10% of the annual energy consumption.

8.4 Actively seek an NSTAR Smart Grid demonstration project for Columbia Point.

Site Planning

8.5 Require development proponents to include climate change adaptation (*i.e.*, sea level rise and more extreme storms) in the design of buildings and infrastructure. Follow the recommendations of the City's Climate Action Leadership Committee and the Climate Action Plan.

8.6 Require development proponents to design new streets and buildings with optimal solar orientation (one building axis is aleast 1.5 times longer than the other, and the longer axis is within 1.5 degrees of geographical east/west axis).

8.7 Require use of low impact development features, such as rain gardens, for stormwater management.

8.8 Require rainwater harvesting and reuse for all new development.

8.9 Require development proponents to commit to utilizing most rooftops for beneficial uses, such as PVs, solar hot water, rainwater collection, vegetated (*i.e.*, green) roofs, and/or food production. At a minimum, all roofs should be covered with a reflective material to help reduce the heat island effect.

Green Buildings and Neighborhood Design

8.10 Require all new buildings and major renovations to achieve LEED certifiable status to the Silver level at minimum, with Gold as the goal; all new multiple building developments must have at least one LEED Silver-level certified building.

8.11 Require new buildings and buildings undergoing major renovations to use on average, 20% less water than baseline buildings.

8.12 Establish a regulation that requires all building owners to report annually on their building energy and water consumption.

8.13 Establish a regulation to require comprehensive waste management, including construction waste management, recycling, and composting at new and existing facilities.

Transportation Choice

8.14 The BRA shall work with the appropriate State agencies and transit/shuttle providers to ensure that bus and shuttle stops on Columbia Point are located such that new development is situated no further than ¼ mile from a transit stop (shuttle or MBTA) with frequent and direct connections to JFK/UMass MBTA Station.

8.15 Require a TDM plan as part of the TAPA with BTD. (See corresponding action, Transportation Chapter.)

8.16 Establish a TMA in Columbia Point including all major institutions and landowners. (See corresponding action, Transportation Chapter.)

Social Equity

8.17 The BRA shall work with Columbia Point organizations and institutions, as well as Boston Public Schools, in order to create Green Jobs Training Programs for Columbia Point residents by applying for Massachusetts Green Jobs Act grants.

8.18 Designate or zone locations with affordable rent for small, diverse, locally-owned businesses.

8.19 Identify sites for a permanent farmer's market and community garden on Columbia Point, and establish a regulation that allows patio/balcony and roof vegetable gardens by right.

A Glossary of Sustainability Terms is included as Appendix E. The following appendices are available electronically only on the BRA website:

- Sustainability Survey Results (available electronically only on BRA website)
- Expanded Sustainability Chapter "Issues and Opportunities" Report (available electronically only on BRA website).

9 UTILITIES & PUBLIC SERVICES

This chapter provides an overview of the existing utilities and public services within Columbia Point and includes an assessment of their existing conditions, as well as any known deficiencies. Recommendations for the reliable and efficient provision of utilities and public services to meet the future needs of Columbia Point are provided. Many of the recommendations related to maximizing the efficiency of utilities have been addressed in the previous chapter (Chapter 8, Sustainability).

Background

This section provides an overview of existing utilities and public services that are provided to Columbia Point.

Utilities

Existing water, wastewater, stormwater, natural gas, electrical, and telecommunications systems are generally located under public streets within the Study Area and have adequately extended geographies. The map on the following page illustrates the locations of major utility components that could have impacts on construction and development activity due to their physical size and/or high cost of working around, relocating or reconstructing.

Water Service

Water supply in the Study Area is provided by the BWSC. There are 12-foot water mains on both Morrissey Boulevard and Mt. Vernon Street. The major institutions and private developments within the Study Area are serviced by these water mains. Based on consultation with BWSC, there is no known system deficiency of the current BWSC water infrastructure within the Study Area.

BWSC has an ongoing maintenance program to upgrade aging water mains. Currently in the early phases of planning is a capital improvement project for water main upgrade on Morrissey Boulevard and Mt. Vernon Street. The extent and detail of the project is still being determined.

Wastewater

Local sanitary sewer service is provided by the BWSC via a 36-inch sewer main along Mt. Vernon Street and a 12" sewer along Morrissey Boulevard. Most institutions (including UMass Boston, Boston College High School, the JFK Library and Presidential Museum, McCormack Middle School, Dever Elementary School, and Harbor Point) maintain the service lines within their property boundaries and then connect to the BWSC system. The BWSC system connects to MWRA's 118-inch by 87-inch Metropolitan Sewer (Section 175) which conveys flow to the Columbus Park Headworks and then to the Deer Island Wastewater Treatment Plant through the North Main Drainage Tunnel.

MWRA has recently completed construction of the 17-foot diameter North Dorchester Bay Combined Sewer Overflow (CSO) Storage Tunnel and an associated dewatering pump station, force main and odor control facility. These facilities eliminate CSO discharges to North Dorchester Bay except in catastrophic storms (greater than 25-year storm).

Stormwater

Stormwater infrastructure within the Study Area is owned by BWSC, DCR and private entities. BWSC recently completed the construction of a new large diameter storm drain along Morrissey Boulevard from Kosciuszko Circle to the downstream end at Savin Hill Cove. This project furthers the protection of the South Boston beaches by allowing stormwater that currently discharges near Mother's Rest at the South Boston beaches to be redirected to a non-swimming area at Savin Hill Cove. The majority of the storm drain network in the

Columbia Point area is separated from the sanitary sewer system. However, some parts of these systems remain combined. BWSC is continuing its ongoing efforts to separate all combined areas; however, some localized sewer separation may still be required.

The North Dorchester Bay CSO Storage Tunnel (described above) also contributes to the control of stormwater along the North Dorchester Bay beaches. Although MWRA has no statutory or regulatory responsibility for managing separate stormwater, the storage tunnel will ensure that separate stormwater discharges to the South Boston beaches from drainage systems owned and operated by BWSC and DCR will occur only in storms greater than the 5-year design storm (or once every five years on average), compared to current discharges with every rainstorm (100 times per year on average). This optimizes the water quality benefits to the South Boston beaches in this area.

Natural Gas Service

Gas service for the Study Area is provided by National Grid. Commercial Point in Dorchester, just south of the Study Area, is home to a major gas storage facility for the system with its landmark "rainbow" gas tank painted by artist Corita Kent.

Electrical Service

Electrical service within the Study Area is provided by NStar. Substation #483 on Dewar Street just north of Fields Corner provides service to Columbia Point and has a total capacity of 250 megavolt amperes (MVA). According to a 2002 review by NStar, this substation had a peak demand in June/July of 115.8 MVA.

Additional capacity and reliability have been provided by NStar's recently completed 345 kilovolt (kV) transmission line project. This transmission line now connects the 345kV Canton Industrial Park Substation (which has excess capacity) to South Boston's K Street Substation, which is in turn connected with the Dewar Street substation, providing additional capacity and reliability to parts of the system that were projected to be at capacity by 2013. This new connection provides up to 1,800 megawatts of power, increasing the ability to import electricity into Boston and the surrounding area by 50 percent (one megawatt powers approximately 1,000 homes). In the Study Area, the 345kV transmission line runs under Columbia Road, Kosciuszko Circle and Day Boulevard.

The BRA, in conjunction with the City's Environment Department, has recently made policy changes that request development teams coordinate with NStar and the City at the earliest stages of the development review process to allow for better projections of near-term future demands on the region's electrical system. These recommendations are formalized in the BRA's Development Review Guidelines and are now formalized as part of the Article 80 development review process. The recommendations in the Development Review Guidelines also emphasize energy efficiency measures to reduce the energy needs of future developments and to reinforce the City's Green Building efforts.

Telecommunications

Telecommunication services for the Study Area are provided by Verizon and Comcast.

Public Services

Police

The Boston Police Department's (BPD) District C-6 now serves Columbia Point and is headquartered in South Boston on West Broadway. Until very recently, Columbia Point had been under Dorchester's C-11 district, however due to several factors, including C-11's large geography, the Police Department decided to incorporate all of the Study Area into C-6, whose previous district line had been Day Boulevard. With this expansion, C-6 has added another service unit that is dedicated to covering the Columbia Point peninsula. Each service unit operates 24 hours/7 days a week and consists of one officer and one sector car. To staff this service unit, C-6 hired 5 new officers. District C-6 will continue to hold monthly community meetings to gain valuable input and help assess policing needs.

Both the Harbor Point community and the Peninsula apartments across the street have supplementary private security services that are currently provided by Longwood Security. The JFK Presidential Library and Museum has a private security service that cooperates with the BPD when any arrests are made. The UMass Boston campus has its own separate security force whose officers are State of Massachusetts employees.

The Massachusetts State Police's South Boston Barracks is located on Day Boulevard just east of Kosciuszko Circle in the Study Area and provides traffic control and protective services on the DCR-controlled parklands and roadways (Day Boulevard, Columbia Road and Morrissey Boulevard) in the Study Area.

City of Boston police services are adjusted regularly in a demand response manner -- that is, as future development is proposed and permitted, additional facilities are provided to meet the demand. While new development can bring additional demand for police services, the experience of the BPD is that the presence of more people in the street - going to and from work, shopping, and so on - helps to discourage crime by creating informal surveillance, or "eyes on the street."

Fire & Emergency Medical

The Boston Fire Department provides protection on Columbia Point via Engine 18 that is housed on Dorchester Avenue just north of Fields Corner.

The City of Boston's EMS Station in Dorchester is near Fields Corner on Gibson Street and houses EMS Ambulance #11.

Similar to Police services, fire services are generally increased in a demand response manner as it relates to future capacity.

Library

Geographically, the closest Boston Public Library branch to Columbia Point is the Washington Village Branch located in the Boston Housing Authority's Old Colony housing development on Columbia Road in South Boston. Housed in two converted apartment units, this is a small branch library providing limited services and hours. Larger full-service libraries are the Uphams Corner Branch Library at 500 Columbia Road and the Fields Corner Branch Library at 1520 Dorchester Avenue.

Public Schools

At full build out, the Master Plan could yield as many as 4,300 additional housing units. Based on estimates prepared by the BRA Research Department, this could result in between 2,000 and 3,000 new school-age students. Boston Public Schools (BPS) is committed to providing high-quality schools for families in ever neighborhood in the city. Within Columbia Point, the Dever-McCormack K-8 school campus serves many neighboring families. In addition, all Boston families are free to choose between a variety of schools within a regional "assignment zone." Columbia Point is located in the East Assignment Zone, which extends from South Boston to Hyde Park, with Milton on its southeastern border and Roxbury, Roslindale and West Roxbury on its western border. Columbia Point families are eligible to attend any elementary middle or K-8 school in this zone, and can attend any high school in the entire city.

BPS closely monitors and anticipates changes to the school-aged population, and ensures that there are always enough seats to serve ever student within a given assignment zone. If necessary, BPS would expand capacity at a nearby school to accommodate all students in the zone. Location of any new schools would be based on a variety of factors, including location of the student population and availably of school sites. BPS tries to locate new schools near the population that sues these schools but is not always able to do so because of land availability, land costs, or other factors. Thus, it is not always possible to locate school within walking distance of new residents. Nevertheless, current BPS assignment policy holds that at least 50% of seats at any given school for students who are within walking distance

of the school. Note that if more families choose a school than there are seats available, a computer algorithm assigns students based on how highly they ranked the school when they listed their preferences, and whether they have a priority at that school (e.g., have a sibling in the school and/or live within the schools walk zone).

Issues & Opportunities

The following issues and concerns were identified through a combination of research and public input, including the Task Force and the community-wide meetings held on the Master Plan.

Utilities

Water Service

- There is no known system deficiency of the current BWSC water infrastructure within the Study Area. BWSC has an ongoing maintenance program to upgrade aging water mains.

Wastewater

- There is no known system deficiency of the current BWSC sewer infrastructure within the Study Area.

Stormwater

- There is no known system deficiency of the current BWSC storm drainage infrastructure within the Study Area.

Natural Gas Service

- The current distribution system infrastructure is known to be adequate.
- Ongoing coordination with the gas utility will be essential to meet future buildout needs.

Electrical Service

- The current distribution system infrastructure is known to be adequate.
- Ongoing coordination with the electric utility will be essential to meet future buildout needs.
- The new 345kV transmission line that runs under Columbia Road, Kosciuszko Circle and Day Boulevard would require considerable cost and effort to relocate.

Telecommunications

- The current distribution system infrastructure is known to be adequate.
- Ongoing coordination with the telecommunications providers will be essential to meet future buildout needs.

Public Services

- The current coverage of public services is adequate, however ongoing coordination with public service providers will be essential to meet future buildout needs.

Recommendations

Goals & Objectives

- Efficiency/Sustainability: Maximize the efficiency of the utility usage in order to make future development more cost effective.
- Early Stage Development Planning: Engage utility companies at the earliest possible phase of the development process to allow for the more efficient and cost effective delivery of utility services.
- Consistent Coordination: Coordinate with public service providers (i.e., EMS, Police & Fire Departments) as buildout progresses to ensure that public service needs are met.

Implementation Actions

Utilities

Based on initial investigations and consultations with the appropriate agencies and utility companies, the existing utility and public service systems appear to be adequate and capable of accommodating future development growth. However, detailed impact studies will be required once the mix of uses and sizes of individual developments are determined within the Study Area. Below are implementation actions related to each utility.

Wastewater

9.1.1 Any projects of any size or use which would introduce additional sewage flow into the system must consult with both the BWSC and MWRA concerning appropriate ways to offset impacts on the existing system(s).

9.1.2 As part of the Article 80 review process, the BRA will require development proponents to coordinate with BWSC on the design and capacity for proposed connections to their sewer systems and to submit a General Service Application and site plan to the BWSC for review as their projects progresses.

9.1.3 For industrial waste discharge into the sewer system, each private operator must apply for an Industrial Waste Discharge Permit Application to MWRA for their review and approval as required by the construction permitting process. Hazardous or heavily industrial polluted wastewater must be treated prior to be discharge to the sanitary sewer system.

