

# MASTER PLAN

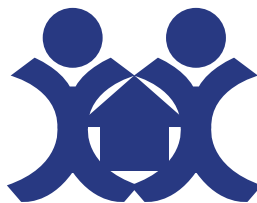
## FOR THE REDEVELOPMENT OF THE OLD COLONY HOUSING DEVELOPMENT

Boston, Massachusetts



FEBRUARY 15, 2011

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THE BOSTON HOUSING AUTHORITY

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# MASTER PLAN FOR THE OLD COLONY HOUSING DEVELOPMENT



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# MASTER PLAN FOR THE OLD COLONY HOUSING DEVELOPMENT

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- City Point Neighborhood Association
- City Side Neighborhood Association
- Dorchester Heights Neighborhood Association
- West Broadway Neighborhood Association
- Lower End Political Action Committee

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- State Senator Jack Hart
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### EXECUTIVE SUMMARY

Old Colony is an 840-unit public housing development in the South Boston neighborhood of Boston, Massachusetts. It represents one of the oldest and most distressed properties in the BHA's federal portfolio. The Existing Conditions Report demonstrated that Old Colony is obsolete, with deficiencies too severe and numerous to be addressed through rehabilitation. The existing physical condition of Old Colony is compromising the health, safety and well-being of the residents. Yet, despite these conditions, Old Colony is a popular choice in housing assignments for its convenient location and its presence within a safe and stable neighborhood.

The deterioration and isolation of Old Colony within the South Boston neighborhood further marginalizes a population that is already in dire need of assistance and is plagued by intense and persistent poverty. The master plan, therefore, focuses on both physical and social connections and revitalization.

Improved physical connections between Old Colony and the South Boston neighborhood are critical to resolving the isolation that exists today. In order to soften the strong edge and qualitative differential between the site and the broader neighborhood, the site must shift away from the large scaled super blocks and repetitive, inward looking buildings to block patterns and diverse housing typologies that address public streets and are consistent with the scale and feel of the neighborhood. A redeveloped Old Colony, as proposed by this master plan, seeks to transform a distressed physical and social environment into a vibrant urban neighborhood that will invoke a sense of pride amongst its diverse resident community as well as its South Boston neighbors.



By reducing the physical isolation of Old Colony, the social stigma of this site will shift, as the BHA and residents have seen at other BHA redevelopment sites. Real physical improvements, in combination with targeted social services, will improve opportunities for Old Colony residents; contribute to a reduction in the persistence of poverty; give greater opportunities to individuals and families to achieve financial self-sufficiency; and put the youth of the community on a new trajectory in terms of jobs and education.

The improvements to Old Colony, as set forth in this master plan, will be a model in sustainability – with the ambitious goal of ultimately achieving a net zero redevelopment. The buildings will be designed and built to achieve extremely high energy efficiency. The development will build upon existing infrastructure and important neighborhood amenities. Ultimately, the sustainability goals of the master plan extend to include not only efficient design measures and renewable energy strategies, but the creation of a healthy and sustainable social community.

The BHA and the Old Colony Task Force share a belief that South Boston and its special connection to public housing can be refashioned to respond to the social and demographic changes that have transpired in South Boston in the seventy years since Old Colony was built. This document plans for a transformation of the development that will improve and reinvent Old Colony and its connection to the South Boston community and beyond.

## B. SUMMARY OF THE PLANNING PROCESS

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### OLD COLONY RESIDENT COMMUNITY MEETINGS & AGENDAS:

October 6, 2009

- Review ARRA funding award for Phase I
- Plans for future Master Plan and Phase I

January 26, 2010

- Review resident process
- Review some initial thoughts about opportunities for the Old Colony site
- Update residents on the status of Phase 1
- Listen to residents' thoughts about goals for the community

February 23, 2010

- Review Progress on Master Plan and Phase I Site Plans
- Discuss Options for Future Phasing
- Review Key Schedule Milestones
- Complete Resident Surveys

April 21, 2010

- Update of Phase I
- Current Master Plan Framework
- Proposed Phase II
- Summarize Findings of Resident Surveys

### SUMMARY OF THE PLANNING PROCESS

The Old Colony Master Plan was generated under the guidance and supervision of the BHA, complimented by a thorough review with Old Colony residents, the community at large, and relevant public agencies. The Master Plan team and the BHA also benefited from insight of an advisory committee consisting of housing and social service practitioners, City and elected officials, and representatives of community institutions.

The Master Planning process began in December 2009. Prior to the commencement of the process, funding for the redevelopment of the first phase had already been secured through a federal economic stimulus grant. The footprint for this first phase of redevelopment was identified by the BHA. Because of strict deadlines associated with Phase I, the master plan focused initially on the urban design principles of the roughly 16.7 acre area of the site. This design developed in order to ensure that Phase I could stand on its own within the existing Old Colony development and would not impede the goals of the master plan in the event that funding of future phases did not materialize or did not materialize quickly. Following the competitive selection of the Phase I developer, the master planning team continued to work with the developer and their design team throughout the process, reviewing design progress and supporting the project through the meetings with the Boston Redevelopment Authority and the Boston Civic Design Commission.

The planning team met at least bi-weekly with the BHA and members of the Old Colony Task Force, and convened three (3) Advisory Committee meetings

The planning team and the BHA also held three community meetings prior to releasing a draft of the Master Plan in July, 2010. These meetings were open to the public, but were specifically targeted toward Old Colony residents, as well as social service providers in the community. Each meeting was held twice, either on the same day or on two subsequent days

## B. SUMMARY OF THE PLANNING PROCESS

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to provide greater access and flexibility for attendance. The meetings were held within a short walking distance of Old Colony, at the Boys and Girls Club, the Ironworkers Union Hall, and in the community room at the Mary Ellen McCormick housing development across the street, all of which are accessible to people with mobility impairments. Translators in four languages (Spanish, Haitian Creole, Mandarin, and Vietnamese) attended the community meetings to translate for any resident who needed language assistance. Each community meeting consisted of a visual presentation, followed by a question and answer period.

A resident survey was mailed to each unit at Old Colony to gather information on the residents' current use and interest in social services and physical development in the master plan. Surveys were also available at the community meetings where the translators were available to help fill out the forms. The surveys were available in both English and Spanish.

In July, 2010, the BHA released a draft Master Plan document to the residents, neighborhood associations, City and elected officials, and the Advisory Committee. The draft plan was available at the site and on the BHA web site, and over 100 copies were distributed to the community. Subsequently, two publicly advertised meetings were held in the fall of 2010 to review the plan and receive comments.

A summary of changes to the master plan resulting from the planning process is provided in the Master Plan chapter. In addition to the community meetings, the master planning team met on several occasions with the BRA urban design staff. These meetings focused on the progress of Phase I as well as the overall master plan. Both Phase I and the master plan were presented on five occasions to the Boston Civic Design Commission. The master plan was influenced by the ongoing dialogue with the BRA and the BCDC.

### ADVISORY COMMITTEE MEETINGS

- March 16, 2010
- April 28, 2010

### BOSTON CIVIC DESIGN COMMISSION (BCDC) MEETINGS

- February 25, 2010
- March 2, 2010
- September 7, 2010
- September 28, 2010
- October 5, 2010

### COMMUNITY-WIDE MEETINGS: PHASE I AND MASTER PLAN

- February 18, 2010
- March 22, 2010

### PUBLIC MEETINGS FOR THE HOPE VI APPLICATION

- October 26, 2010
- November 4, 2010
- November 9, 2010

### BRA ARTICLE 80 COMMUNITY MEETINGS

- October 6, 2010
- October 21, 2010

### BRA BOARD MEETING

- November 16, 2010

## B. SUMMARY OF THE PLANNING PROCESS

### EXISTING CONDITIONS



The map above shows the existing conditions of streets, buildings, and trees on the Old Colony Site. The accompanying chart lists the addresses, number of units, and boiler room associated with each lettered building.

## B. SUMMARY OF THE PLANNING PROCESS

OLD COLONY										
BLDG.	APTS. NO.	ADDRESS	NO. UNITS	BOILER ROOM NO.		BLDG NO.	APTS. NO.	ADDRESS	NO. UNITS	BOILER ROOM NO.
A	1-12	254 E. 9TH STREET	12	B		R	325-336	19 DARIUS COURT	12	J
	13-21	247 E. 8TH STREET	9	B			337-348	242 OLD COLONY AVENUE	12	J
	22-27	241 E. 8TH STREET	6	B						
	28-36	235 E. 8TH STREET	9	B		S	361-372	26 PATTERSON WAY	12	T
	37-42	229 E. 8TH STREET	6	B			373-384	20 PATTERSON WAY	12	T
	43-51	242 E. 9TH STREET	9	B						
B	52-63	278 E. 9TH STREET	12	B		T	433-444	19 PATTERSON WAY	12	T
	64-72	271 E. 8TH STREET	9	B			445-456	25 PATTERSON WAY	12	T
	73-78	265 E. 8TH STREET	6	B		U	523-534	26 PILSUDSKI WAY	12	N
	79-87	259 E. 8TH STREET	9	B			535-546	20 PILSUDSKI WAY	12	N
	88-99	266 E. 9TH STREET	12	B						
C	100-105	85 MERCER STREET	6	B		V	595-606	19 PILSUDSKI WAY	12	N
	106-111	79 MERCER STREET	6	B			607-618	25 PILSUDSKI WAY	12	N
	112-120	73 MERCER STREET	9	B		W	349-360	32 PATTERSON WAY	12	T
	121-126	289 E. 8TH STREET	6	B						
	127-135	283 E. 8TH STREET	9	B		X	457-468	31 PATTERSON WAY	12	T
	136-147	290 E. 9TH STREET	12	B			469-480	278 OLD COLONY AVENUE	12	T
						481-489	284 OLD COLONY AVENUE	9	T	
D	148-159	8 BURKE STREET	12	J		Y	490-498	44 PILSUDSKI WAY	9	T
	160-168	266 DORCHESTER STREET	9	J			499-510	38 PILSUDSKI WAY	12	T
E	169-180	241 E. 9TH STREET	12	J			511-522	32 PILSUDSKI WAY	12	T
	181-192	20 BURKE STREET	12	J						
F	193-204	32 BURKE STREET	12	J		Z	619-630	1190 COLUMBIA ROAD	12	N
	205-216	253 E. 9TH STREET	12	J			631-636	1196 COLUMBIA ROAD	6	N
							637-642	1202 COLUMBIA ROAD	6	N
G	217-228	289 E. 9TH STREET	12	B		AA	661-672	8 CARMODY COURT	12	FF
	229-240	56 BURKE STREET	12	B			673-681	307 E. 8TH STREET	9	FF
H	241-246	109 MERCER STREET	6	B			682-687	301 E. 8TH STREET	6	FF
	247-252	103 MERCER STREET	6	B			688-696	72 MERCER STREET	9	FF
	253-258	97 MERCER STREET	6	B			697-702	80 MERCER STREET	6	FF
							703-708	86 MERCER STREET	6	FF
J	280-288	8 DARIUS COURT	9	J		BB	709-714	115 OLD HARBOR STREET	6	FF
	289-300	7 BURKE STREET	12	J			715-723	331 E. 8TH STREET	9	FF
K	301-312	19 BURKE STREET	12	J			724-732	325 E. 8TH STREET	9	FF
	313-324	7 DARIUS COURT	12	J			733-741	319 E. 8TH STREET	9	FF
						CC	742-753	1280 COLUMBIA ROAD	12	FF
L	385-396	8 PATTERSON WAY	12	T			754-765	121 OLD HARBOR STREET	12	FF
	397-408	31 BURKE STREET	12	T						
M	409-420	43 BURKE STREET	12	T		DD	766-777	1262 COLUMBIA ROAD	12	FF
	421-432	7 PATTERSON WAY	12	T			778-789	2 BENT COURT	12	FF
N	547-558	8 PILSUDSKI WAY	12	N		EE	790-801	1244 COLUMBIA ROAD	12	FF
	559-570	49 BURKE STREET	12	N			802-813	7 CARMODY COURT	12	FF
							814-825	313 E. 8TH STREET	12	FF
O	571-582	55 BURKE STREET	12	N		FF	826-837	1226 COLUMBIA ROAD	12	FF
	583-594	7 PILSUDSKI WAY	12	N			838-849	20 CARMODY COURT	12	FF
P	643-648	133 MERCER STREET	6	N		GG	850-861	110 MERCER STREET	12	FF
	649-654	127 MERCER STREET	6	N			862-867	104 MERCER STREET	6	FF
	655-660	121 MERCER STREET	6	N			868-873	98 MERCER STREET	6	FF
Q	259-267	26 DARIUS COURT	9	J						
	268-279	20 DARIUS COURT	12	J						

### URBAN DESIGN PRINCIPLES

Old Colony is located in a remarkable location in one of Boston's most historic and well established residential neighborhoods. Adjacent to an expansive park and shoreline, Old Colony is located in a dynamic urban context. The urban design principles for the master plan were established in order to capitalize on the surrounding assets of the community to: 1) improve the physical and social connectivity of the development to the surrounding community; 2) overcome the isolation of Old Colony; 3) establish a mix of housing typologies, patterns and scales that improves the public space within the development; and 4) create a sense of individual unit identity. Ultimately, with a balance of mixed typologies and well-defined public and private open spaces, the goal of the master plan is to provide a strategy to the BHA to guide development that will produce the best housing possible for the residents of Old Colony while also contributing to the South Boston community.

The principles governing the redevelopment of the Old Colony master plan are to:

- Create quality housing for Old Colony Residents;
- Develop a diversity of housing types and character;
- Balance density and resource constraints with as many replacement units as possible;
- Connect to the surrounding neighborhood;
- Preserve existing mature street trees;
- Create housing and streets that enhance the public realm; and
- Create an environmentally and socially sustainable community with the goal of achieving net zero energy performance.



### CREATE QUALITY HOUSING FOR OLD COLONY RESIDENTS

The most important outcome of this plan is for Old Colony residents to live in a healthy housing development; a place that fills their needs; a place of which they are proud to call home. The master plan emphasizes the development of housing that meets the diverse needs of the community with the proper balance of unit type and size as well as the importance of outdoor space.

### BALANCE DENSITY, TYPOLOGY AND MAXIMUM REPLACEMENT

It is the mission of the BHA to provide as much quality affordable housing as possible. In support of this mission, an important goal for this plan is to replace as many as possible of the existing units with public housing or otherwise deeply subsidized units. This goal of replacing units was balanced with the very real need for units with more square footage, a desired level of density, open space, and handicap accessibility. While the master plan does result in a net loss of existing units, it will replace existing units with larger, higher quality units at a density and scale that is appropriate given the site context.

### DEVELOP A DIVERSITY OF HOUSING TYPES

The diversity in the population of Old Colony demands variety in the housing units to address a range of needs. The building typologies must be appropriate for a range of family sizes, including single occupancy units, and be accessible to elderly and disabled residents. Public spaces within Old Colony should also be appropriate for the diversity of the population, including play spaces for children, spaces for social gatherings, as well as more passive open spaces.

## C. URBAN DESIGN PRINCIPLES

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*The existing development is generally 'walled off' from the broader context.*



*Existing trees on Patterson Way are a valuable neighborhood asset.*

### CONNECT TO THE SURROUNDING NEIGHBORHOOD

The master plan aims to overcome the isolation of Old Colony by connecting, both physically and symbolically, to the surrounding neighborhood and the remarkable public realm of the South Boston waterfront. The master plan proposes the introduction of new streets that will physically link Old Colony to the surrounding neighborhood and the adjacent Moakley Park and Carson Beach.

### PRESERVE EXISTING MATURE STREET TREES

One of the greatest assets within the Old Colony development is the mature street trees, particularly the Elms along Patterson Way. The master plan aims to preserve as many of these trees as possible by introducing new building construction beyond the drip lines of these specimens and developing landscape standards that will promote their preservation and long term health.

### CREATE HOUSING AND STREETS THAT ENHANCE THE PUBLIC REALM

The public realm of Old Colony should aspire to be equal to the best neighborhoods in Boston. The streets of Old Colony, in the tradition of great Boston residential neighborhoods, are considered to be the principal public realm of the development and will be tree-lined, pedestrian-scaled and populated with as many front entrances as possible. The development's border with the adjacent neighborhood should be of an appropriate density that reinforces the continuity of the urban character of the streets. The architecture should be characterized by urban typologies and should complement the styles surrounding the development.



*Existing aerial with proposed street diagram.*

### CREATE AN ENVIRONMENTALLY AND SOCIALLY SUSTAINABLE COMMUNITY

The BHA aspires to have the new Old Colony development, when fully built out, to be as close to energy independent as feasible. The master plan and the Phase I design promise an extremely high performance design. The principles of the master plan are also governed by optimal building orientation and an emphasis on limiting parking and impervious surfaces.

The Phase I design makes significant strides toward energy efficiency including a high performance building envelope, extremely efficient mechanical and electrical system design and sophisticated site and storm water technologies. More specifically, the Phase I project will meet the following criteria: Enterprise Green Community Criteria; LEED for Homes, Mid-rise and Townhomes; LEED for New Construction- community building; LEED for Neighborhood Development.

## D. PRELIMINARY STUDIES AND PLANNING GOALS

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### DENSITY STUDY

The following density studies were created to kick-off the master planning process. In order to explore site capacity, potential housing typologies and patterns, and to evaluate comparative development scales, the Old Colony site was compared to six local housing developments and their adjacent streets. The precedents were compared for the acreage of the site, the number of units, and the units per acre. The developments studied were: Mission Main, Maverick Landing, Tent City, Langham Court, Franklin Hill, and a typical South Boston block. Because the exact number of units for the South Boston block are unknown, and has likely changed overtime, the team created two calculations for the number of units for a typical block: one based on two units per building, the other based on three units per building.

The comparative density studies revealed that the existing Old Colony site can accommodate the needed density while achieving the goals of creating mixed typologies, such as Tent



## D. PRELIMINARY STUDIES AND PLANNING GOALS

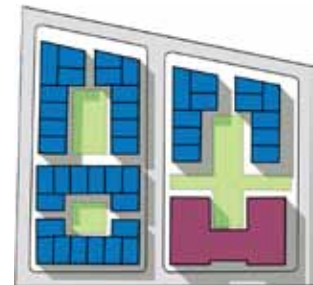
City and Maverick and, well defined open spaces, such as Langham Court. The study also revealed that the combination of lower scaled typologies and surface parking lots, such as Mission Main and Franklin Hill, would result in a lower than desirable unit count. Comparing the site acreage to the existing adjacent neighborhood fabric revealed that the existing density of Old Colony, while very different in form and design, is entirely consistent with the density of the traditional South Boston neighborhood.

By overlaying plans of other developments on the Old Colony site plan the team was able to create a visual comparison of the opportunities available in the master plan regarding density and open space. A key finding of this study is that maintaining a limit of three stories, such as the South Boston block, falls short of the desired unit count and does not yield adequate open space. While the towers of Tent City were never seriously considered for Old Colony, there was strong evidence that one or more mid-rise buildings would be a necessary typology to achieve the needed number of replacement units, provide an appropriate amount of open space, and allow for the inclusion of the 10,000 s.f. community center in Phase I.