Stormwater

9.2.1 Any projects of any size or use which would introduce additional stormwater flow into the system must consult with both the BWSC and MWRA concerning appropriate ways to offset impacts on the existing system(s).

9.2.2 Any future development project shall be designed such that it does not result in the introduction of any peak flows, pollutants or sediments that would potentially impact the receiving waters of the BWSC's and/or MWRA stormwater drainage system. Stormwater management controls will be established in compliance with BWSC standards, and in conjunction with the MWRA.

9.2.3 The BRA will require future development proponents to coordinate with BWSC on the design and capacity for proposed connections to their stormwater systems and to submit a General Service Application and site plan to the BWSC for review as their projects progress.

9.2.4 The BRA will require future development to minimize the amount of impervious surfaces and protect open spaces to maximize absorption of stormwater runoff.

9.2.5 Consistent with the Chapter 8, Sustainability, of this Master Plan, the BRA shall:

- Require use of low impact development features, such as rain gardens, for stormwater management.
- Require rainwater harvesting and reuse for any new development that includes plan for permanent irrigation systems.

Water Service

9.3.1 Require future development proponents to coordinate with BWSC on the design and capacity for proposed connections to water systems and to submit a General Service Application and site plan to the BWSC for review as their projects progress.

9.3.2 Require future development proponents to coordinate with the Boston Fire Department to review the fire protection design and proposed hydrant locations.

9.3.3 Incorporate more efficient plumbing fixtures, such as low-flush toilets, in all new development projects, consistent with Article 37 of the Boston Zoning Code and the Master Plan's sustainability recommendations.

Natural Gas Service

9.4.1 Require proponents of new development projects to coordinate with National Grid early in the Article 80 large and small project review process to arrange for gas services to support their projects.

Electrical Service

9.5.1 Require that future development project proponents coordinate with NStar to arrange for electrical services to support their projects.

9.5.2 As mentioned above, since the 345kV transmission line would require considerable cost to relocate, any proposed roadway or other infrastructure project should make every effort to avoid having to relocate this utility. The location of this line is indicated on the "major utilities" map at the beginning of this chapter.

9.5.3 Consistent with the Sustainability Chapter of this Master Plan, the BRA shall:

- Require new building construction to be 10 percent and major renovations to be 5 percent more energy efficient than ANSI/ASHRAE/IESENA Standard 90.1-2007 or the Massachusetts Building Code—whichever is more stringent.
- Require development projects greater than 1 million SF, including all phases, to study the feasibility of a centralized, cogeneration district heating and cooling plant.
- Require development proponents to incorporate one or more renewable energy generation technologies (such as photovoltaics, solar hot water, building-incorporated wind turbines, geothermal) to supply a minimum of 5 percent of the annual energy consumption.
- Require that parking garages built at Columbia Point include facilities for plug-in hybrid vehicle charging and Smart Grid interface.
- Strongly encourage NStar to site a Smart Grid demonstration project at Columbia Point.

Telecommunications

9.6.1 Proponents of future development projects should coordinate with service providers to arrange for telecommunication services to support their projects.

Public Services

Similar to utility providers, public service providers operate in a demand response manner as it relates to future capacity.

Police and Fire Services

9.7.1 As buildout under the Master Plan progresses and demand for public services increases, the City and BRA should explore with the Fire Department whether a shifting in district boundaries is warranted based on new service demands among the districts.

9.7.2 On a regular basis, the City and BRA should confirm with the BPD that the new coverage provided by district C-6 is continuing to meet the area's needs. As noted above, Captain Flaherty envisions holding monthly meetings with the Columbia Point community.

Library Services

9.8.3 As projected residential buildout over the life of the Master Plan is met, the City should explore the potential for a new branch library.

10 COMMUNITY BENEFITS

Introduction

"Community benefits" refers to a diverse range of improvements, services, and amenities that the Master Plan can bring to a neighborhood to improve the quality of life.

Some community benefits involve tangible physical improvements, such as new streets, street trees, street furniture, parks, bicycle paths, and affordable housing. Others involve the provision of services, such as recreational programs. Still others may be less tangible; they are about how attractive and inviting a place is. All community benefits add value—financial, social, cultural, and/or aesthetic—to Columbia Point.

This chapter summarizes the Master Plan's community benefits. Since most of these benefits are already included in the recommendations of other chapters, they are not repeated in detail here but merely summarized. The discussion of community benefits revolves around the following key topics:

- Placemaking
- Parks and Recreation
- Transportation
- Housing
- Sustainability
- Economic & Fiscal

Placemaking

According to the Project for Public Spaces, placemaking is "the art of creating public places of the soul, that uplift and help us connect to each other."[1] The Columbia Point Master Plan is an example of a plan that is designed with this specific purpose.

Mixed-Use Districts

First, the Master Plan creates a series of new, interconnected mixed-use neighborhoods in close proximity to the JFK/UMass MBTA Station. The mix of uses — residential, retail, office, and hotel — provides for a mix of activity, which will lend vibrancy to the streets around the clock.

The Plan features two retail "main streets" — one on the Bayside property and another on the Synergy property. In the case of the Bayside property, the new main street will include ground floor shops, restaurants, outdoor dining, and opportunities for strolling along ample sidewalks leading all the way to the waterfront. On the Synergy property, there will be similar opportunities to activate the streetscape. Over the long term, this street would continue into new development on the Boston Globe property, providing an attractive path from the MBTA station all the way to Savin Hill.

Vibrant Streets

The mix of land uses will mean that streets in these new neighborhoods are animated with pedestrian activity day and night. Wide sidewalks, street trees, street furniture, window shopping, attractive architecture, and new views across the peninsula will provide lots to see when walking to and from the MBTA station, running an errand, or strolling to the waterfront.

New Streets and Improved Connections

The Master Plan calls for an entire new network of multi-modal streets and paths to knit together the old and new neighborhoods. These include the extension of Old Colony Avenue through the Synergy site and over the long term, possibly into the Boston Globe site, and the creation of a new street extending from the Synergy site across

[1] "What is Placemaking," Project for Public Spaces, Making Places Bullletin, April 1, 2009.

1. Old Colony Avenue extension
2. "New Street"
3. New tree-lined neighborhood district streets
4. Re-designed Morrissey Boulevard
5. New neighborhood parks
6. Multi-modal path from MBTA Station to UMass Boston
7. Multi-modal path from Patten's Cove to Mt. Vernon Street
8. Pedestrian connection from Sydney Street through MBTA Station
9. Re-designed and redeveloped MBTA Station
10. Extension of Wave Avenue from Savin Hill to Boston Globe site
11. Multimodal paths flanking Morrissey Boulevard
12. Cycle tracks along both sides of Mt. Vernon Street

Summary diagram of community benefits.

Morrissey Boulevard between the Sovereign Bank and Boston College High School properties to Mt. Vernon Street. These new streets will provide connections that do not currently exist, offering more choices for getting around, whether by car, on foot, or on a bicycle. All streets will provide ample sidewalks for pedestrians and will offer on- or off-road paths for bicycles.

The Master Plan calls for a complete redesign of Morrissey Boulevard. This includes reducing the amount of paved roadway and increasing open space and multi-modal paths for bicycles and pedestrians. In effect, the Master Plan calls for elevating the importance of pedestrians and bicyclists along this State parkway. A separate master planning process would need to follow this one to further develop a new plan for Morrissey Boulevard.

In addition to the new streets, the Master Plan creates a series of new pedestrian and bicycle connections between neighborhoods and across the peninsula. These include:

- A redesigned and significantly improved pedestrian connection from the Sydney Street neighborhood through the JFK/UMass MBTA Station into Columbia Point;
- A new north-south path from the MBTA station to UMass Boston and other institutions on the eastern side of Columbia Point through the backyard of Boston College High School;

- A new east-west multi-modal connection linking Patten's Cove to the Calf Pasture through the border between UMass Boston and Boston College High School;
- A new multi-modal street (one way north) from Savin Hill through the Globe site to the MBTA station; and
- A new connection through the green border between the Bayside site and Harbor Point leading to the waterfront.

All of these connections serve to knit together neighborhoods, shopping districts, open spaces, and the waterfront.

A new cycle track along Mt. Vernon Street and bicycle paths and lanes along a reconfigured Morrissey Boulevard will serve to elevate the role and importance of bicycle transportation for both commuting and recreation.

Parks and Recreation

The Master Plan calls for new centrally located parks in each of the major new neighborhood districts — Bayside, Synergy, Sovereign Bank, and the Boston Globe. Each of these parks is intended to serve to provide a place for residents, employees and visitors to walk, sit, relax, meet neighbors or colleagues, and possibly engage in community or recreational activities. In addition to the parks within each new neighborhood, the Master Plan also envisions a gateway park adjacent to the Bayside site and Sovereign Bank where currently "the Chute" meets Mt. Vernon Street. This gateway park will announce entry into a mixed-use, pedestrian-oriented environment that leads one to shopping and the waterfront, to UMass Boston or JFK Presidential Library and Museum, or to the Boston public schools and Boston College High School.

The Master Plan additionally calls for new community recreational facilities such as basketball courts and active open space (such as playing fields); recommends that UMass Boston and Boston College High School continue and expand their programs to offer athletic facilities for local community use when they are not in use by the schools; and recommends that as part of Article 80 development review private developers be asked to contribute financially to support such programs.

Finally, the Master Plan calls for the dedication of indoor space for community meetings and cultural events (such as dances, small festivals and plays) in a convenient, accessible, and central location such on the Synergy property of somehwere within UMass Boston's Bayside site once it is redveloped.

Transportation

One of the Master Plan's most important transportation recommendations is actually a land use strategy. More specifically, the Master Plan calls for a compact mix of land uses in close proximity to the JFK/UMass MBTA station. Under the Master Plan, the vast majority of new residents, employees and visitors would be situated within a ½ mile of the MBTA station. Not only does this mean easy access to transit but also it provides abundant opportunities to get out of one's car and walk to one's destination.

Reduced auto use and increased walking and bicycling create significant community benefits, not only by making more vibrant neighborhoods but also by improving environmental sustainability. The Master Plan calls for a host of measures that are designed to reinforce the goals for reducing SOVs and increasing more sustainable forms of transportation, including the following:

- A mode share goal for a 10% reduction in existing SOV mode shares;
- TOD parking ratios for new development, which will help discourage unnecessary driving;
- Bicycle parking and supporting facilities. consistent with the new City of Boston Bicycle Facilities Standards;
- A bike sharing program for Columbia Point;

- TDM programs to encourage car sharing, carpooling, and similar program that reduce SOVs; and
- A TMA to encourage coordinated and collaborative approaches between businesses and institutions for reducing SOVs.

In addition, the Master Plan explores a variety of potential solutions to improve mobility and reduce congestion at major choke points on Columbia Point, including Kosciuszko Circle and the I-93 access ramps. The Master Plan also calls for a comprehensive follow-up study and master plan for Morrissey Boulevard, Kosciuszko Circle and the I-93 access ramps to analyze the traffic conditions in detail and formulate a long-term strategy to address local and regional traffic conditions.

Housing

A self-sustaining community acknowledges the need for a diverse population to support a thriving economy. The Master Plan embraces a number of objectives intended to support a diversity of incomes, age groups, and household types — including singles, couples, families, and seniors.

Through the public planning process, it became clear that many members of the Columbia Point community believe that ownership housing would help to give residents a stronger stake in the community. Therefore, the Master Plan includes a goal that at least 30% of all new housing be ownership housing.

Members of the community felt that it was important to preserve housing for existing residents and create new opportunities for lower-income households in the future. Therefore, the Master Plan establishes a goal that 20% of all new housing be affordable to low- and moderate-income households, while calling for the continued preservation of Columbia Point's large supply of deed-restricted affordable housing.

To ensure a place for families in the future of Columbia Point, the Master Plan includes an objective to provide a range of household sizes, including large units for families. In this way, future housing in Columbia Point will accommodate a range of household sizes reflective of the City's diverse demographic profile.

Finally, the plan calls for encouraging housing for seniors, a growing demographic group that would particularly benefit from the Master Plan's emphasis on walking and public transportation.

Sustainability

It was the expressed desire of many members of the community that Columbia Point assume a leadership role in terms of environmental sustainability. As a result, sustainability is a central motif woven throughout every chapter of the Master Plan, and the Master Plan also includes a variety of forward-thinking recommendations for conserving natural resources, increasing use of renewable resources, and decreasing CO_2 emissions.

The plan's essential foundation — its orientation around transit, its compact mix of uses, its new grid of walkable, bikable streets — is, by definition, sustainable. A preliminary evaluation of the Master Plan indicates that multi-building development built in accordance with the plan should qualify for at least a LEED-ND Silver, if not Gold, rating.

Beyond the LEED-ND elements of the plan, the Master Plan also calls for a series of other sustainability measures, including:

- Energy efficiency measures that exceed ANSI/ASHRAE/IESENA standards;
- For large scale development, district heating and cooling;
- On-site renewable generation, such as solar photovoltaics, solar hot water, wind turbines);
- A Smart Grid demonstration project;
- Adaptation in new building design for rising sea levels;
- Rainwater harvesting and rooftop gardens;
- LEED certifiable status at the Silver level for all new buildings;
- New buildings that use 20% less water than baseline buildings;

Use	Gross Floor Area	City Property Tax Land*	City Property Tax Buildings	Permanent Jobs	Wages	State Income Tax
Hotel (Rooms)	-	$77,705	$364,255	46	$1,837,056	$78,626
Office (SF)	769,647			2,138	$201,566,364	$8,627,040
Industrial	172,094			650	$37,349,000	$1,598,537
Warehouse/Storage	296,833			N/A		
Retail	125,943			150	$3,205,800	$137,208
Residential	-					
Auditorium/Exhibit	276,750					
TOTALS	**1,641,267**	**$1,343,856**	**$3,132,074**	**2,984**	**$243,958,220**	**$10,441,412**

**Because Property taxes are reported by parcel rather than by building use, only the total can be listed for most building uses.*

Table 10.1: Existing Fiscal Conditions on Redevelopment Properties

- Building performance monitoring;
- Green jobs;
- Locations for locally-owned businesses; and
- Sites for farmer's market and community gardens.