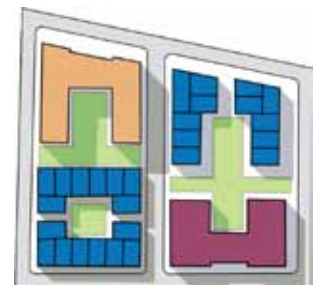
This density study examined, graphically and quantitatively, the achievable number of units across the site, the number of units per acre and the amount of open space that would be created under three different housing typology mixtures.



Townhomes  
# Units Across Site: 530  
Units/Acre: 32  
Open Space: 10,900 s.f.



Townhomes and 4-Story Multi-Family  
# Units Across Site: 660  
Units/Acre: 40  
Open Space: 16,700 s.f.



Townhomes and 4 and 6-Story Multi-Family  
# Units Across Site: 845  
Units/Acre: 50  
Open Space: 20,000 s.f.

## D. PRELIMINARY STUDIES AND PLANNING GOALS

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### PLANNING GOALS

At the outset, the urban design principals determined several key planning goals which proceeded to guide the plan as it developed.

#### EXTEND THE STREET GRID TO COLUMBIA ROAD

This strategy to extend the South Boston street grid breaks up the formidable super blocks of the existing development and connects Old Colony with the grid extending from Telegraph Hill and Thomas Park down to the waterfront. This strategy reduces the aesthetic and physical isolation of Old Colony and eliminates the geometry of the existing Old Colony buildings which, sited at a forty-five degree angle to Columbia Road and the historic street grid, creates a physical barrier and an unpleasant edge to Moakley Park.

#### CREATE HOUSING THAT ADDRESSES THE STREET

The initial master plan studies established housing patterns with building entries addressing the street to enhance the public realm. This strategy will contribute to sociable, walkable streets and improve the sense of public safety, as well as the neighborhood character of the development.







*An early sketch of the master plan.*

### IDENTIFY A PROMINENT SITE FOR THE COMMUNITY CENTER

In an effort to establish the key principles of the Phase I planning, the proposed Community Center was sited on Columbia Road at the intersection of Mercer and Burke Streets. This location is very accessible to Moakley Park and the Perkins School and will provide views of the waterfront. The building's visibility and prominence along Columbia Road will be a symbol to the larger community of Old Colony's transformation and will be an important step in integrating the development into the neighborhood.

### ESTABLISH A PRESENCE AT THE ROTARY

An early strategy of the master plan was to site a multi-family building on the rotary in order to establish a properly scaled and prominent presence at this intersection. The intersection of Old Colony Avenue and Columbia Avenue is a challenging intersection, dominated by the presence of the traffic circle and the 4-lane wide Old Colony Avenue with commercial building setbacks occupied by surface parking. For these reasons, a building with height and appropriate setbacks will establish a properly scaled presence at the intersection.

## D. PRELIMINARY STUDIES AND PLANNING ALTERNATIVES

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### SENSITIVELY SITE MULTI-FAMILY BUILDINGS

In order to achieve adequate replacement housing, introduce open space and community facilities, and provide the diversity of building typologies that best addresses the needs of current and future residents, the Master Plan includes several multi-family buildings in addition to townhouse construction.

After considering multiple locations, the team concluded that at least one 6-story building was required to achieve program density. This building is best located within the Phase I site along the rotary at the intersection of Old Colony Avenue and Dorchester Street. This location is best suited to accommodate this building for the following reasons:

- The large scale and dimension of the streets and rotary;
- The expanse of open space across Columbia Road;
- The adjacency of the proposed open space and the proximity to the Community Center
- The limited impacts on existing waterfront views from adjacent residential neighborhoods
- No adverse shadow impacts on public streets or open spaces
- Optimal solar orientation for both passive strategies and rooftop photovoltaic opportunities

Beyond Phase I, the team also carefully explored the suitability of other locations for multi-family typologies. While several iterations of the plan explored the introduction of additional 6-story buildings, community feedback and concerns over height and density led the team and the BHA to propose limiting the height of buildings to four stories in subsequent phases. Should additional height be desirable in the future, the locations

## D. PRELIMINARY STUDIES AND PLANNING ALTERNATIVES

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should be limited to the wider vehicular streets or adjacent to open spaces. This site strategy allows these larger buildings to take advantage of the wider streets within Old Colony, such as Patterson Way and Columbia Road, preserving the smaller scaled streets for townhome typologies.

### CREATE A NETWORK OF OPEN SPACES AT MULTIPLE SCALES

The initial master plan studies established housing typologies that define carefully scaled open space, both public and private. Single family townhomes are intended to have small private rear yards, but are always arranged in such a way as to also define larger, public courtyard spaces. These open spaces are integrated throughout the master plan as mid-block connections and pedestrian paths linking a sequence of open spaces throughout the development. Establishing larger civic spaces in front of the Community Center and along Columbia Road were also identified in early planning studies as important principles. The planning of open space within Old Colony is governed by an overall goal of minimizing surface parking lots and, to the extent possible, limiting parking to the on-street inventory.

MASTER PLAN



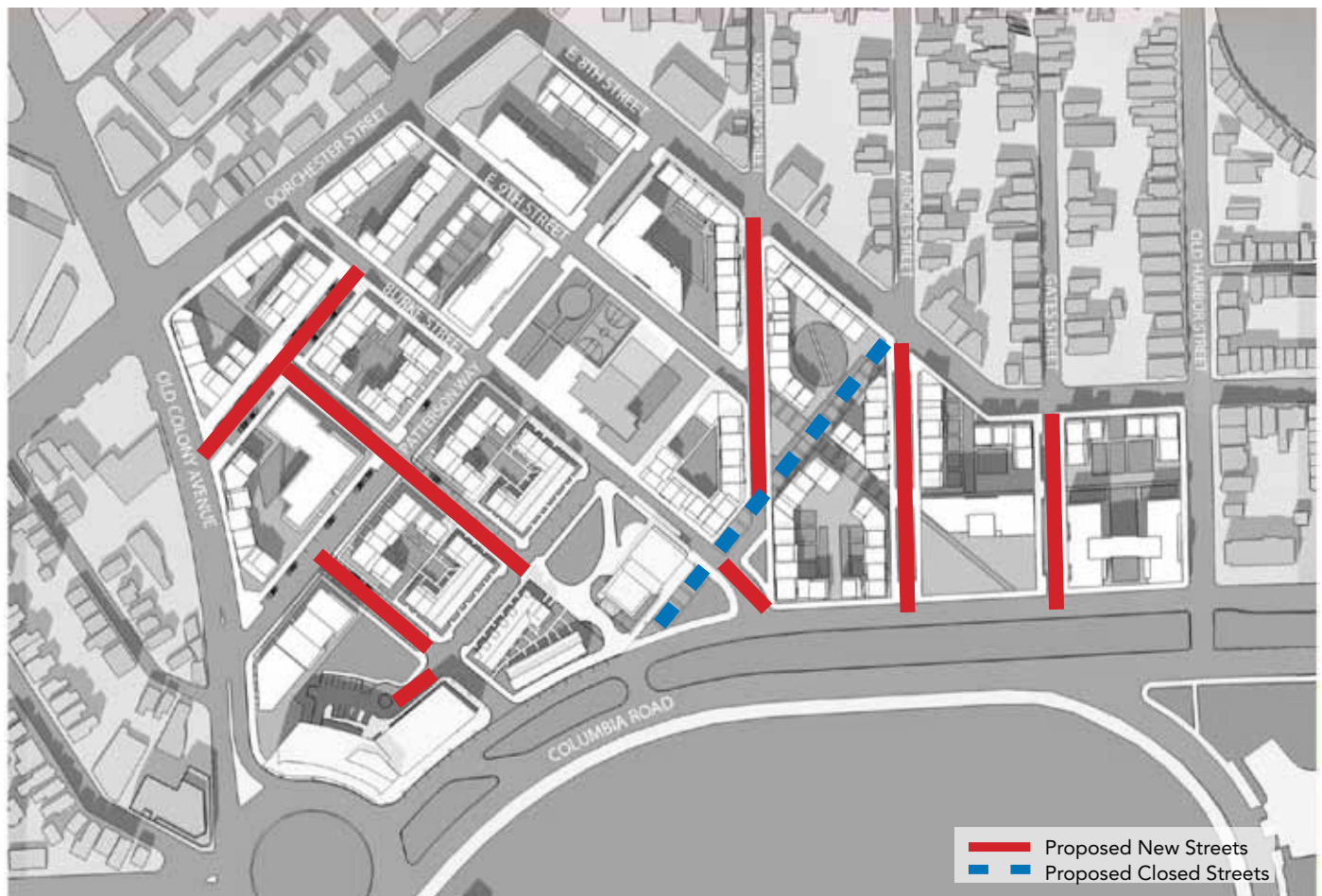
The Master Plan for Old Colony is presented in the following sections:

- Street Patterns
- Unit and Building Typologies
- Open Space
- Phasing



## STREET PATTERNS

One of the main strategies governing the master plan is to break up the 'superblocks' within the existing development. New streets are proposed to increase connection to the residential neighborhood to the northeast, to create physical and visual connections to Moakley Park and the Old Harbor, and to introduce more permeability to the site. All of these goals will reduce the isolation of Old Colony and contribute to the site's integration into the neighborhood. Additionally, the plan calls for a partial closing of Mercer Avenue within the Old Colony site. Utilities beneath current streets and are proposed to remain. Therefore, the master plan respects existing easements and does not propose relocation of or construction above utility lines.



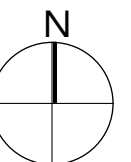


### Principles of proposed street layout

- Proposed streets are intended to be an extension of the existing grid
- The proposed streets will better connect Old Colony with the existing neighborhood and the surrounding context.
- The new streets will provide more opportunities for housing frontage and an improved public realm.
- The proposed streets will break up the scale of the existing superblocks.

Proposed Street Diagram

Plate 1





## VARIATIONS ON THE FINAL MASTER PLAN

A draft of the Old Colony Master Plan was made available to the public on July 15, 2010. Following a nine week public review and comment period, a public meeting was held on October 6, 2010. A series of additional public meetings were held during in the fall as part of the HOPE VI application process along with three presentations to the Boston Civic Design Commission. Through the process of these meetings and comments received from the community, several suggestions were taken into consideration leading to refinements of the master plan.

The July Master Plan proposed most of the four-story multi-family buildings on Old Colony Avenue and Columbia Road, wide urban corridors which could amply support buildings of medium scale. Community concern, however, resulted in a proposal to line Old Colony Avenue instead with townhomes and to relocate a single multi-family building to Patterson Way on the corner of the proposed O'Neil Street.

Another change between the two plans is the creation of an additional visual and pedestrian connection to Moakley Park and the waterfront, extending from the

termination of East 9th Street. Additionally, the multifamily building on Columbia Road between Gates Street and Mercer Street was set back from the road to allow for the path to cross and to provide an additional open space within the development. In addition, the combination of townhomes and multi-family buildings between 8th and 9th street were revised to create a more continuous townhome edge along the 8th street perimeter and to redistribute the multi-family density along the 9th street frontage. These refinements were largely the result of comments from the BRA and the BCDC.

In addition to the final February plan featured in this document, we have included an alternative plan that considers a slight revision to the Columbia Street frontage between Knowlton and Old Harbor Street. This alternative presents an option to locate townhomes on the westernmost block between Gates and Old Harbor and to place a multi-family building along Columbia Road at the intersection of Burke Street in lieu of townhomes. This approach would reduce the density along the neighborhood edge, instead placing it at the heart of the development, adjacent to the Community Center.



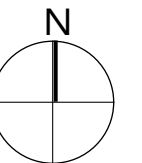
Final Master Plan- February 15, 2011



Final Master Plan Alternative- February 15, 2011



Original Master Plan- July 15, 2010



## E. THE MASTER PLAN

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On the eastern portion of the site, the plan calls for the extension of Knowlton Street, Mercer Street, and Gates Street from East 8th Street to Columbia Road, extending the north-south streets from Telegraph Hill to the waterfront and Moakley Park.

On the western portion of the site, where the grid shifts forty-five degrees of the north-south axis, the two large blocks on either side of Patterson Way will be divided into appropriately scaled parcels. The plan calls for Darius Court to be converted to a new street connecting Burke Street and Old Colony Avenue. Two additional streets are proposed to run parallel to Burke Street, from Darius Court to Pilsudski Way and from Patterson Way to Pilsudski Way. Additionally, Burke Street is proposed to extend to Columbia Road.

### UNIT AND BUILDING TYPOLOGIES

The master plan aims to introduce variation in unit and building typologies. This is to serve different needs within the population as well as to better integrate Old Colony into the context of the city fabric by avoiding the uniformity that often characterizes affordable housing developments.

Multi-family, elevator buildings are essential for elderly and disabled residents providing primarily one and two-bedroom units. Families, however, are often better suited to one and two-unit townhomes with private entrances, backyards and flexibility for larger three, four and five-bedroom units. The master plan and Phase I, also propose one story townhome units at grade to provide accessibility throughout all typologies. This diversity of units will provide for the varied and changing needs of tenants across the population.

The Old Colony master plan proposed only one steel framed six-story building is included in the plan in Phase I. The Old Colony master plan proposes seven three and four-story multi-family buildings to be built as steel framed and masonry, potentially concrete framed, or block and plank construction. All of these buildings will be built after Phase I. They will be corridor buildings with elevator cores servicing primarily one and two bedroom units. The proposed two and three-story townhomes will likely be wood-framed. Phase I includes four townhome buildings and future phases propose townhomes in approximately 22 townhome buildings. The proposed townhomes consist primarily of three, four, and five-bedroom units in attached one and two family units.

The six-story building and the four-story buildings were strategically placed to give a presence to Old Colony on key urban intersections and prominent streets to minimize the impacts that the presence of these buildings could have on the surrounding neighborhood. While there is a 17-story building, Carson Tower, two blocks to the east of Old Colony on Columbia Ave, most of the buildings adjacent to the site are three and



## E. THE MASTER PLAN



Typical townhome elevation.

four stories. The majority of the proposed multi-family buildings are proposed along the major street frontages to better define the larger scaled streets. This strategy also reserves the development's internal streets with lower volume traffic for the townhome family units.

Façade treatment of the buildings should be designed with a level of massing and material variation to prevent a uniformity that would suggest a large, contiguous housing development. Variation should be found both in the materials palette as well as the design of the façade. In particular, a rich diversity of facades for the townhomes is encouraged to achieve the same texture and variation of the existing housing in the neighborhood.

The percentage mix of proposed unit types is based on the existing mix, with adjustments made for current demands and anticipated demographics based upon the BHA's waitlist. While the goal was to replace units with a one-to-one ratio, site limitations on height and density, the increase in unit size to meet current standards, and the need to provide adequate open space and parking resulted in a slight decrease in the proposed number of units from the existing. The master plan proposes a potential range of units around 650 which will also ultimately be influenced by the amount of expected funding and methods of financing, as well as the phasing of redevelopment.

Old Colony Unit Mixture				
	Existing		Proposed	
	# Units	% of Total	# Units	% of Total
1-BR	305	36%	201	31%
2-BR	305	36%	234	36%
3-BR	203	24%	183	28%
4-BR	0	0%	26	4%
5-BR	30	4%	6	1%
Total	840		650	

### OPEN SPACE

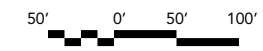
The open space strategy for Old Colony's Master Plan is guided by the creation of a variety of spaces that contribute both to the public realm and to the health and well-being of individuals and families living at Old Colony.

As previously stated, the quality of the streets will perhaps be the most important component of the overall landscape of a redeveloped Old Colony. As a result, the introduction of streets to tie into the surrounding neighborhood and to reduce the size and scale of existing blocks are important elements in the open space strategy. The same is true for the preservation of the existing street trees and the introduction of new trees where needed.

The Old Colony Master Plan proposes a mixture of public and private outdoor spaces. Most townhomes will have the ability to have private back yards, fenced in to demarcate the space assigned to each unit. Collectively, these yards are generally arranged around larger, communal open spaces and courtyards.

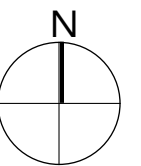
The most significant public open space will be adjacent to the Community Center, across the street from the Perkins School. This space will be programmed primarily as a passive recreational space, but is also planned to include a tot lot. While there is no designated space for community gardens at Old Colony, they should be considered in appropriate locations.





Landscape plan for Old Colony

Proposed Master Plan  
Plate 3







View looking Northeast

Bird's Eye View

Plate 4





View looking West

Bird's Eye View

Plate 5





View looking Southwest toward Moakley Park

## Bird's Eye View

Plate 6





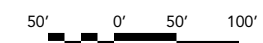
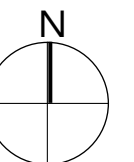
Phase I = 116 Units  
 Phase II = 169 Units  
 Future Phases = 365

Total = 650

Unit Mix:	Unit size:
1 BR - 31%	- 625 - 700 S.F.
2 BR - 36%	- 900 - 1100 S.F.
3 BR - 28%	- 1200 - 1400 S.F.
4 BR - 4%	- 1450 - 1600 S.F.
5 BR - 1%	- 1850 S.F.

- 4 Story Multi-family building
- 3 Story Townhouses
- 3 Story Multi-family
- 6 Story Multi-family building

Proposed Building Types  
 Plate 7







Typical Multi-family elevation - Scale: 1"=20'



Typical Townhome elevation - Scale: 1"=20'

### Design Principles:

Multi-family buildings should employ massing and composition strategies to break-up scale and provide a rich texture to the facades.

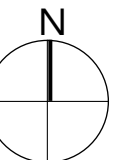
Materials and massing should be varied to provide an architectural diversity consistent with an urban neighborhood.

Ground floor units of Multi-family buildings should have individual unit entries wherever possible.

Principal facades of Multi-family buildings should be punctuated with pedestrian portals and/or transparent public entries.

Townhome roof lines should be varied to avoid a monolithic appearance.

Material and color of townhomes should be varied to emphasize the individual, single-family expression of the typology.