Economic and Fiscal Benefits

Among the Master Plan's tangible advantages are economic and fiscal benefits. These can be measured specifically in terms of new jobs, wages, City property tax revenues, and State income tax revenues. This section examines estimates the economic and fiscal impacts of the Master Plan at full buildout.

Baseline: Existing Jobs, Wages, City Tax Revenues, and State Tax Revenues

Before examining impacts under full buildout, it is important to establish a baseline for comparison.

Table 10.1, Existing Fiscal Conditions on Redevelopment Properties, shows the number of jobs, wages, city property tax (land and buildings), and state income tax associated with existing development on the redevelopment properties in Columbia Point. The gross floor area (*i.e.*, amount of building space) devoted to each land use and property taxes are both drawn from FY 2009 tax assessor records. Existing permanent job numbers are based on reports provided directly by existing employers, with the exception of Greater Media, for which the number of jobs were estimated based on land use type and building square footage. Wages are based on the number of existing permanent jobs multiplied by the Boston average for 2008 salaries for the relevant job classification [2]. Finally, state income tax revenues are based on total income from all wages multiplied by an average effective State tax rate of 4.28 percent.

Existing permanent jobs are estimated at 2,984 with associated wages of approximately $243.9M. Existing City property tax revenues on land and buildings were $1.34M and $3.13M, respectively,

[2] Boston average 2008 salaries were $39,936 for hotel employees; $94,278 for professional office employees; $57,460 for industrial workers; and, $21, 372 for retail employees as reported by the Massachusetts Department of Workforce Development.

Land Use	Buildout (Gross)	Permanent Jobs	Annual Wages	Const Cost	Construction Jobs	Annual City Property Tax - Buildings	Annual State Income Tax
Hotel (Rooms)	410	231	$8,991,194	$43,050,000	160	$1,750,628	$384,823
Office (SF)	833,000	3332	$302,608,908	$169,932,000	632	$6,910,285	$12,951,661
Residential (Units)	4,100	N/A	N/A	$766,700,00	2,852	$9,406,282	N/A
Retail (SF)	492,500	985	$33,070,390	$90,127,500	335	$3,665,035	$1,415,413
Total with Full Buildout	**N/A**	**4,548**	**$344,670,492**	**$1,069,809,500**	**3,980**	**$21,732,229**	**$14,751,897**
Less Existing Development (from Table 10.1)	N/A	(2,984)	(243,958,220)	N/A	N/A	($4,475,930)	($10,441,412)
Net New (Buildout Less Existing)	**N/A**	**1,564**	**$100,712,272**	**N/A**	**N/A**	**$17,265,299**	**$4,310,485**

Table 10.2: Estimated Economic and Fiscal Impacts of Total and Net New Development Under Master Plan Buildout

based on data from the Boston Assessing Department. State income tax revenue is estimated at approximately $10.4M.

Estimated Jobs, Wages, City Property Tax and State Income Tax Associated with New Development

Table 10.2 provides an estimate of the economic and fiscal benefits of the Master Plan at full buildout under the Master Plan.

The starting point for all of the calculations is the amount of new development at full buildout—specifically, total housing units, hotel rooms, and office and retail space. A full description of the sources and methods for estimates of employment, wages and taxes is provided in Appendix F.

New Jobs

Table 10.2 shows the number of both permanent and construction (temporary) jobs under the Master Plan. For each land use a certain number of permanent jobs is assumed —1 job per 250 SF of office space, 1 job per 500 SF of retail space, and 0.56 jobs per hotel room. As the table shows, most of the new permanent jobs will be associated with office development.

For construction jobs, it is assumed there will be 3.72 year-long construction jobs per million dollars spent on construction. Most of the construction jobs will result from new residential development.

Wages

Projected wages are based on estimated new permanent jobs and average Boston wages by industry. Most of these new wages are associated with the new office development.

City Property Tax Revenues

Proposition 2½ allows Boston to collect new revenues from property value increases due to new development. The Boston FY 2009 tax rate for commercial properties is $27.11 per $1,000 of assessed value and the tax rate for residential property is $10.63 per $1,000 of assessed value. Total development cost and fully assessed value are estimated to be 150% of hard construction costs.

Income before Taxes	100%	$100,712,272
Total Expenditures	**68.2%**	**$68,648,687**
Selected Categories:		
Groceries	4.8%	$4,842,439
Restaurants	3.5%	$3,491,581
Rent or Homeowner $	16.1%	$16,255,070
Apparel and Services	2.6%	$2,603,448
Transportation	10.8%	$10,830,494
Entertainment	4.1%	$4,169,498
Miscellaneous*	9.5%	$9,554,269

**Includes housekeeping supplies & operations, home furnishings, personal care products and services, reading, education, tobacco, cash contributions. Source: US Bureau of Labor Statistics, Consumer Expenditure Survey, Boston Metropolitan Area, 2006-7*

Table 10.3: Wages and Spending Patterns Resulting from Net New Permanent Jobs

At full buildout, office and residential development would produce the largest annual property tax revenues to the City.

State Income Tax Revenues

As reported by the Massachusetts Department of Revenue, the effective annual State income tax rate is 4.28%. State income tax revenues are derived based on the number of permanent new jobs multiplied by a typical wage per job, in turn multiplied by the tax rate. The greatest State income tax revenues derive from jobs associated with office development.

Net Increase in Jobs, Wages, City Tax Revenues, and State Tax Revenues from Full Master Plan Buildout

The last line at the bottom of Table 10.2 shows the net new jobs, wages, city tax revenues, and State tax revenues from full master plan buildout after taking into account the economic and fiscal benefits of existing development. The information shows that full buildout would yield 1,564 net new permanent jobs; approximately $100.7 million in additional wages from permanent jobs; approximately $17.2 million in new city property taxes; and, approximately $4.3 million in state income tax revenue.

Wages and Spending ("Spending Power") Resulting from Net New Permanent Jobs

Further economic benefits accrue to the local economy as workers spend their paychecks and support a variety of businesses. The net new "spending power" resulting from Master Plan buildout can be quantified in terms of wages and spending. As shown in Table 10.3, net new permanent jobs that will fill commercial space in the planned development at full buildout are expected to produce more than $100.7 million in net new annual income (as determined at bottom of "wages" column in Table 10.2). Table 10.3 shows that total estimated expenditures associated with this net new income would reach approximately $68.6 million. This includes approximately $3.49 million in spent in restaurants, $2.6 million on apparel, and $4.2 million on entertainment. This spending may take place in the project area, near workers' homes, or any other locations, depending on consumer choice and options[3].

Only about 12.2 percent of before-tax income becomes spending subject to the state sales tax. Therefore, based on $100.7 million in annual income, approximately $12.3 million in annual taxable sales would accrue to the State. Massachusetts

[3] The spending patterns shown in Table 10.3 represent typical expenditures, as surveyed by the U.S. Bureau of Labor Statistics, for the Boston Metropolitcan area in 2006-2007. This spending may take place in the project area, near workers' homes, or any other location, depending on consumer choices and options. Savings and taxes are not included in "expenditures". All spending estimates are based on 2008 wage levels.

6.25% sales and meals tax does not apply to most expenditures; groceries, most clothing, shelter for homeowners and renters, health care, transportation (except car purchases) are all exempt

Hotel Occupancy Revenues

Both the City and the State exact taxes on hotel occupancy revenues. Currently, the City taxes hotels at a rate of 4%. In turn, the State applies two tax rates on hotels: a base rate of 5.7%, and an additional convention center fund rate of 2.75%.

For the purposes of this analysis, hotels are assumed to have an average daily room rate of $160 per night and a 75% occupancy rate. Assuming 410 total hotel rooms, gross hotel revenues are estimated at $17,958,000. This would result in $718,320 in annual taxes for the City and $1,517,451 in annual taxes (combined base rate and convention center rate) for the State.

11 PHASING & IMPLEMENTATION

One of the primary roles of the Master Plan is to coordinate future development with supporting public improvements. Guided by the Master Plan, and in cooperation with other City departments and public agencies, the BRA will have primary responsibility for overseeing the implementation of the public improvements. Private developers will also play a significant role in the implementation of public improvements.

The timing of new development will directly affect the timing and phasing of related public improvements. For instance, the extension of Old Colony Avenue through the Synergy site will not be required until new development is proposed for that site. Accordingly, this chapter clarifies the timing and coordination of public improvements with new development.

It is through the Article 80 review process that the actual coordination between new development and public improvements takes place. For this reason, this chapter reviews the Article 80 development review process. Following the Article 80 discussion is a description of the public improvements required under the Master Plan and discussion about how these public improvements should be coordinated with new development.

The Article 80 Review Process

As development projects are initiated through the City's Article 80 development review process, the Master Plan will aid both the City and community in evaluating development proposals. Development review under Article 80 must occur prior to the issuance of a building permit by the City's Inspectional Services Department. After all of the requirements of Article 80 have been met (for more information, see A Citizens Guide to Development Review at: http://www.bostonredevelopmentauthority.org/PDF/Documents/A%20Citizens%20Guide%20to%20Article%2080.pdf), including consultation with an Impact Advisory Group (IAG) comprised of citizen representatives, BRA Staff will prepare a recommendation to the BRA Board of Directors.

Because of the complexity of the conditions on Columbia Point, the following City and State agencies will work with the BRA in reviewing future development on Columbia Point, under the aegis of the Master Plan:

- Massachusetts Department of Conservation and Recreation (DCR)
- Massachusetts Bay Transportation Authority (MBTA)
- Massachusetts Office of Coastal Zone Management (CZM)
- Massachusetts Water Resources Authority (MWRA)
- Massachusetts Executive Office of Transportation (EOT)
- City of Boston Transportation Department (BTD)
- City of Boston Parks and Recreation Department
- City of Boston Public Works Department (PWD)
- City of Boston Public Schools (BPS)
- City of Boston Department of Neighborhood Development (DND)
- City of Boston Environment Department
- Mayor's Office of Neighborhood Services (ONS)

As with the creation of the Master Plan document itself, community involvement will be critically important to the implementation of the plan's recommendations. As part of the Article 80 review process, public meetings will be convened on specific development projects, and the public will be invited

to submit comments at each stage of the review process. As stated above, an Impact Advisory Group (IAG) will also be formed for each development project.

Coordination of Development & Public Improvements

Because buildout of the redevelopment parcels in the Study Area depends both upon real estate market conditions and the initiative of private property owners, it cannot be stated with certainty when — or even if — each parcel will be redeveloped. Nevertheless, it is still both possible and necessary to identify the public improvements that should accompany buildout of these parcels if and when it occurs.

The Infrastructure and Public Improvements Phasing Matrix (hereafter, "Matrix") in Table 11.1 lists the public improvements called for by the Master Plan, including streets and streetscape improvements; pedestrian and bicycle routes and paths; parks and plazas; and improvements associated with the JFK/UMass MBTA Station. The Matrix also ties these improvements to the development of specific parcels and generally assigns responsibility for implementing the improvements. For example, the table shows that the New Street between Morrissey Boulevard and Mt. Vernon Street will be required in conjunction with development on the properties currently owned by Corcoran Jennison and Sovereign Bank.

The Matrix is best understood in relation to the figure on page X, the Diagram of Infrastructure and Public Improvements (hereafter, "Diagram"). Each individual infrastructure improvement on the Diagram has been labeled with a letter corresponding to its entry within the Matrix. In addition, the Matrix and Diagram both use the same color coding in referring to specific categories of public improvements — for example, streets appear in blue, parks appear in green, and so on..

Certain public improvements will benefit primarily a single property owner while other improvements will benefit more than one property owner.. For example, the portion of the New Street extending through the Corcoran Jennison property from Mt. Vernon Street to Day Boulevard will primarily benefit the Bayside Redevelopment project, while improvements to Morrissey Boulevard will benefit multiple property owners and arguably the larger region. Because this Master Plan can only assign responsibility for implementing these improvements in a general way, the specific roles and responsibilities of public agencies and private property owners must be clarified further. Accordingly, there is a need for a follow up implementation plan.

While more accurate cost estimates will be developed as part of the implementation plan, some preliminary cost estimating has been done.

- Based on "order of magnitude" cost estimates, the new Morrissey Boulevard intersection would cost approximately $1.5M to construct. The "New Street" connecting Morrissey Boulevard to Mt. Vernon Street would cost approximately $2.1M. These roadway cost estimates are very preliminary and do not account for contingencies.
- The average costs of building a number of new parks recently in the City of Boston was approximately $100 per square foot. The Master Plan proposes 11. acres, or 500,940 square feet of new parks within the redevelopment parcels. Based on the average cost of building other parks, the cost of these parks on the redevelopment parcels is estimated to be approximately $50 million.

Public Improvement & Implementation Plan

Upon conclusion of this Master Plan, the BRA shall initiate a process to define and clarify more specific roles and responsibilities for implementing the Master Plan public improvements. The scope and extent of the Public Improvement Implementation Plan will be as follows:

- Determine the magnitude of the costs of these public improvements
- Clarify the roles and responsibilities of public agencies (e.g., BRA, City, State) in implementing each improvement
- Define the roles and responsibilities of private property owners, including their pro rata share of the cost of the public improvements
- Specify the phasing of the public improvements in relation to buildout of specific parcels

In addition, this implementation plan should explore a range of roles and responsibilities for private property owners, including the following:

- Constructing on-site public improvements. In certain instances, development proponents will be required to assume sole responsibility for constructing public improvements, particularly where these improvements are situated exclusively on the proponent's property and/or where the primary benefit is to the property.
- Constructing off-site improvements. In other instances, proponents may be required to construct off-site improvements that may be necessary to mitigate the impacts of their development.
- Contributing toward costs of off-site improvements. Instead of being asked to construct off-site improvements, proponents may be asked to contribute on a pro rata basis to the cost of construction of specific public improvements.
- Contributing to study and/or design of off-site improvements. Prior to determining the full scope or cost of a public improvement, it may be necessary to study and/or design the improvements. Proponents may be asked to contribute on a pro rata basis to such study or design.