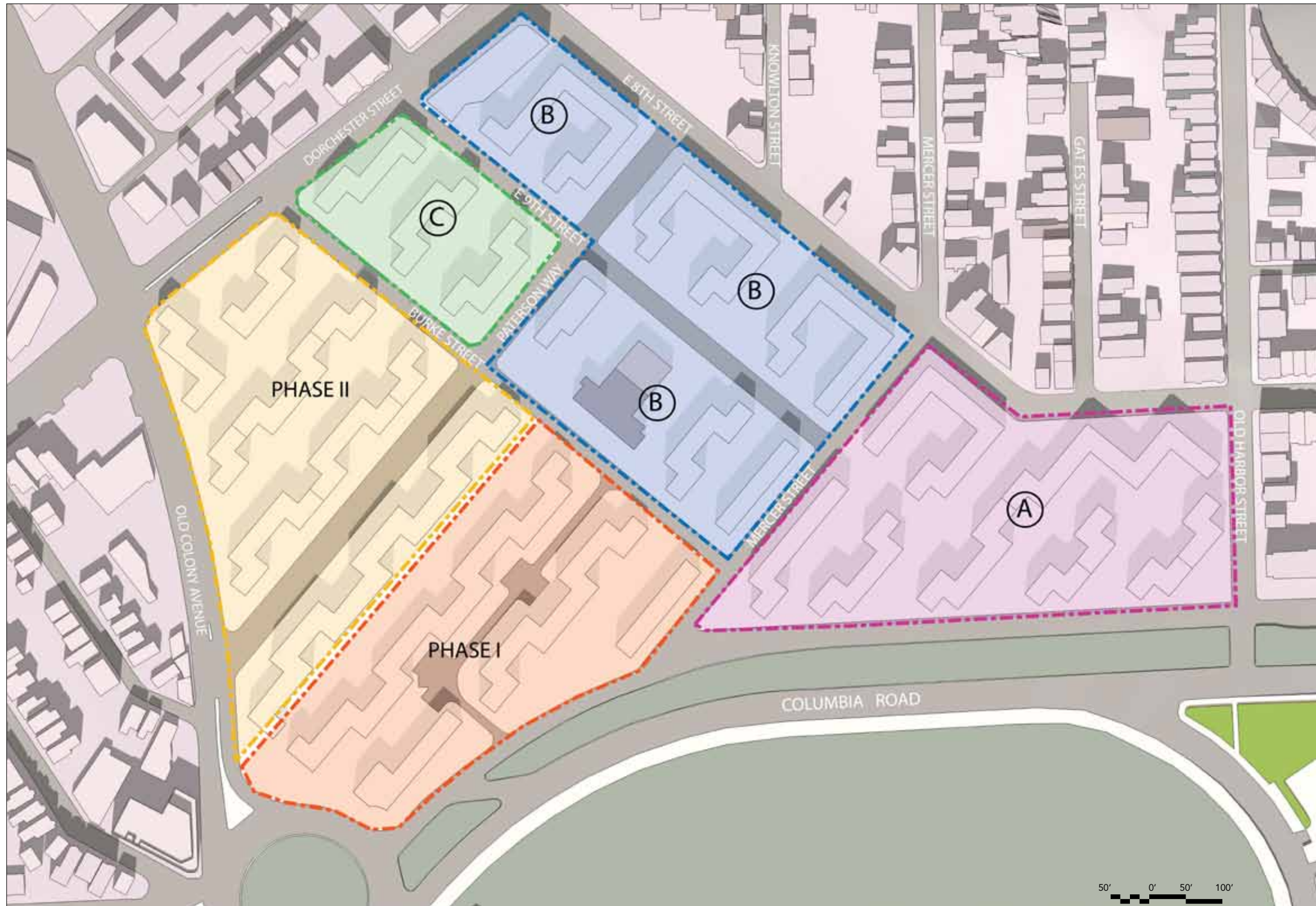


Old Colony Avenue Elevation - Scale: 1"=40'



Dorchester Street Elevation - Scale: 1"=40'





### Phases

Phase I is 3.4 acres and will consist of 116 units and a 10,000 SF Community Center.

Phase II is 4.2 acres and will consist of 170 units.

### Future Phases

Phase A is 4.1 acres

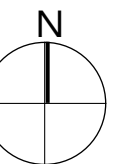
Phase B is 4.1 acres

Phase C is 1.4 acres

Future phases will consist of a range between 364 - 464 units.

### Phasing Diagram

Plate 10





## PHASING



Old Colony is a 16.7 acre development. The scale and density of the property requires a multi-phased, long-term strategy for redevelopment. The relative scale of current and anticipated funding opportunities suggests that the entire site may be redeveloped over as many as five phases.

Before the master plan process began, the BHA determined that Phase I would be located on the southwest corner of the site, bounded by Burke Street, Mercer Street, Pakuska Circle, Columbia Road, and the long row of buildings north of Pilsudski Way.

The planning team and the BHA explored several alternatives of assembled parcels that could be redeveloped in a single phase, as well as a logical sequence to follow Phase I. Criteria for evaluating the potential phasing strategies included:

- Scale and probability of funding opportunities;
- Continuity of development relative to prior phases;
- Scale of development;
- Condition of existing buildings and site;
- The feasibility and impact of rehabilitation on some existing buildings if necessary; and
- Proposed street configuration and infrastructure impacts.

After weighing the pros and cons of various phasing options the team concluded that the most logical option for Phase II is the northwestern portion of the site, bounded by Burke Street, Phase I, Old Colony Avenue and Dorchester Street. This 4.2 acre portion of Old Colony was selected for several reasons including:

- The desire to build upon the improvements that will be created by Phase I and to create a continuation of the transformation of the development;
- The opportunity for Phase II to complete the extension of the new streets introduced in Phase I;
- The opportunity for Phase II to create a new identity for the community along Old Colony Ave and Dorchester Street - both important edge streets;
- To create investment and improvements along Patterson Way, by demolishing the buildings lining Patterson Way, the two longest buildings on site and which are also in very poor condition; and
- Begin realizing the goal of preserving the mature street trees.

## E. THE MASTER PLAN

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Phase II was also chosen because the scale and area balanced the desired density and scale with a feasible development cost threshold associated with a HOPE VI grant.

Subsequent phasing decisions will depend greatly on the conditions of the site over time, the amount of available funding, and the infrastructure improvements necessary in each phase. The remaining phases described below are delineated in a range of scales that could accommodate a relative range of funding packages. The actual sequence is not suggested by the master plan, but there is logic to proceeding with any of the phasing clusters for Phase III depending on funding. There is also enough flexibility in the definition of the future phases to potentially combine some of the smaller areas into a single phase.

At the southeastern corner of the site, the potential phase labeled 'A' and shown in purple is bounded by Mercer Street, East Eighth Street, Old Harbor Street and Columbia Road. The 4.1 acre site would likely require the most significant investment in infrastructure as it contains the extension of two streets, Gates and Mercer, to Columbia Avenue. This phase would achieve the elimination of what will be the last remaining 'super block' following the completion of Phase II and would greatly improve the Columbia Road and Moakley Park edge of Old Colony. Redeveloping this site would achieve the most ambitious efforts within the master plan to physically and visually reconnect the site and the Thomas Park neighborhood on the hill to the waterfront and park.

The phase labeled 'B' and shown in blue is bound by East Eighth Street, Mercer Street, Burke Street, Patterson Way, East Ninth Street, and the back of a one-story commercial property on the corner of Dorchester Street and East Eighth. This consists of three existing city blocks but would also require infrastructure investment through the extension of Knowlton Street down to the intersection of Mercer and Burke. The existing Perkins School is located in this area between Burke and East Ninth

and will remain on site. The master plan team discussed the possibility that this could be considered the last phase to be developed since the existing buildings on this portion of the site would be the best candidates for renovation, given their configuration, if redevelopment funds are not available.

The phase labeled 'C' and shown in green is bounded by Dorchester Street, East Ninth Street, Patterson Way and Burke Street. At 1.4 acres, it is the smallest area of any of the proposed phases, however it could logically be combined with the redevelopment of Phase B. It is defined by one existing city block and the master plan does not propose any new streets in this area. The size of this phase suggests that it could be developed if perhaps a limited amount of funding was available, or it could be combined with Phase B in a more ambitious redevelopment effort.



## E. THE MASTER PLAN

### PHASE I



Proposed buildings along Pilsudski Way. Community Center is on the left. Moakley Park is in the background.

Phase I is on the southwestern corner of the Old Colony development, south of the Patterson Way and west of Burke Street. The site is approximately 3.4 acres and currently includes seven three-story residential buildings, including the Teen Center, as well as parking areas and hardscape, with some landscaped open space.

Due to the timing of funding, Phase I was planned and designed simultaneously with the master planning of the entire development. Before Phase I planning began, however, the master plan established the primary urban design strategies to guide the entire development as well as Phase I.

Early within the planning process, it was established that the Phase I site had qualities that demanded this be a civic center within the development. For example, the parcel on the main rotary was deemed to be one of the few places within the



Source: Beacon Communities and TAT



development that would be appropriate site for a six-story mid-rise building. The width of the road, scale of the rotary, and view corridor established by Old Colony Avenue suggested that this site hold a prominent building. Likewise, the community center was located on the corner of Mercer Street and Burke Street, across from the Perkins School, and across Columbia Road from Joe Moakley Park. This site has a prominent public presence, connects existing public amenities, and enjoys spectacular views of the harbor and park.

The master plan calls for the creation of two streets parallel to Burke Street. Ultimately, these two streets will extend to Patterson Way; however the existing building that will remain on Patterson Way prohibited the full realization of this plan in Phase I. As a result, a temporary loop will be made, connecting these two roads to the rear of the proposed Phase I townhomes.

The Phase I development will consist of one mid-rise building that will be six-stories high, with a four-story wing along Columbia Road. This building will have 82 units, both one and two bedrooms, and will be fully accessible. Phase I also proposes 34 townhomes, all three-stories in height, with two, three, and four-bedroom units. The majority of these will be single family however there are two proposed two-family units that will be accessible at grade. The community building will be two stories and 10,000 square feet. The program of the community building, and the services that will be available there, is currently being determined and will be informed by the social services findings of the master plan.

Early in the planning process, the BHA selected a team, led by the developer, Beacon Communities with The Architectural Team leading the design effort. Beacon will develop and manage the buildings in Phase I. The master planning team worked closely with the Phase I team during the design process and attended BRA, BCDC and community meetings to present the urban design principles of Phase I.



*Looking west on Columbia Avenue.*



*Bird's eye view of Phase I. The Community Center is in the lower right of the frame.*



*The seating area next to the Community Center.*



*The central courtyard between townhomes, adjacent to the Community Center.*

*Source: Beacon Communities and TAT*

## E. THE MASTER PLAN

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### PHASE II



Located on the northwest corner of the site, Phase II is strategically located to build upon the significant improvements that Phase I will bring to Old Colony, and to establish development improvements along Old Colony Avenue and Dorchester Streets, the most public and highly traveled perimeter streets of the site.



Phase II will include major infrastructural improvements through the extension, and full realization of the two streets parallel to Burke Street that will be established in Phase I. A new street will be created parallel to Patterson Way, on what is now an internal path called Darius Court. One of the buildings proposed to be demolished as part of Phase II currently houses a central steam plant that serves several other buildings – three of which are located across Burke Street and are not proposed to be redeveloped as part of Phase II (buildings D, E & F).



Consequently, an added infrastructure cost associated with this phase will be the addition of 3 smaller satellite boilers to serve these remaining buildings. Preliminary analysis suggests that each building should employ a new stand-alone boiler housed in an enclosed addition constructed at grade. This approach will avoid potential complications associated with old underground piping that loops the buildings back to the existing central plant. Preliminary cost estimates suggest an order of magnitude cost of approximately \$750,000 for this enabling work.



*Planning alternatives considered for Phase II.*

New housing will be built in a variety of building and unit types. Phase II proposes two multi-family elevator buildings- one with four stories on the corner of Patterson Way and the proposed O’Neil Street, and the other with three-stories on Old Colony Avenue stepping up to four-stories along Patterson Way. There will also be eight courtyard buildings comprised of three-story townhomes that consist of both single and two family units. This phase contains 169 units, most of which are one, two, and three-bedroom units, with a handful of four and five-bedroom units. The two four-story multi-family elevator buildings are sited on Patterson Way, between Old Colony Avenue and Burke Street, a



Plan of Phase II

### Summary of changes to the Master Plan

Comments to the draft Master Plan spanned the full range of topics from height, density, social services, sustainability, and income mix, tree preservation, and others. In response to these comments BHA adjusted the plan in many areas, including the following:

- Reduced height in phases beyond Phase 1 to 4 stories;
- Further reduced height to limit the footprints of 4-story buildings to maximize the number of 3-story buildings;
- Added more townhouses to the design, especially at the perimeter of the property adjacent to neighborhood residences;
- Moved the Community Center closer to Columbia Road for better siting;
- Re-configured the parcels between E. 8th Street, Columbia Road, Old Harbor Street and Knowlton Street to better address layout and circulation concerns; and
- Strengthened language in the Plan related to supporting the Perkins School through the redevelopment efforts.



## E. THE MASTER PLAN

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*Bird's eye view of Phase II proposed Development*

prominent street within the development, well-suited to buildings of this scale. The townhomes will have private backyards and communal courtyards. There will also be appropriately scaled open spaces adjacent to the two multi-family buildings.

The building siting allows for view corridors into and out of the development. In particular, there is a generous space between the six-story building in Phase I and the adjacent Phase II building on Patterson Way. Additionally, there is an open space on Dorchester Street located between the buildings to create a view into Old Colony from southbound vehicles on Old Colony Avenue as well as a pedestrian portal into the development.

Phase II has the benefit of incorporating some of the most impressive existing street trees in Old Colony. As a result, however, development will need to take precautions so that this great asset will continue to thrive in the new development. Currently, all parking will be provided by the existing and proposed on-street inventory of spaces. The new streets each have parallel parking on both sides.



*Bird's eye view of Phase II proposed Development*



Bird's eye view of Phase II proposed Development

Old Colony Phase II Unit Mix- 169 Total Units

Building A: 4-Story Multi-family Building  
51 Units

Building B: 3 and 4-Story Multi-family Building  
42 Units

3-Story Townhomes: 48 Total, 76 Total Units

Total Units: 169

Number of Unit Types by Building Type					
Bulding Type	1 BR	2 BR	3 BR	4 BR	5 BR
<i>Multi-family Buildings</i>	60	33	0	0	0
<i>Townhouse Buildings</i>	0	24	43	6	1
<b>TOTAL (169)</b>	60	59	43	6	1



### ACCESS AND TRANSPORTATION

A healthy and sustainable urban neighborhood needs to have transportation systems that provide residents with convenient access to workplaces, shopping and recreational facilities. Good transit access not only reduces dependence on automobiles but also reduces household transportation costs. The master plan promotes the creation of a pedestrian and bicycle friendly environment with a sensible street grid and good sidewalks provides safe and easy access to adjoining parking, transit stops, retail shops and recreational uses.

The master plan emphasizes safe pedestrian movements and transit access while de-emphasizing automobile related planning approaches such as surface lots and wider streets. The Old Colony project is already located near many transit options, including the MBTA's Red Line at Andrew Station and seven local bus routes. Under the master plan, the orientation of new buildings and new streets will improve access to bus service along the East Eighth Street corridor and draw pedestrian and bicycle activity toward the Columbia Road corridor and associated recreational facilities. Pedestrian access from the eastern portion of development toward Burke Street will be enhanced with a series of mid-block walkways between Old Harbor Street and Mercer Street. With the implementation of one-way streets, non-local automobile traffic will be discouraged from traveling through the neighborhood.

The overall transportation goals of the Master Plan are to:

- Provide internal vehicular, bicycling and pedestrian circulation.
- Improve the pedestrian environment.
- Enhance pedestrian connections between MBTA services and adjacent recreational areas.
- Ensure bus stops are convenient.
- Knit the internal street grid to the adjacent street network.

## F. TRAFFIC, PARKING AND TRANSPORTATION

- Maintain vehicular connectivity but discourage through traffic.
- Ensure proper turning radii for various vehicle types.
- Encourage safe travel speeds.
- Provide adequate parking.
- Maintain safe access for the Perkins School traffic and pedestrians.

The following sections present the transportation issues by topic along with recommendations that have been incorporated into the Master Plan elements to address associated goals.