Study and Plan for Morrissey Boulevard, Kosciuszko Circle, I-93 Access Ramps, and "The Chute"

The planning process for the Master Plan has revealed the need for more detailed analysis of the capacity and operations of Morrissey Boulevard, Kosciuszko Circle, and the I-93 access ramps. Not only are these roadways owned and maintained by the Commonwealth of Massachusetts, but they are used disproportionately for regional (as opposed to local) traffic. The complex, regional nature of the circulation issues on these roadways requires a separate analysis that involves the cooperation and collaboration of the Commonwealth.

At the same time, since the solution to the operational and congestion issues on these roadways is critical to unlocking the full development potential of the Master Plan, it is important that the owners of the redevelopment parcels play a role in identifying and funding solutions to improve operations on these roadways. In this way, the Commonwealth of Massachusetts, BRA, City, and private property owners should work together to study the problem and develop, fund and implement solutions.

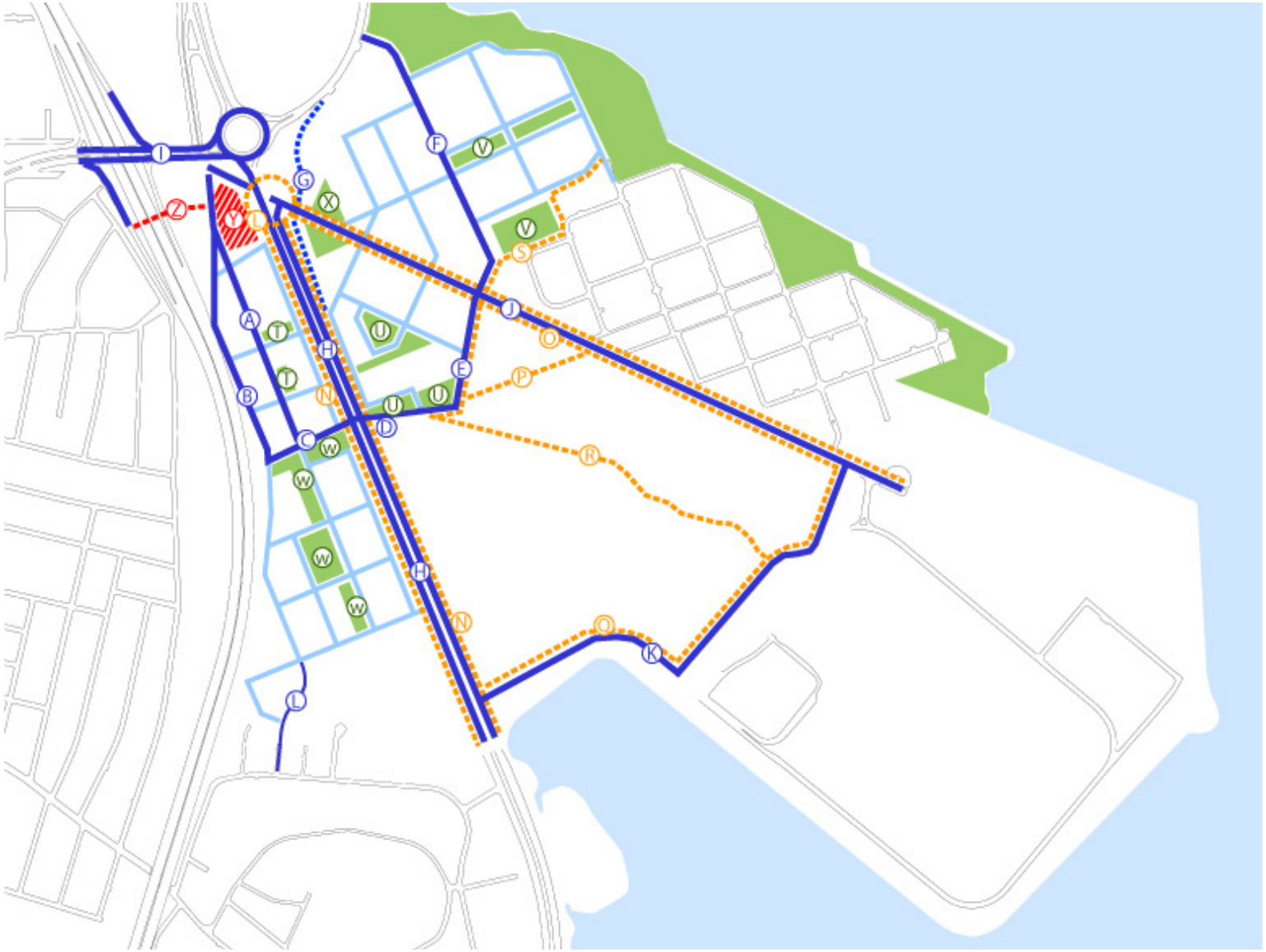
Because the operations of Kosciuszko Circle are linked inextricably with those of the I-93 access ramps and Morrissey Boulevard, these elements must be examined together. The Master Plan recommends an immediate follow up study and comprehensive plan for these interconnected roadways. Some of the key issues to be addressed by this study and comprehensive plan should include, but not be limited to, the following:

- A full analysis of existing and future traffic conditions;
- An analysis of alternative solutions, including the options listed in Chapter 6, Multi-modal Transportation .
- An analysis of the impacts of Master Plan buildout on these roadways, including the proportional impact of each of the

		Corcoran Jennison	Station Air Rights	Synergy	Globe/ Ch. 56	Sovereign Bank	St. Christopher's	City of Boston	Comm. of MA
Streets and Streetscape[1]									
A	Extension of Old Colony Ave		X	X	X			X	
B	New Service Road on western perimeter of Synergy property		X	X				X	X
C	New Street (Segment I) extending from Old Colony Ave extension to Morrissey Blvd			X	X			X	X
D	New, complete E-W Intersection at New Street and Morrissey Boulevard	X		X		X		X	X
E	New Street (Segment II) extending east from Morrissey Blvd to Mt. Vernon Street	X				X		X	X
F	New Street (Segment III) extending from Mt. Vernon Street to Day Boulevard through Bayside Redevelopment site	X						X	X
G	Interim reconfiguration of NB Morrissey Boulevard frontage road (connecting to Mt. Vernon Street) and the "Chute"	X				X		X	X
H	Redesign and reconstruction of Morrissey Boulevard								X
I	Reconfiguration and reconstruction of Kosciuszko Circle and I-93 on ramps & approach lanes	X	X	X					X
J	Street & streetscape improvements along full length of Mt Vernon St	X						X	
K	Modification to Bianculli Blvd and related internal UMass streets from Morrissey Blvd to Mt. Vernon Street							X	X
L	New street from Savin Hill to Globe property				X			X	
M	Internal streets to each development (shown in light blue on diagram)	X		X	X	X		X	
Pedestrian and/or Bicycle Routes and Paths									
N	New pedestrian paths & bicycle paths on both sides of Morrissey Blvd, including connections to JFK/UMass Station			X	X	X		X	X
O	Cycle Track at sidewalk level along both sides of Mt Vernon St, including connections to JFK/ UMass Station	X						X	X
P	New pede strian & bicycle path extending from New Street Segment II to Harbor Point Blvd						X	X	
Q	New pedestrian and bicycle paths extending from Pattens Cove across Morrissey Blvd to Calf Pasture								X
R	New multi-modal connection between BC High and Boston Public Schools properties from UMass to Sovereign Bank site								
S	New pedestrian and bicycle path extending from Mt Vernon Street to the Haborwalk between Bayside Redevelopment site and Harbor Point	X						X	

[1] All new streets must be complete streets, including but not limited to sidewalks, street lighting, street trees, street furniture, pedestrian crosswalks and signalization, traffic signalization.

Table 11.1: Infrastructure and Public Improvements Matrix



Public improvements (letters correspond to Table 11.1).

		Corcoran Jennison	Station Air Rights	Synergy	Globe/ Ch. 56	Sovereign Bank	St. Christopher's	City of Boston	Comm. of MA
Parks and Plazas									
T	Two Public Parks at Synergy site			X				X	
U	Public Park/Square and three pocket parks at Sovereign Bank site					X		X	
V	Two side-by-side squares along "main street" near water's edge and active recreation park adjacent to Harbor Point.	X						X	
W	Public Square and four linear parks at Globe site				X			X	
X	Public Plaza at Mt Vernon St and "the Chute", contingent upon ability to elimintate of frontage road and "The Chute"	X				X		X	X
JFK/UMass Station Area Improvements									
Y	Redesigned and rehabilitated "T" Station with 2nd story bridge connection(s) across Old Colony Avenue from tracks to passenger atrium		X						X
Z	Improved pedestrian connection from Sydney Street to Mt. Vernon Street through JFK/Umass Station		X					X	X

Table 11.1: Infrastructure and Public Improvements Matrix continued

redevelopment parcels at full Master Plan buildout in the larger regional context. In part the goal would be to determine levels of responsibility on the part of each development for improvements to these roadways

- Recommended new design solutions for these roadways to accommodate long-term local and regional growth.

The BRA may require owners of the redevelopment parcels to contribute to the cost of this study and master plan, as well as to the ultimate cost of improvements identified through the Master Plan.

Recommendations

Goal

Ensure that required public improvements are provided in a timely way to support new development under the Master Plan.

Implementation Actions

11.1 The BRA shall develop a detailed Public Improvement Implementation Plan as outlined in this Chapter.

11.2 The BRA shall coordinate with State agencies and private parties to prepare a comprehensive study and plan for Morrissey Boulevard, Kosciuszko Circle, I-93 Access Ramps, and "The Chute" as outlined in this chapter and Chapter 6, Multi-modal Transportation.

11.3 Through the Article 80 Review process, the BRA shall assign specific responsibilities for making improvements to new development.

APPENDICES

A LIST OF ACRONYMS

ADA	Americans with Disabilities Act of 1990
AMI	Area Median Income
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating & Air-Conditioning Engineers
BPD	Boston Police Department
BPS	Boston Public Schools
BRA	Boston Redevelopment Authority
BWSC	Boston Water & Sewer Commission
BTD	Boston Transportation Department
CSO	Combined Sewer Overflow
DCR	Massachusetts Department of Conservation and Recreation
DND	City of Boston Department of Neighborhood Development
EOT	Massachusetts Executive Office of Transportation
EPA	U.S. Environmental Protection Agency
FAR	Floor Area Ratio
GHG	Greenhouse Gas
IAG	Impact Advisory Group
IDP	Inclusionary Development Program
IESNA	Illuminating Engineering Society of North America
ITB	Invitation to Bid
LEED	Leadership in Energy & Environmental Design
LEED-ND	Leadership in Energy & Environmental Design-Neighborhood Development
LOS	Level of Service
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Protection Act
MHP	City of Boston Municipal Harbor Plan
MWRA	Massachusetts Water Resources Authority
ONS	Mayor's Office of Neighborhood Services
PHEV	Plug-in Hybrid Electric Vehicle
PV	Photovoltaic
PWD	Boston Public Works Department
RFP	Request for Proposal
SF	Square Feet
SOV	Single Occupant Vehicle
TAPA	Transportation Access Plan Agreement
TDM	Transportation Demand Management
TMA	Transportation Management Association
TOD	Transit-Oriented Development
UMass	University of Massachusetts
USGBC	U.S. Green Building Council
VMT	Vehicle Miles Traveled
	Polices and implementation actions which relate to LEED-ND rating system.