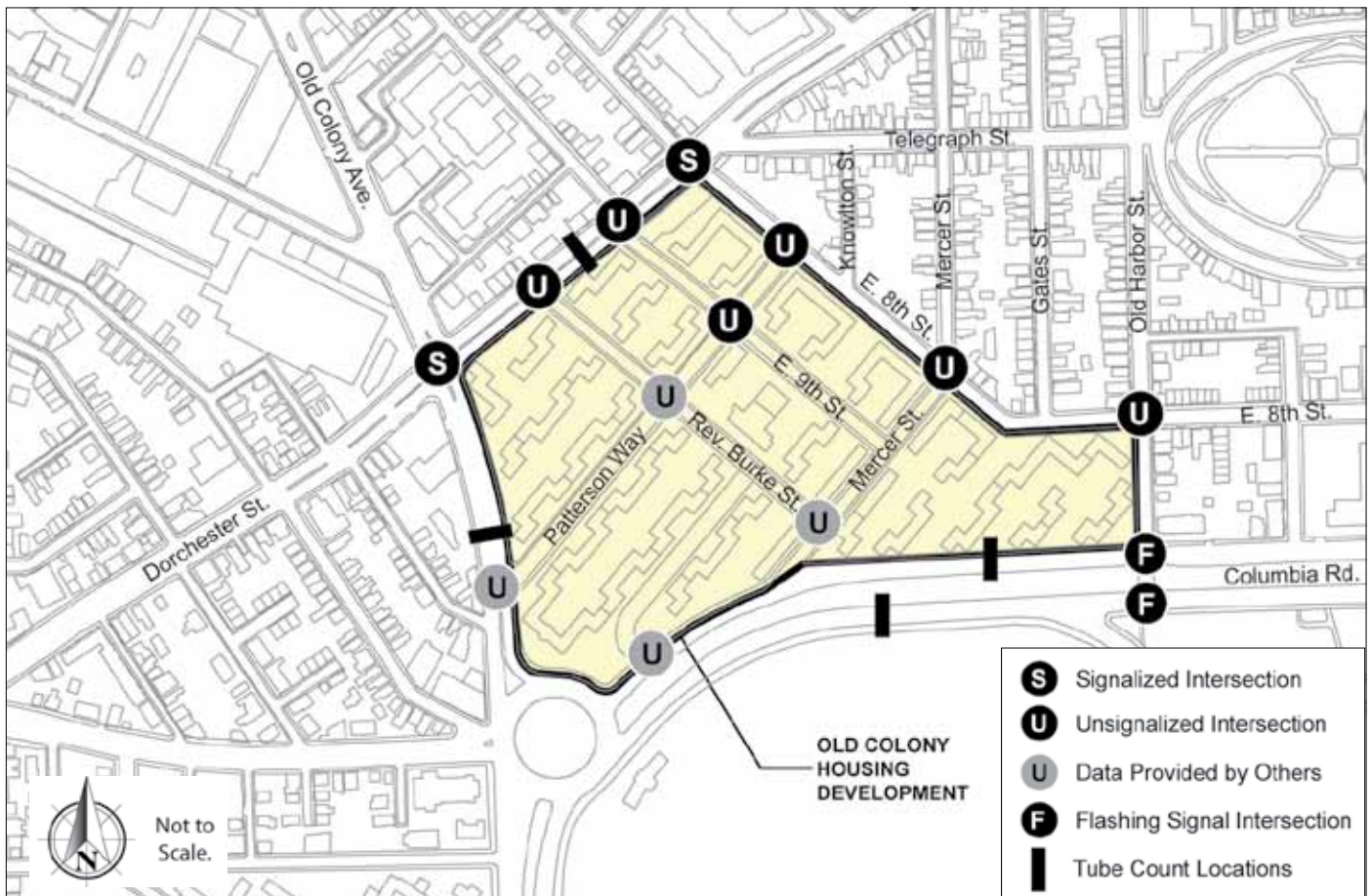


Figure 1. Existing plan and traffic count study area

# F. TRAFFIC, PARKING AND TRANSPORTATION

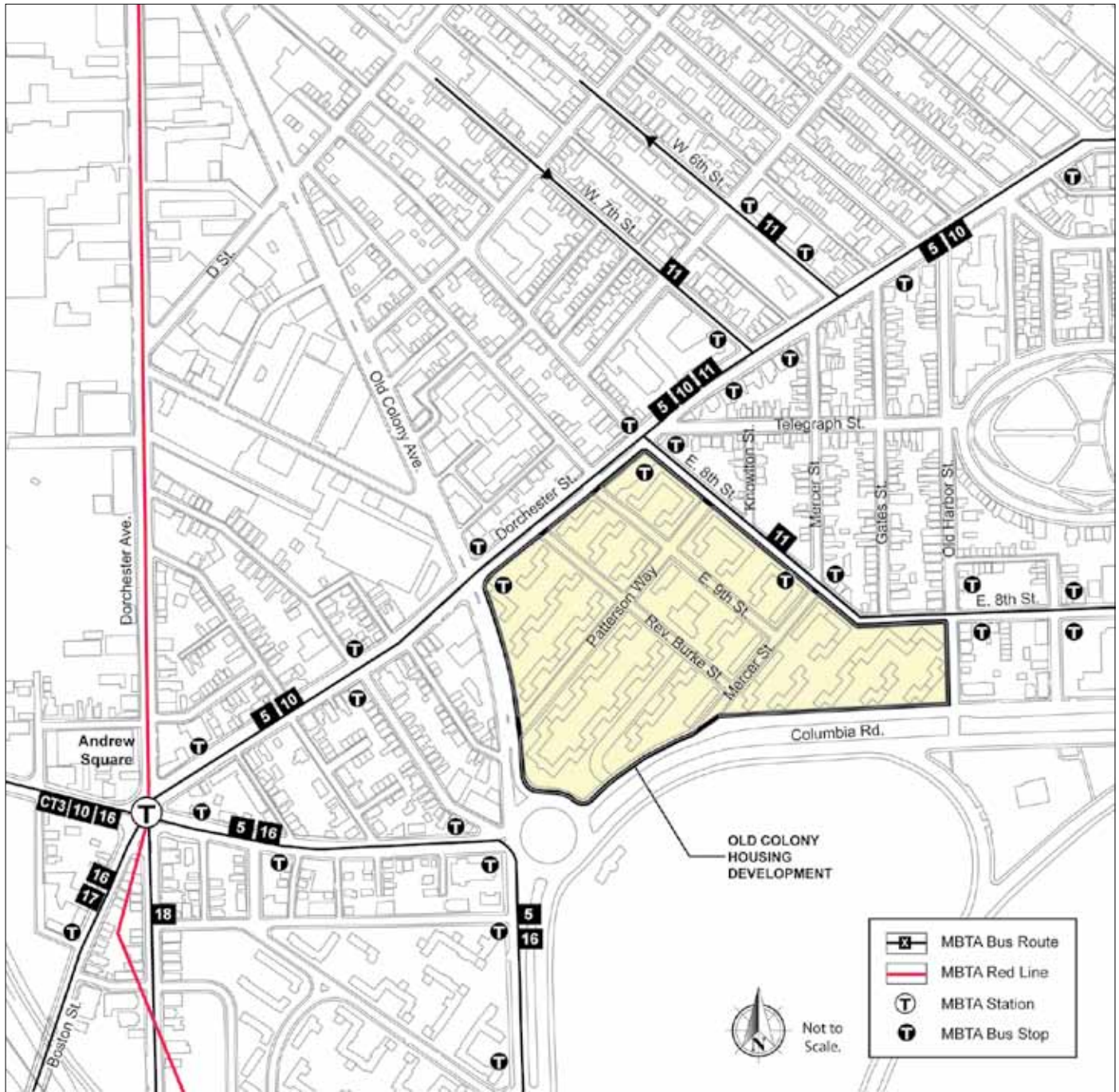


Figure 2 Site Area Transit

TRANSIT

ISSUES

Collectively, Old Colony residents are a transit dependent population. Based on survey results, only about half of residents own a car and about 70% responded that they typically use the MBTA for work and social trips. About half of residents said that the MBTA service is adequate and another 30% said it is somewhat adequate.

The MBTA’s Red Station at Andrew Square is located between ¼ to ½ mile from residences at the development. Additionally, seven bus routes serve the area with eleven bus stops located on East Eighth Street, Dorchester Street and Preble Street. No MBTA buses operate on the internal streets. Figure 2 shows the available MBTA transit services and existing bus stops in the study area.

Table 1 lists the MBTA services in the area with service frequencies. Route 5 and Route 10 provide access to Andrew

Table 1. Public Transportation

Route	Route Description	Rush Hour Frequency (minutes)	
		Weekday a.m./p.m.	Weekend Sat/Sun
<b>Directly adjacent to site</b>			
5	City Point–McCormack Housing	60/60	60/none
10	City Point–Copley Square	20/24	22/40
11	City Point – Downtown Bay View	8/12	22/30
<b>Nearby</b>			
Red Line	Red Line	5/5	14/15
16	Forest Hills Station–Andrew Station	20/18	30/30
17	Fields Corner Station–Andrew Station	14/14	20/40
18	Ashmont Station–Andrew Station	30/30	60/60
CT3	Beth Israel Deaconess–Andrew Station	15/20	None



## F. TRAFFIC, PARKING AND TRANSPORTATION

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Square Station, where passengers can transfer to the Red Line and other bus routes. Route 11 provides access to Broadway Station on the Red Line and Downtown Crossing. Route 16 also serves the South Bay Center. The closest bus stops for Route 16, which provides a needed link to shopping at South Bay Center, are located on Preble Street, west of Pakuska Circle. These stops on Preble Street can be up to ¼ mile from Old Colony residences.

### RECOMMENDATIONS

The existing bus stop locations along Dorchester Street and East Eighth Street provide convenient access to Route 5, Route 10 and Route 11. Under the master plan, the reconfiguration of Knowlton Street and Mercer Street may require relocating two existing bus stops on East Eighth Street.

While the closest Route 16 stops are located on Preble Street and require pedestrian crossings through Pakuska Circle, no changes to the route are proposed. It is recommended that the City install additional signage at the crosswalks in Pakuska Circle to alert drivers of the high pedestrian activity.

### PEDESTRIANS

sidewalks. Because only 50% of residents in the Old Colony development own an automobile, accessibility to public transit is critically important. Much of the pedestrian activity in the area is generated to and from MBTA bus stops and the nearby Andrew Square Station on the Red Line. In addition, the recreation facilities in the adjacent Joe Moakley Park generate pedestrian trips across Columbia Road at many crossing points.

As shown in Figure 2, bus route stops are located along East Eighth Street, Dorchester Street and on Preble Street near Pakuska Circle. While no crosswalks exist along East Eighth Street, the relatively low traffic volumes allow pedestrians easy access to bus stops on both sides of the street. On Dorchester Street, crosswalks exist at the intersections with East Eighth Street, East Ninth Street and Old Colony Avenue. Although well-marked crosswalks with median refuges exist at Pakuska Circle, crossing at this location can be intimidating to pedestrians because of the high traffic volume and wide travel lanes.

### RECOMMENDATIONS

Under the master plan, sidewalks will be reconstructed throughout the development creating an improved pedestrian environment. Several of the large existing blocks will be divided into smaller blocks creating additional sidewalks and providing new circulation pathways. The smaller blocks will allow more direct walking access to the MBTA bus stops located on the perimeter streets of East Eighth Street, Dorchester Street, and near Pakuska Circle. It is recommended that the City install additional signage at the crosswalks in Pakuska Circle to forewarn drivers of the pedestrian activity.

The community center, an important gathering place, will be centrally located near the intersection of Columbia Road and Burke Street. Direct access to the center will be provided from Burke Street, Knowlton Street, the mid-block walkway from

## F. TRAFFIC, PARKING AND TRANSPORTATION

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eastern parcels, Columbia Road and Phase II New Street B. It is crucial to provide a safe pedestrian crossing between the center and the adjacent Joe Moakley Park. Under the Master Plan, a new intersection will be constructed at Burke Street and Columbia Road creating the opportunity to upgrade the Columbia Road crosswalk alignment.

The Master Plan will incorporate new neckdowns at many internal intersections. Neckdowns prevent on-street parking immediately adjacent to an intersection and provide drivers with a better view of both pedestrians and on-coming traffic. Neckdowns force drivers to slow down as they maneuver through turns, improving safety for both drivers and pedestrians. Neckdowns are recommended along Patterson Way and many of the intersections along Old Colony Avenue, East Eighth Street and Columbia Road.

Chokers are curb extensions at mid-block locations that provide pedestrians with a safer, more visible crossing. Chokers are proposed on Mercer Street and Gates Street and will link newly created open spaces on the three easterly blocks between Old Harbor Street and Knowlton Street.

It should also be noted that in community meetings, residents frequently cited the pedestrian safety challenges associated with crossing Columbia Road to Moakley Park. While it is not within the scope of the master plan to propose an additional mid-block crossing or pedestrian signal, in the interest of public safety for the residents of Old Colony and rest of the neighborhood, it is an improvement that should be explored and for which the BHA should advocate.

### VEHICULAR TRAFFIC AND CIRCULATION

#### ISSUES

Figure 1 identifies the traffic study area for the Old Colony master plan, including the location of study intersections and automatic tube recorders (ATR). Traffic data was collected in March 2010 supplemented by counts conducted by the Phase I project team.

The Old Colony Housing Development in South Boston is bounded to the northwest by Dorchester Street, to the northeast by East Eighth Street, to the west by Old Colony Avenue, to the south by Columbia Road and to the east by Old Harbor Street. The site is also served by a network of internal access roads including Patterson Way, Mercer Street, Reverend Burke Street, and East Ninth Street.