B RELATED PLANS & PROJECTS

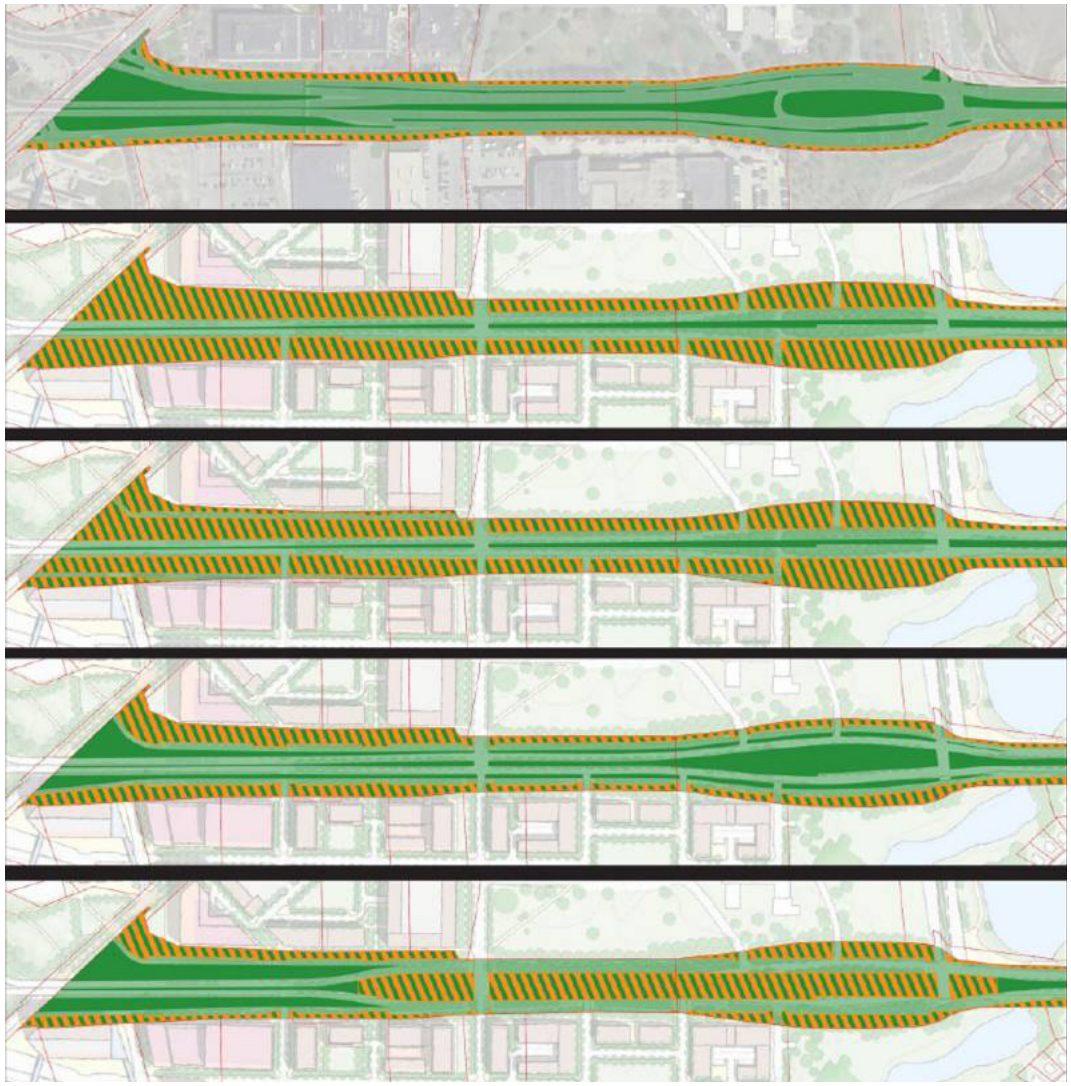
TITLE, DATE	SUMMARY/PURPOSE	RELEVANCE
Dorchester Waterfront Study, 1981	This BRA study includes waterfront areas from Clam Point south to the Neponset Shoreland Open Space Subdistrict (Pope John Paul II Park). The intent of the study was to identify potential areas of additional open space and waterfront access, describe the various recreational facilities that would be most appropriately developed, and propose a system of pedestrian linkages that would tie the area together and provide access to the greater Dorchester community. The resulting concept plan recommends a series of open spaces with bicycle pedestrian corridors along the Dorchester shore.	Although this study covers an area south of Columbia Point, the information is relevant to the Master Plan because of its broader goal of creating a system of pedestrian linkages and bicycle corridors that connect to Morrissey Boulevard and UMass Boston. These linkages should be connected to those created via the Master Plan.
Harborwalk Initiative, 1984	This joint BRA/Boston Harbor Association initiative is the centerpiece of the City's waterfront planning agenda to provide public access to the waterfront. The City's Municipal Harbor Plan (created later) includes substitute provisions to the Waterways Regulations to ensure that Harborwalk is created in all waterfront districts. The existing Harborwalk system connects the City's neighborhoods to its harbor, leading to recreational, cultural and historic attractions, as well as direct connections to public transit, including water transportation facilities. Over 38 miles of Harborwalk have been completed or are under construction. When completed, the Harborwalk will stretch over 47 miles from Dorchester to Charlestown, and also along the East Boston shoreline.	The City is committed to continuing the Harborwalk through the UMass Boston property. In addition, Harborwalk will be required on redeveloped waterfront areas within Columbia Point.
Harborpark Plan, 1990	The City's first Municipal Harbor Plan (MHP) addresses planning and zoning for all waterfront areas in the City, including Columbia Point. The MHP is a planning document, similar to a localized master plan, which provides a vision for Boston Harbor and its waterfront areas. A primary function of the MHP is to provide substitutions to the Waterways Regulations, appropriate to the urbanized waterfront, which supersede state regulations.	The entire Columbia Point waterfront area is subject to the MHP. The Harborpark zoning includes mandates for what must be included in the Columbia Point Master Plan (Article 42 A, Section 22), general waterfront setbacks, and open space and public access requirements for the area. Substitutions were sought for the Dorchester Waterfront regarding setbacks for the Water-Dependent Use Zone, open space, and height.

TITLE, DATE	SUMMARY/PURPOSE	RELEVANCE
Combined Sewer Overflow (CSO) Plan, 1994	This MWRA plan recommends 25 wastewater system improvement projects to bring CSO discharges at 84 outfalls in the metropolitan Boston area into compliance with the federal Clean Water Act (CWA) and state Water Quality Standards. The Plan was a product of the Federal District Court Order in the Boston Harbor Court Case, resulting in a CWA enforcement action to end years of wastewater pollution of Boston Harbor. Most of the CSO improvement projects are located along the South Boston Beaches to improve water quality in Dorchester Bay. However, the plan calls for the construction of a 2,900-foot long, 12x12' box conduit for stormwater conveyance to Savin Hill Cove/South Dorchester Bay underneath Morrissey Boulevard. The first phase of the project is complete and the second phase is scheduled to be completed in June of 2009.	The Master Plan should acknowledge these improvements.
Back to the Beaches Program, 1993	This program, co-managed by the Executive Office of Energy and Environmental Affairs, DCR, and The Boston Harbor Association, is designed to restore and enhance Boston Harbor beaches. Restoration efforts include new sand on beaches, new and restored bathhouses, benches, shade shelters, body and foot showers, walkways, landscaping, and access consistent with the Americans with Disabilities Act of 1990.	Carson Beach in South Boston abuts Columbia Point and is accessible to visitors via the MBTA's Red Line JFK/UMass stop. Planning for Columbia Point should take this resource into account to ensure its preservation and accessibility remains.
City of Boston's Beach Access Plans: Public Access to Dorchester Beaches and Long Island, 1998	This City plan for Dorchester shores specifies direct, continuous, and recognizable pedestrian and bicycle circulation routes along the waterfront between the beaches and parks in Dorchester Bay area and on Long Island.	The Plan proposes enhancements to existing pedestrian circulation routes along Morrissey Boulevard and the UMass Boston entrance (Plan Section 5), which should be taken into account during the master planning process.
Morrissey Boulevard Restoration Project Plan and Environmental Notification Form (ENF), 1998	This DCR Plan/ENF outlines improvements to the entire length of Morrissey Boulevard and the replacement of the Beades Bridge. The goal of the plan is to restore the parkway character to Morrissey Boulevard by creating a linear green space and beautifying open areas, and improving safety, pedestrian and bicycle access, and drainage.	Proposed pedestrian pathways and bicycle routes should be connected to/complementary of those proposed in the Columbia Point Master Plan. The Master Plan visualizes the creation of a greenway with the splitting of Morrissey Boulevard into a 2-lane parkway with adjacent lanes for parking and slower travel.

TITLE, DATE	SUMMARY/PURPOSE	RELEVANCE
Neponset River Reservation Master Plan Phase I, 1998	[Details pending.]	[Details pending.]
Boston Inner Harbor Passenger Water Transportation Plan, 2002	This City Plan outlines existing conditions and future needs of inner harbor water passenger and transportation needs. It also inventories past, present, and future ferry routes; growth trends for ferry services; projected ridership growth; and proposed potential services.	Although the plan focuses on services from the Inner Harbor (*i.e.,* downtown), potential additional services could include downtown to Columbia Point.
Dorchester Rezoning, 2002	The rezoning of Dorchester affected only those zoning districts in Columbia Point situated south of Mt. Vernon Street and east of Harbor Point. Changes were developed with the participation of the Dorchester Planning and Zoning Advisory Committee, civic associations, business groups, and residents. The rezoning revealed a community desire for a shift to land uses with less adverse environmental impacts, and concerns regarding the introduction of dormitories at UMass Boston. Final rezoning resulted in the following: • Parcels west of Morrissey Boulevard, including the MBTA station, Shaw's Supermarket, Greater Media, Channel 56, and Boston Globe, and Sovereign Bank on the opposite side: the zoning changed from light manufacturing to Community Commercial. • St. Christopher's Church and the Boston Public Schools parcels: the zoning changed from multi-family residential to Community Commercial.	In the Master Plan planning process, it is important to acknowledge that through the rezoning process the community indicated a preference for shifting away from industrial uses to uses with less adverse environmental impacts.
Study of Cultural, Civic, and Non-Profit Facilities of Public Accommodation (FPAs) in Boston, 2005	This study analyzes the network of FPAs, as required by the Waterways Regulations, on all waterfront areas in relation to the spatial needs of Boston's cultural, civic, educational, and non-profit organizations. It identifies how much space currently exists and how much is projected to come on line in the next 10 to 15 years. Dorchester's waterfront at Columbia Point has the greatest area of FPA space anywhere on the Boston waterfront, with approximately 604,000 SF of FPA within a number of large institutions: JFK Presidential Library and Museum, UMass Boston, and the Commonwealth Museum and State Archives. Since there is an abundance of FPA use in Columbia Point, there were no specific recommendations made for improvements.	Waterfront areas would be subject to the FPA provision of the Waterways Regulations and the general recommendations of the study, including: • Implementation of identified suitable non-profit, cultural, civic, and educational FPA uses. • Greater efforts toward Harborwalk planning and coordination. • Ensuring affordability and suitability of FPAs for non-profit use.

TITLE, DATE	SUMMARY/PURPOSE	RELEVANCE
Facilities of Public Accommodation Commercial, Retail and Restaurant Market Demand and Supply Analysis, 2006	The purpose of this study was to determine how much FPA space the market can reasonably be expected to absorb in the City's Waterfront Districts over the course of the next 25 years and what conditions are necessary for that space to be economically viable and sustainable in the long term. A detailed market demand and supply analysis determined that there is currently only 5,000 SF of existing commercial retail or restaurant space along the Dorchester waterfront and that no additional space has been planned. The market analysis suggested that there is an opportunity to develop up to 53,900 SF of new retail and restaurant space within Columbia Point through 2030.	The study's conclusion about Columbia Point's potential to support new retail and restaurant space is consistent with the independent real estate economic analysis performed for the Columbia Point Master Plan.
UMass Boston Master Plan, 2008	The objectives of the UMass Boston Master Plan are to increase enrollment to 15,000 students by 2010, construct new state-of-the-art academic buildings, and provide a variety of housing options. The plan calls for adding approximately 600,000 SF of additional institutional space, 2,000 garage parking spaces, and new residence halls with 2,000 dormitory beds. The plan also calls for more open space (to be achieved by the demolition of the plaza and science building), improved integration with the waterfront and surrounding urban community, reconfiguring the road network, relocating the running track, locating housing near Mt. Vernon Street, and greater physical connection with the JFK Presidential Library and Museum and Commonwealth Museum and State Archives.	The UMassBoston Master Plan offers an opportunity to better integrate the campus with the surrounding community. However, the illustrative plan shows new residence halls and parking garages located in ways to act more as a barrier than as means of integrating the campus into the community. During the Columbia Point Master Plan planning process, modification to the UMass Boston Plan did not occur. The BRA will continue to make attempts to work with UMass Boston on this issue.
Urban Ring Initiative Revised Draft Environment Impact Report (RDEIR), 2009	This planning, sponsored by EOT, proposes a major new transit service that would run in a circular pattern just outside of central Boston, traversing the communities of Brookline, Cambridge, Chelsea, Everett, Medford, and Somerville, in addition to Boston. The Urban Ring would connect major emerging population and employment centers, provide for more direct trips, improve connections, and relieve congestion. The RDEIR evaluates a specific proposed alignment of the Urban Ring called a Locally Preferred Alternative (LPA). The Urban Ring would link Columbia Point to major emerging population and employment centers, such as the Longwood Medical Area, and includes a stop at the JFK/UMass MBTA Station, which would provide significant new rapid transit access. It is possible that major segments of the Urban Ring could be built as early as 2015 – 2020, depending upon funding availability.	The Columbia Point Master Plan should acknowledge the prospect of an Urban Ring stop at JFK/UMass MBTA Station, as it speaks to the important prospect of regional transit links for Columbia Point.

C MORRISSEY BOULEVARD ALTERNATIVES STUDIED



Existing Layout

Unpaved Open Space:	6.1 acres	
Pedestrian-oriented Open Space	2.1 acres	

Option 1: Centered roadway with wide open space on both sides

Unpaved Open Space:	10.6 acres	(+74%)
Pedestrian-oriented Open Space	9.6 acres	(+365%)

Option 2: Centered roadway with frontage roads on development sides

Unpaved Open Space:	9.6 acres	(+58%)
Pedestrian-oriented Open Space	8.6 acres	(+317%)

Option 3: Existing thru lanes with modified frontage roads

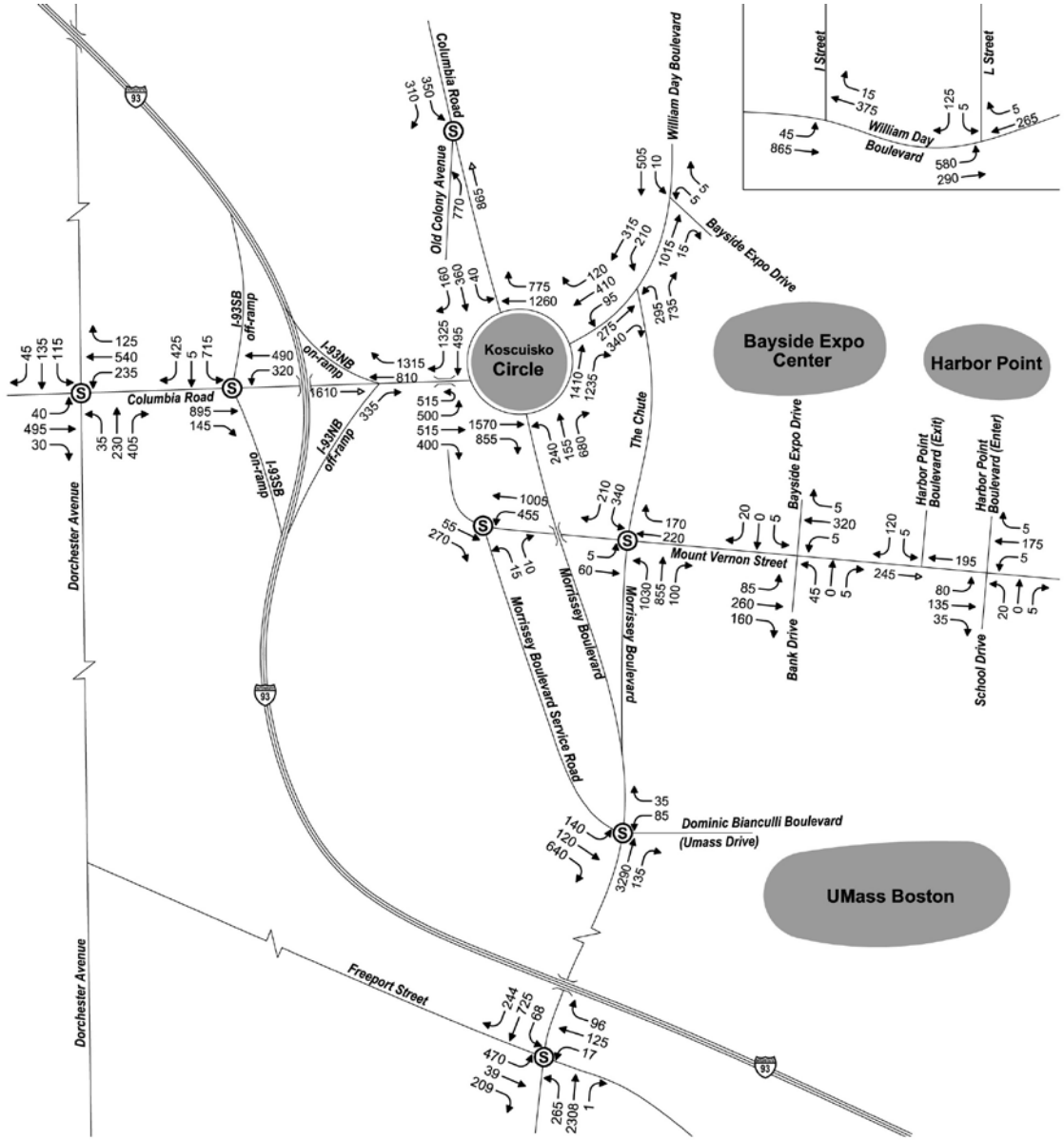
Unpaved Open Space:	8.9 acres	(+47%)
Pedestrian-oriented Open Space	4.8 acres	(+133%)

Option 4: Centered open space

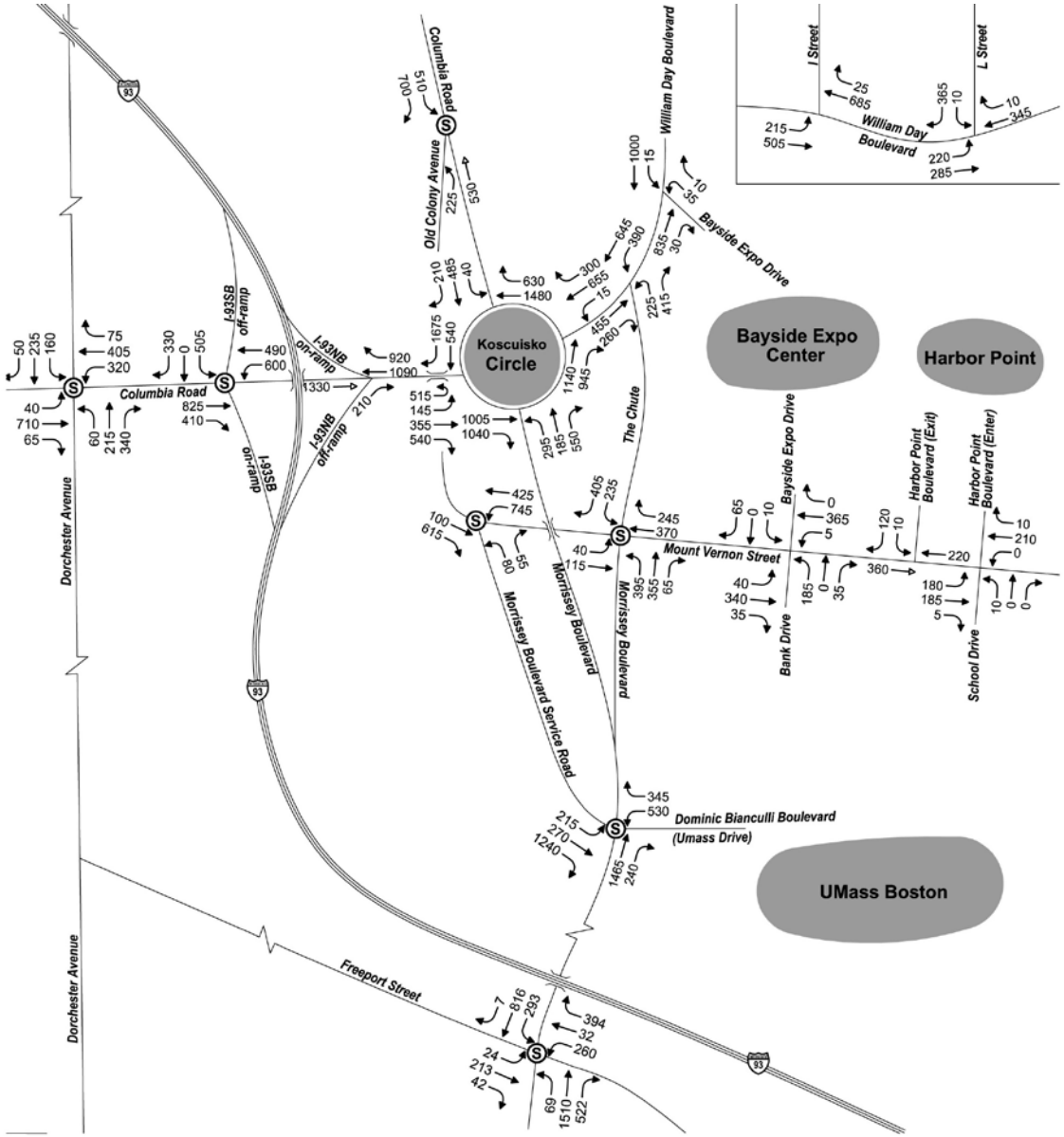
Unpaved Open Space:	9.2 acres	(+51%)
Pedestrian-oriented Open Space	6.9 acres	(+236%)

Note: %'s indicate change from existing layout.

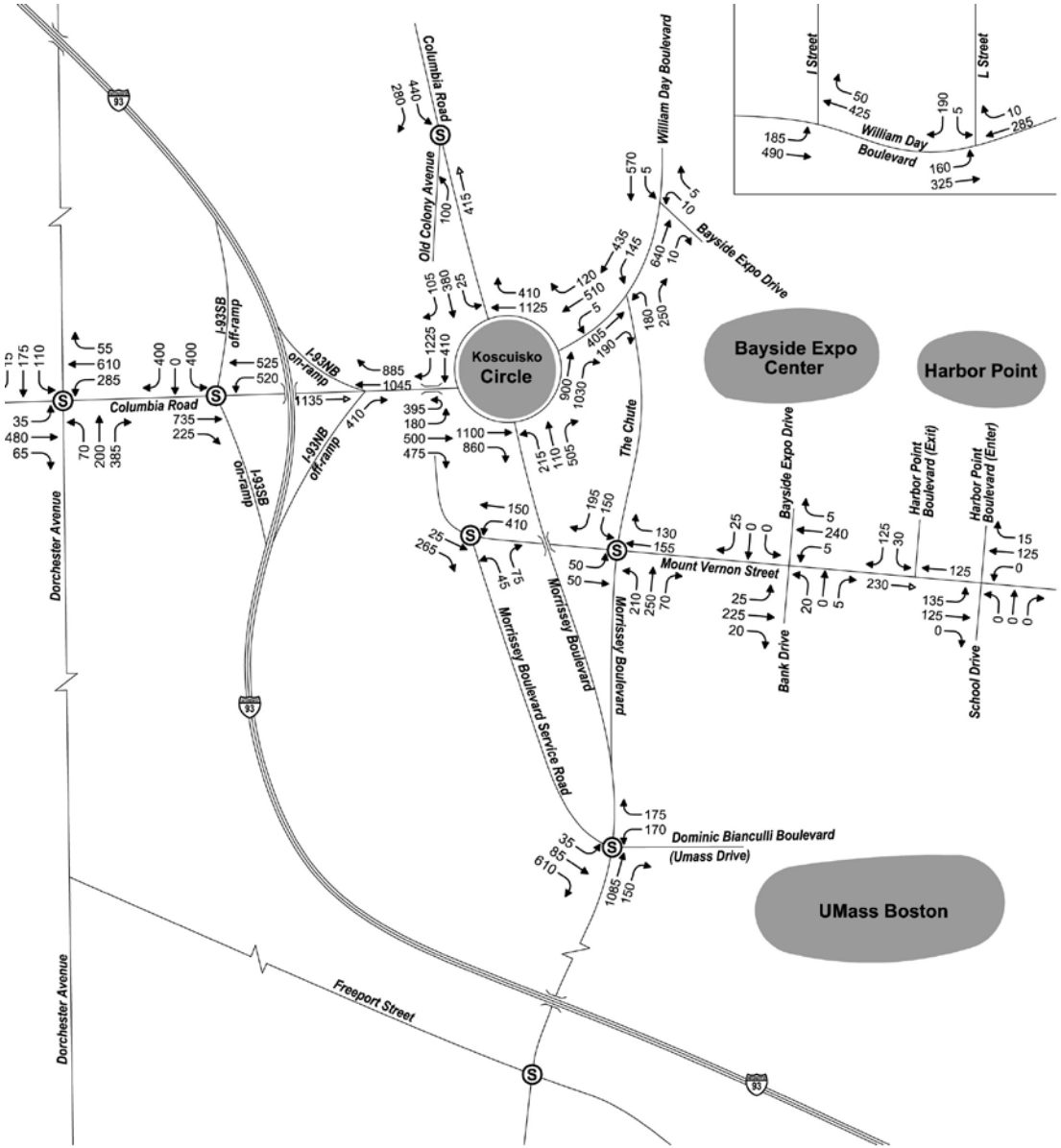
D TRANSPORTATION



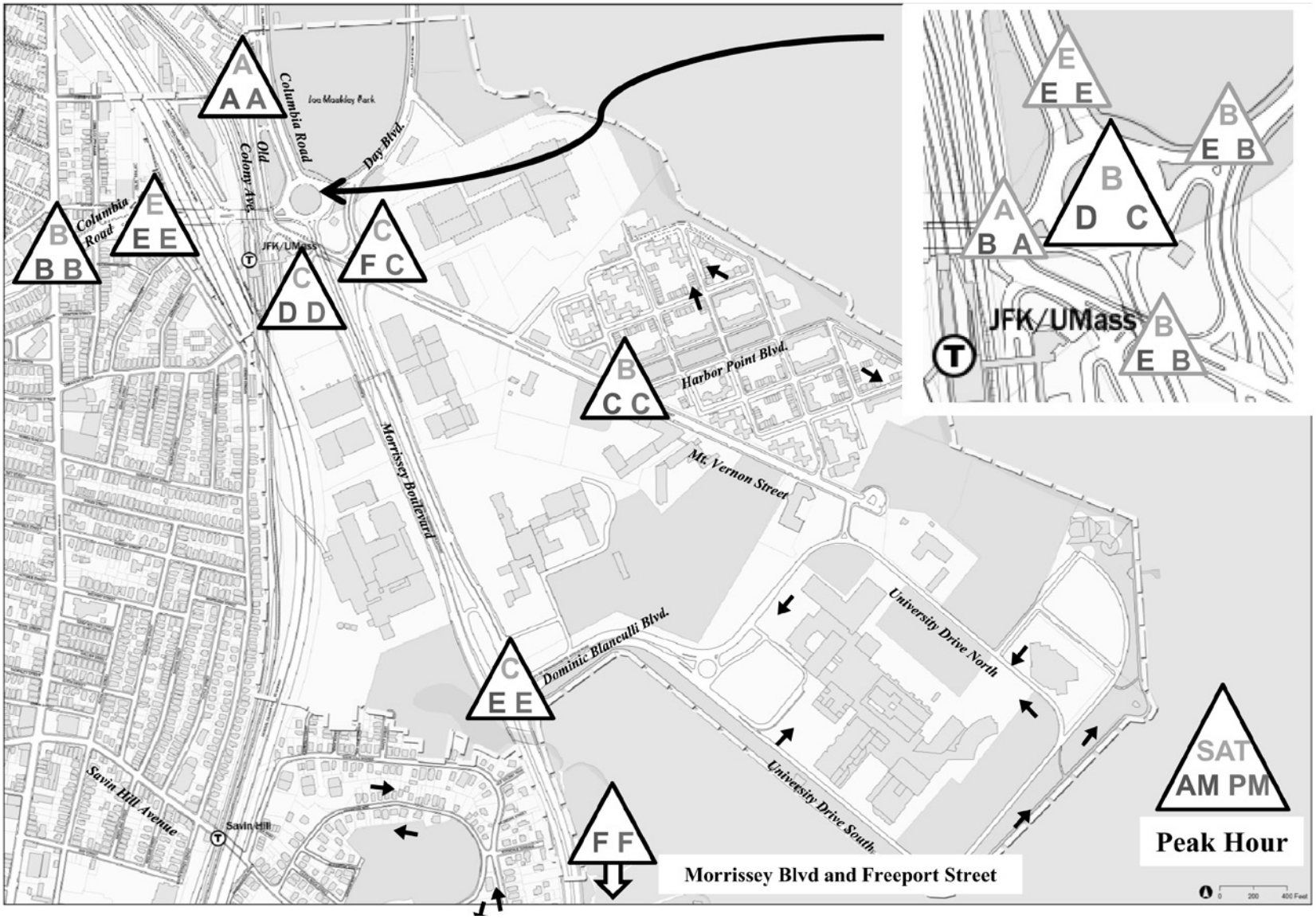
2007 existing weekday morning peak hour traffic volumes - September/October 2007 (schools/colleges in session) - for the peak 1-hour period occurring between 7 and 9 AM. Note: K-Circle volumes, as shown here and presented in the Vissum model, were collected on a different day than the volumes for all other intersections as presented in Synchro.



2007 existing weekday evening peak hour traffic volumes - September/October 2007 (schools/colleges in session) - for the peak 1-hour period occurring between 4 and 6 PM. Note: K-Circle volumes, as shown here and presented in the Vissum model, were collected on a different day than the volumes for all other intersections as presented in Synchro.



2007 existing midday Saturday peak hour traffic volumes - September/October 2007 (schools/colleges in session) - for the peak 1-hour period occurring between 11 AM and 2 PM. Note: K-Circle volumes, as shown here and presented in the Vissum model, were collected on a different day than the volumes for all other intersections as presented in Synchro.



Existing signalized intersection level of service.

	Route (Origin/Destination)	Headway at JFK/UMass Station (Frequency of Service) in minutes			JFK/UMass Station Boardings	Utilization
		Peak (AM/PM)	Off-Peak (AM/PM)	Weekend (Sat/Sun)	Peak Hour (Daily)	Peak Hour*
Commuter Rail	*South Station – Kingston/Plymouth, Middleborough and Greenbush*	Inbound 20 / 0 Outbound 0 / 40	Inbound 180 / 0 Outbound 0 / 120	Inbound 60 / 60 Outbound 60 / 60	2 (70)	TBD
Red Line	*Alewife – Ashmont/Braintree*	4 / 4	6 / 6	7 / 8	865 (9,446)	85%
Bus #5	*City Point – McCormack Housing*	60 / 60	60 / 60	60 / 0	6 (8)	14%
Bus #8	*Harbor Point/Umass – Kenmore Station*	12 / 20	45 / 22	35 / 35	3 (14)	53%
Bus #16	*Forest Hills – Umass*	16 / 18	16 / 18	0 / 0	6 (9)	63%
Bus #18	*Ashmont Station – Andrew Station*	30 / 30	60 / 60	60 / 60	N/A	38%
Bus #41	*Centre &Elliot Streets – JFK/Umass Station*	20 / 20	30 / 22	35 / 35	47 (278)	47%
Umass Shuttle 1	*JFK/Umass Station – Umass*	5 / 5	5 / 5	0 / 0	TBD	TBD
Umass Shuttle 2	*JFK/Umass Station – Umass (via JFK)*	20 / 20	20 / 20	20 / 20	TBD	TBD

*** Peak Load / Peak Direction**

Transit service operations.

Program Summary for Parcel	Land Use Code (LUC)	EXISTING 2008 CONDITION Square Feet (in ksf)	EXISTING 2008 CONDITION # of Units	No Plan BUILDOUT Square Feet (in ksf)	No Plan BUILDOUT # of Units	(low) BUILDOUT CONDITION Square Feet (in ksf)	(low) BUILDOUT CONDITION # of Units	(high) BUILDOUT CONDITION Square Feet (in ksf)	(high) BUILDOUT CONDITION # of Units
CJ - Bayside									
(from Bayside PNF)	*Residential (Apartments) - LUC 220*				421		1108		1108
	Retail (Shopping Center) - LUC 820	278.0		270.5		263.5		263.5	
	General Office - LUC 710	126.9		217.8		212.1		212.1	
	Hotel - LUC 310		197				307		307
	TOTAL	**404.9**	**197**	**488.3**	**421**	**475.6**	**1415**	**475.6**	**1415**
Teachers Union									
	Residential (Apartments) - LUC 220				41				
	Retail (Shopping Center) - LUC 820								
	General Office - LUC 710	32.5		47.3		32.5		32.5	
	TOTAL	**32.5**	**0**	**47.3**	**41**	**32.5**	**0**	**32.5**	**0**
Synergy									
	Residential (Apartments) - LUC 220				272		360		700
Shaws	*Retail (Supermarket) - LUC 850*	61.8		28.4		61.0		61.0	
	Retail (Shopping Center) - LUC 820			55.3		119.0		119.0	
Greater Media	*General Office - LUC 710*	42.0		232.5		250.0		500.0	
	TOTAL	**103.8**	**0**	**316.2**	**272**	**430.0**	**360**	**680.0**	**700**
MBTA									
	Residential (Apartments) - LUC 220				144				
	General Office - LUC 710	207.3		166.6		300.0		450.0	
	TOTAL	**207.3**	**0**	**166.6**	**144**	**300.0**	**0**	**450.0**	**0**
Sovereign Bank									
	Residential (Apartments) - LUC 220				409		324		482
	Retail (Shopping Center) - LUC 820			60.1		29.0		29.0	
	General Office - LUC 710	367.4		414.4		125.0		200.0	
	Hotel - LUC 310						150		150
	TOTAL	**367.4**	**0**	**474.5**	**409**	**154.0**	**474**	**229.0**	**632**
Globe & Channel 56									
	Residential (Apartments) - LUC 220				563		869		1200
	General Office - LUC 710	720.7		653.5					
	TOTAL	**720.7**	**0**	**653.5**	**563**	**0.0**	**869**	**0.0**	**1200**

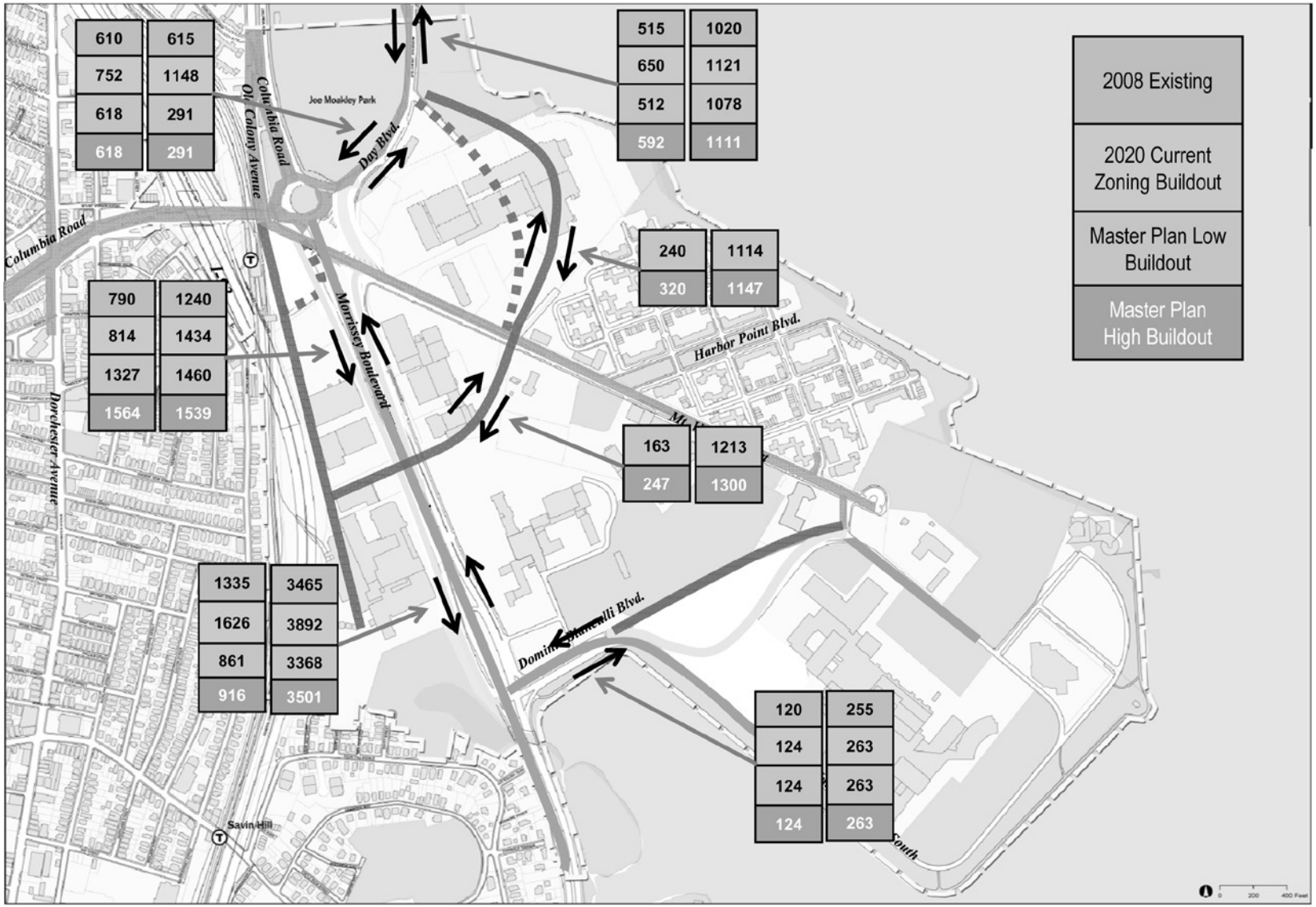
Buildout trip generation summary.

based on a mode share of 61% auto

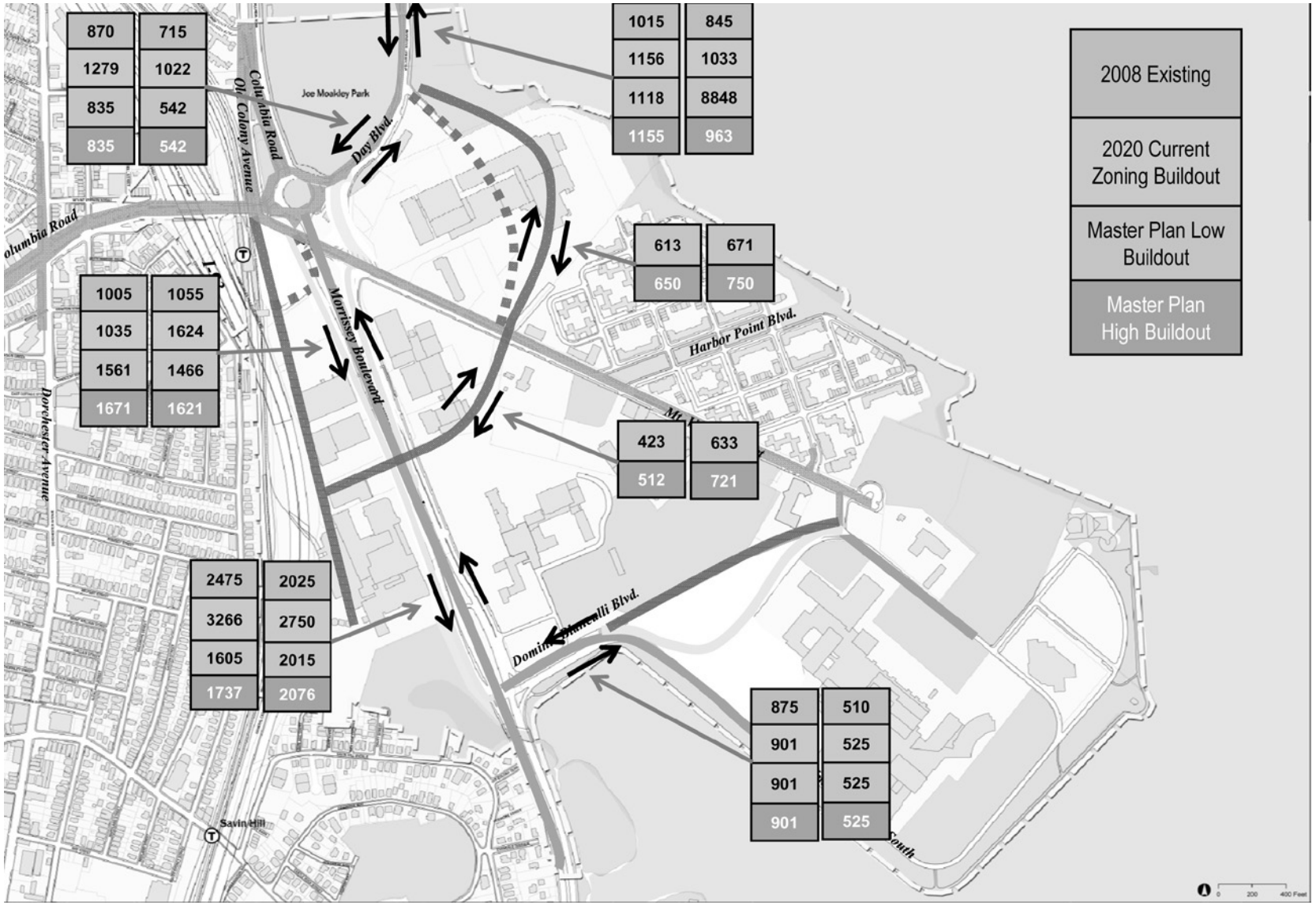
Data source:	from PARCELcalcs-CJBayside.xls file	from PARCELcalcs-Teachers.xls file	from PARCELcalcs-Synergy.xls file	from PARCELcalcs-MBTA.xls file	from PARCELcalcs-Sovereign.xls file	from PARCELcalcs-Globe&56.xls file
	CJ	Teachers Union	Synergy	MBTA	Sovereign Bank	Globe&56
Existing 2008 Condition						
Weekday Morning						
Entering	322	36	136	229	406	797
Exiting	136	5	64	31	55	109
Total	458	41	199	261	462	906
Weekday Evening						
Entering	441	7	249	43	75	148
Exiting	567	33	273	208	368	723
Total	1,009	39	522	250	444	871
Saturday Mid-day						
Entering	612	6	255	37	66	129
Exiting	554	5	244	32	55	110
Total	1,166	11	499	69	122	240
No Plan BUILDOUT						
Weekday Morning						
Entering	386	54	337	191	506	750
Exiting	194	15	131	53	160	208
Total	580	69	468	245	666	959
Weekday Evening						
Entering	481	18	283	62	243	243
Exiting	647	52	446	162	544	714
Total	1,129	69	729	244	787	957
Saturday Mid-day						
Entering	602	14	294	48	239	187
Exiting	557	12	275	43	219	170
Total	1,159	26	568	91	457	357
LOW BUILDOUT						
Weekday Morning						
Entering	465	34	411	312	196	40
Exiting	357	5	187	43	110	159
Total	822	38	598	354	306	199
Weekday Evening						
Entering	640	6	483	58	154	157
Exiting	725	31	644	283	220	85
Total	1,365	37	1,128	341	374	242
Saturday Mid-day						
Entering	727	5	525	51	156	102
Exiting	665	5	493	43	139	102
Total	1,392	10	1,018	94	296	203
HIGH BUILDOUT						
Weekday Morning						
Entering	465	34	686	468	282	55
Exiting	357	5	285	64	150	220
Total	822	38	971	532	431	275
Weekday Evening						
Entering	640	6	593	87	197	217
Exiting	725	31	913	424	306	117
Total	1,365	37	1,506	511	503	334
Saturday Mid-day						
Entering	727	5	607	76	188	140
Exiting	665	5	569	65	169	140
Total	1,392	10	1,176	141	356	280

Mode Share			
Auto	Transit	Walk	
73%	17%	10%	Existing Commercial
43%	53%	4%	Existing Residential
73%	17%	10%	No Plan Commercial
43%	53%	4%	No Plan Residential
69%	20%	11%	Low Commercial
40%	55%	4%	Low Residential
69%	20%	11%	High Commercial
40%	55%	4%	High Residential

Buildout trip generation summary (auto trips only).



Link volumes (am peak).



Link volumes (pm peak).

		Morning Peak				Evening Peak				Saturday Midday			
		2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout	2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout	2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout
Columbia Road/ Dorchester Avenue	Volume	2530	2714	2599	2675	2675	2904	2887	2964	2485	2725	2828	2862
	% Incr. over Existing		7.3%	2.7%	5.7%		8.6%	7.9%	10.8%		9.7%	13.8%	15.2%
Columbia Road/ I-93SB Ramps	Volume	2995	3414	3039	3257	3160	3655	3584	3748	2805	3320	3392	3479
	% Incr. over Existing		14.0%	1.5%	8.7%		15.7%	13.4%	18.6%		18.4%	20.9%	24.0%
Columbia Road/ I-93 NB Ramps	Volume	4070	4687	4234	4534	3550	4356	4033	4341	3475	4261	4321	4458
	% Incr. over Existing		15.2%	4.0%	11.4%		22.7%	13.6%	22.3%		22.6%	24.3%	28.3%
Columbia Road/ Old Colony Ave	Volume	2545	2792	2671	2792	2250	2604	2632	2804	1340	1647	1719	1779
	% Incr. over Existing		9.7%	5.0%	9.7%		15.7%	17.0%	24.6%		22.9%	28.3%	32.8%
K-Circle	Volume	4395	5124	4662	4962	4260	5619	5274	5582	3560	4534	4575	4711
	% Incr. over Existing		16.6%	6.1%	12.9%		31.9%	23.8%	31.0%		27.4%	28.5%	32.3%
Day Boulevard/ Bayside Drive (North)	Volume	1555	1867	1935	2048	1925	2340	2331	2447	1240	1644	1767	1818
	% Incr. over Existing		20.1%	24.4%	31.7%		21.6%	21.1%	27.1%		32.6%	42.5%	46.6%
Mt. Vernon Street/ New Roadway	Volume	0	0	2694	2844	0	0	2131	2285	0	0	1732	1800
	% Incr. over Existing		0.0%	100.0%	100.0%		0.0%	100.0%	100.0%		0.0%	100.0%	100.0%
Morrissey Boulevard/ New Roadway	Volume	0	0	4656	5100	0	0	4162	4648	0	0	3590	3808
	% Incr. over Existing		0.0%	100.0%	100.0%		0.0%	100.0%	100.0%		0.0%	100.0%	100.0%
Morrissey Boulevard/ Dominic Bianculli Blvd	Volume	4880	5463	4455	4643	5055	6110	4414	4606	2740	3313	2770	2857
	% Incr. over Existing		11.9%	-8.7%	-4.9%		20.9%	-12.7%	-8.9%		20.9%	1.1%	4.3%
Morrissey Boulevard/ Freeport Street	Volume	4575	5012	4733	4921	4182	4735	4508	4701	n/a	n/a	n/a	n/a
	% Incr. over Existing		9.6%	3.5%	7.6%		13.2%	7.8%	12.4%	n/a	n/a	n/a	n/a

Buildout intersection volumes at key intersections.

		Morning Peak				Evening Peak				Saturday Midday			
		2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout	2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout	2008 Existing	2020 Current Zoning Buildout	2020 Master Plan Low Buildout	2020 Master Plan High Buildout
Columbia Road/ Dorchester Avenue	LOS	B	C	C	C	B	C	C	C	B	B	C	C
	v/c	0.69	0.80	0.84	0.87	0.66	0.69	0.79	0.80	0.64	0.68	0.85	0.86
Columbia Road/ I-93SB Ramps	LOS	E	F	E	E	E	F	F	F	E	F	F	F
	v/c	1.08	1.28	0.97	1.07	1.0	1.18	1.15	1.21	0.88	1.03	1.03	1.06
Columbia Road/ I-93 NB Ramps	LOS	F	F	F	F	E	F	F	F	F	F	F	F
	v/c	1.09	2.31	1.06	1.39	0.73	1.10	0.89	1.01	0.97	1.42	1.40	1.51
Columbia Road/ Old Colony Ave	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	v/c	0.57	0.61	0.60	0.62	0.55	0.65	0.61	0.64	0.20	0.27	0.23	0.25
Day Boulevard/ Bayside Drive (North)	LOS	D	F	B	C	F	F	D	F	C	F	B	B
	v/c	0.06	0.54	0.81	0.89	0.59	2.99	1.03	1.16	0.06	0.81	0.56	0.58
Mt. Vernon Street/ New Roadway	LOS	-	-	B	C	-	-	C	C	-	-	C	C
	v/c	-	-	0.68	0.70	-	-	0.54	0.59	-	-	0.47	0.49
Morrissey Boulevard/ New Roadway	LOS	-	-	C	E	-	-	D	F	-	-	D	D
	v/c	-	-	0.92	1.07	-	-	0.92	1.13	-	-	0.83	0.91
Morrissey Boulevard/ Dominic Bianculli Blvd	LOS	E	F	E	E	E	F	D	D	C	C	B	B
	v/c	0.96	1.07	0.98	1.01	1.08	1.29	0.93	0.94	0.55	0.65	0.57	0.58
Morrissey Boulevard/ Freeport Street	LOS	F	F	F	F	F	F	F	F	-	-	-	-
	v/c	>1.0	2.00	1.60	1.63	>1.0	2.00	2.17	2.18	-	-	-	-

Buildout level of service at key intersections.

E GLOSSARY OF TERMS FOR SUSTAINABLE DESIGN

Adaptation - The process of accommodating the impacts of global climate change. Examples include increasing the elevation of coastal properties to account for rising sea levels and building larger stormwater management facilities to handle more intense rain storms.

Beyond compliance - Taking actions above what is required (typically by law or regulation).

Building integrated photovoltaics (BIPV) - Photovoltaic materials that are used to replace conventional materials in parts of a building's exterior. BIPV modules are increasingly being incorporated into the construction of new buildings as a principal or ancillary source of electrical power, although existing buildings may be retrofitted. As an integral part of the design, BIPV generally blend in better aesthetically than other solar options and module forms vary between flat roofs (thin film cells and roofing membrane), pitched roofs (thin film tiles or shingles), facades, and glazing (semi-transparent modules that replace glass elements like windows).

Cogeneration (cogen) - Cogen, also known as combined heat and power (CHP), is the simultaneous production of electrical or mechanical power and useful thermal energy from the same fuel/energy source such as oil, coal, gas, biomass, or solar. Cogen can provide electricity and heating/cooling with high efficiency.

Daylighting - The controlled admission of natural light into a space through glazing (i.e., windows) with the intent of reducing electric lighting and contributing to building illumination.

Distributed generation (DG) - Also called distributed energy, DG is electricity produced locally, typically on-site by wind turbines, solar panels, fuel cells, or diesel generators. DG reduces the amount of electricity lost in transmission from large, centralized power plants because the electricity is generated very near where it is used.

District heating and cooling - A highly efficient system for distributing energy generated in a centralized location for use in multiple buildings, typically for heating water and space heating and cooling.

Energy conservation - Any behavior that results in the use of less energy.

Energy efficiency - Applying technology to use less energy to perform the same function.

Green jobs training - Programs that identify needed skills, develop training classes, and educate workers for jobs in a range of industries—including energy efficient/green building and retrofits, renewable electric power, energy efficient vehicles, biofuels, and manufacturing that produces sustainable products and uses sustainable processes and materials.

Green roof - A rooftop planted with vegetation; also called a vegetated roof. Intensive green roofs have thick layers of soil (6 to 12" or more) that can support a broad variety of plant or even tree species. Extensive roofs are simpler green roofs, with a soil layer of 6" or less to support turf, grass, or other ground cover.

Ground source heat pump (GHP) - Also referred to as earth-coupled, ground-source, or water-source heat pumps, GHPs use the constant temperature of the earth as the exchange medium instead of the outside air temperature to allow a building's HVAC system to reach fairly high efficiencies in order to heat, cool, and if so equipped, supply the building with hot water.

Leadership in Energy and Environmental Design (LEED®) - A third-party validation system used to evaluate a building's performance, developed by the U.S. Green Building Council (USGBC). LEED is a point-based system where projects earn LEED points for satisfying specific green building criteria.

Within each of the six LEED credit categories (Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, and Innovation in Design), projects must satisfy particular prerequisites and earn points. The number of points a project earns determines the level of certification the project receives, available in four progressive levels: Certified, Silver, Gold, and Platinum. For more information: http://www.usgbc.org.

Local food production - Locally-produced foods create jobs and can help preserve open space. Local purchasing of goods and services supports community businesses, enhances local ecology, and reduces distribution-related carbon emissions.

Modern grid (MG) - A strategy to facilitate the modernization of the electric transmission and distribution system. Several local and national MG initiatives exist with benefits including: grid upgrades that will ease congestion and increase capacity, sending 50 to 300% more electricity through existing corridors and thereby reducing electricity blackouts and interruptions; high-quality power for sensitive electronics; greater options for consumers to manage their electricity use and costs through metering; and the plug-power integration of renewables, distributed resources, and control systems.

Performance benchmarking - The collection of performance information and making comparisons with other compatible units for verification. A chosen measure might be energy performance like kWh usage per square foot in a similar building type. Benchmarking assists in identifying performance shortfalls and priorities for improvement.

Rainwater harvesting - Collection and storage of rainwater runoff, typically from rooftops in cisterns or barrels; this water may be used for release at a later time for landscape irrigation, agriculture, flushing toilets, in washing machines, and washing cars.

Smart Grid - An enhanced electric transmission and distribution network that also communicates information back and forth. The current grid does not allow time-of-use information-sharing that could allow, for example, power companies and end users to communicate about fluctuations in energy supply and demand. A Smart Grid would enable time-of-use pricing options that would create incentives for customers to save money by shifting some of their use to off-peak hours when electricity costs are lower.

Solar hot water system - Also called a solar water heater, this system can be a cost-effective way to supply domestic hot water in any climate using sunlight energy. Systems include storage tanks and solar collectors. There are two types of solar water heating systems: active, which have circulating pumps and controls, and passive, which do not. Most solar water heaters require a well-insulated storage tank and a backup system for cloudy days and times of increased demand.

Transportation Management Association (TMA) - A collective non-profit organization of private corporations, public agencies, and/or other entities dedicated to achieving reductions in traffic congestion, improving mobility and air quality, and educating employers and their employees about transportation alternatives.

Wind energy - Electricity generated by wind machines, usually a turbine. The scale of the machine can range from building-affixed micro-turbines to towers over 100m high.

F SOURCES AND METHODS FOR ESTIMATES OF EMPLOYMENT, WAGES, AND TAXES

Employment:

Estimates of permanent jobs are based on the size of planned buildings, by use:

Office space: 250 SF per job

Retail: 500 SF per job

Hotel: 0.56 jobs per hotel room (0.74 jobs per room city average multiplied by the ratio of room rates for this market to city average room rates [$160/$210])

Estimated construction employment is based on construction costs: one-fourth of hard construction cost is assumed to represent direct worker wages, with an average construction industry wage of $67,200 (U.S. Census Bureau, County Business Patterns 2006, Suffolk County), resulting in 3.72 construction industry job-years (a typical job of one year duration) per million dollars of hard construction cost.

Wages:

Wages for permanent jobs are reported by the Massachusetts Department of Workforce Development (ES-202 Employment and Wage Reports) for Boston, 2006. These are adjusted to 2008 levels by the Boston CPI-U inflation factor (2006-2008 = 1.055). Wages for "office" jobs are an average of wages by industry, weighted by the percent distribution of industry employment within Boston's office using sectors. For areas outside of downtown, such as Columbia Point, the Securities and Investments sub-sector of Finance is excluded.

Estimated 2008 wages are:

Hotel: $38,896

Retail: $33,574

Office: $90,819

Construction Costs:

Construction costs are derived from the R.S. Means Square Food Construction Cost Manual, 2009. Estimated hard construction costs per square foot, by building type, are:

Residential: $187

Hotel: $210

Retail: $159

Office: $204

Retail space built as a ground floor use in residential or office buildings is attributed the construction cost for residential or office buildings, respectively. Average construction costs for retail uses would be $183 per square foot if one-third of retail space is located in each of office, residential, and dedicated retail buildings.

Hotel rooms here are assumed to average 500 gross square feet of total building area per room. This is the average of eight Boston hotels in competitive non-downtown locations.

Boston Property Taxes:

Proposition 2½ allows Boston to collect net new revenues from value increases due to development. These value increases are estimated as hard construction cost times 1.5. The 50% premium over hard construction costs is an estimate of project soft costs, not including land value. The total value increases are then multiplied by Boston's FY2009 tax rates of $27.11/$1,000 for commercial property and $10.63/$1,000 for residential property. Condominium taxes are then reduced by the $1,375 owner occupant exemption.

State Income Taxes:

Massachusetts income taxes are estimated as total wages times the average effective tax rate of 4.76%, as reported by the Massachusetts Department of Revenue.