Reverend Burke Street and East Ninth Street carry relatively modest traffic volumes. The current pattern of street directions (one-way vs. two-way) helps ensure that traffic does not bypass through the development to avoid the congestion along Old Colony Avenue and Dorchester Street. East Eighth Street and Columbia Road carry local traffic between residential South Boston and major north-south arterials such as Old Colony Avenue, Dorchester Avenue, I-93, and other points west.

Below is a summary of existing traffic volumes:

- Internal streets (Patterson Way, Burke Street, East Ninth Street, Mercer Street) carry local traffic with peak hour volumes between 50 and 100 vehicles per hour.
- Old Colony Avenue carries high commuter volumes inbound toward Boston during the morning peak period and outbound during the evening peak period. During the a.m. period, the peak northbound volume is about 1,300 -1,400 vehicles per hour. In the p.m. peak period, southbound volumes are about 1,100 vehicles per hour. During peak periods, the two-way volumes peak at about 1,900 vehicles per hour.



## F. TRAFFIC, PARKING AND TRANSPORTATION

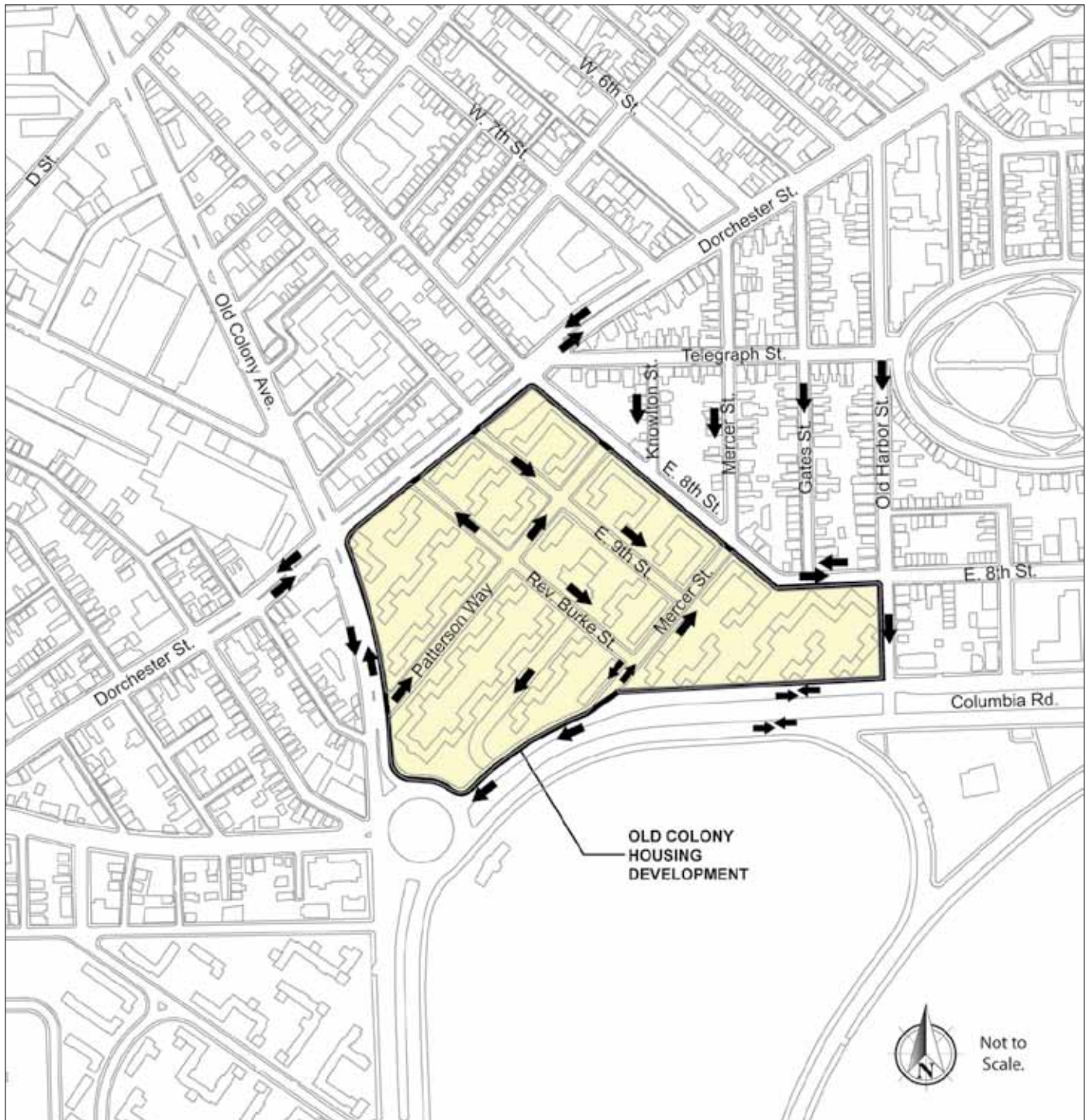


Figure 3. Existing plan and street orientations

- Dorchester Street is a minor urban arterial that carries moderate two-way volume of about 1,000 – 1,200 vehicles per hour. Unlike Old Colony Avenue, Dorchester Street does not exhibit distinct peaks of commuter traffic and operates more as an urban connector street than a major commuter route.
- Collectively, volumes along Columbia Road on both the northern and southern portions are relatively low, for a combined total of around only 500 vehicles per hour throughout the day.

Figure 3 shows the existing plan of street travel directions in the development. The pattern provides adequate circulation without encouraging cut-through traffic. Although new streets will be constructed as part of the Master Plan, the street grid design will continue to prevent non-local traffic from traveling through the neighborhood.

The number of residential units under the Master Plan will likely decrease slightly due to height and density limitations of the site and the need to increase average unit size to meet current standards. Currently there are 840 existing apartments units and it is projected that around 650 units townhomes/apartments will be provided in the future. Because the number of trips generated by the development will not significantly change in the future, and may actually decrease slightly, no traffic impact analysis was undertaken as part of this plan.

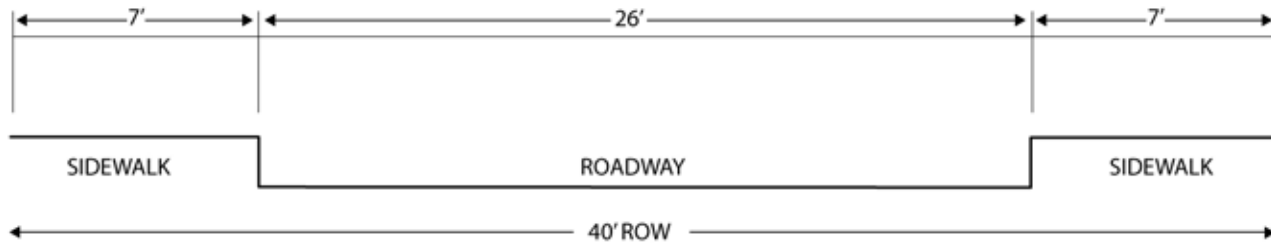
### RECOMMENDATIONS

Under the master plan, most existing street layouts will be preserved and several of the large existing blocks will be divided into smaller blocks creating additional streets. New streets will be constructed to City standards based on the street and sidewalk width guidelines presented in Figure 5 to optimize not only for automobile but also bicycle and other vehicle movement. The street layouts have been tested to ensure that fire trucks can safely maneuvers all necessary turns.

## F. TRAFFIC, PARKING AND TRANSPORTATION

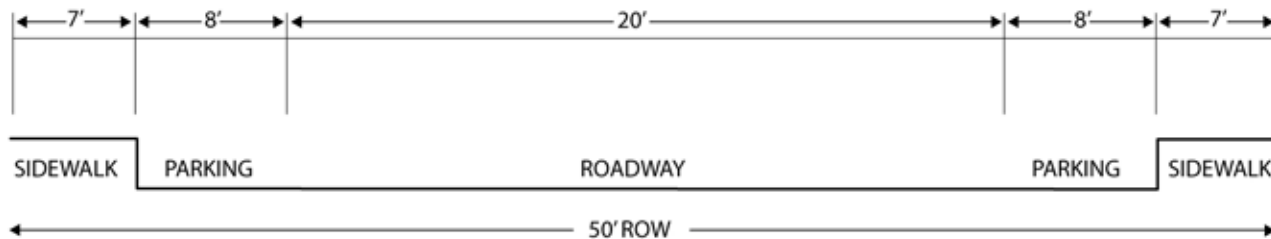
### STANDARD STREET

Can be used for 2-way with no parking or 1-way parking on one side.



### 2-WAY STREET, PARKING ON BOTH SIDES

For 2-way with parking on both sides.



Not to Scale.

Figure 4 City of Boston street dimensional standards.

As part of the master plan, Knowlton Street and Gates Street will be extended from East Eighth to Columbia Road. Mercer Street, which currently runs diagonally to the southwest from East Eighth Street to Columbia Road, will be realigned to travel directly south to Columbia Road. The existing alignment of Mercer Street will become a pedestrian path to maintain right-of-way and utility easements and to avoid utility relocation. Together, these changes will serve to knit the East Eighth Street corridor to Old Columbia Road.

#### Extensions to existing streets

A "circuit-breaker" is a series of adjacent street directions that, together, prevent through traffic on local streets. These are

## F. TRAFFIC, PARKING AND TRANSPORTATION

often used to prevent commuter traffic from using short-cuts through residential neighborhoods. Street directions on the extensions to Knowlton Street, Mercer Street and Gates Street will be designated to prevent traffic in the Telegraph Hill area from cutting through the development to Columbia Road. It recommended that:

- Knowlton Street be one-way northbound north of East Ninth Street and one-way southbound south of East Ninth Street.
- The southbound Knowlton Street approach be controlled by a stop sign at the intersection at Burke Street.
- Gates Street and Mercer Street be one-way northbound between Columbia Road and East Eighth Street.
- Old Harbor Street remain one-way southbound and continue

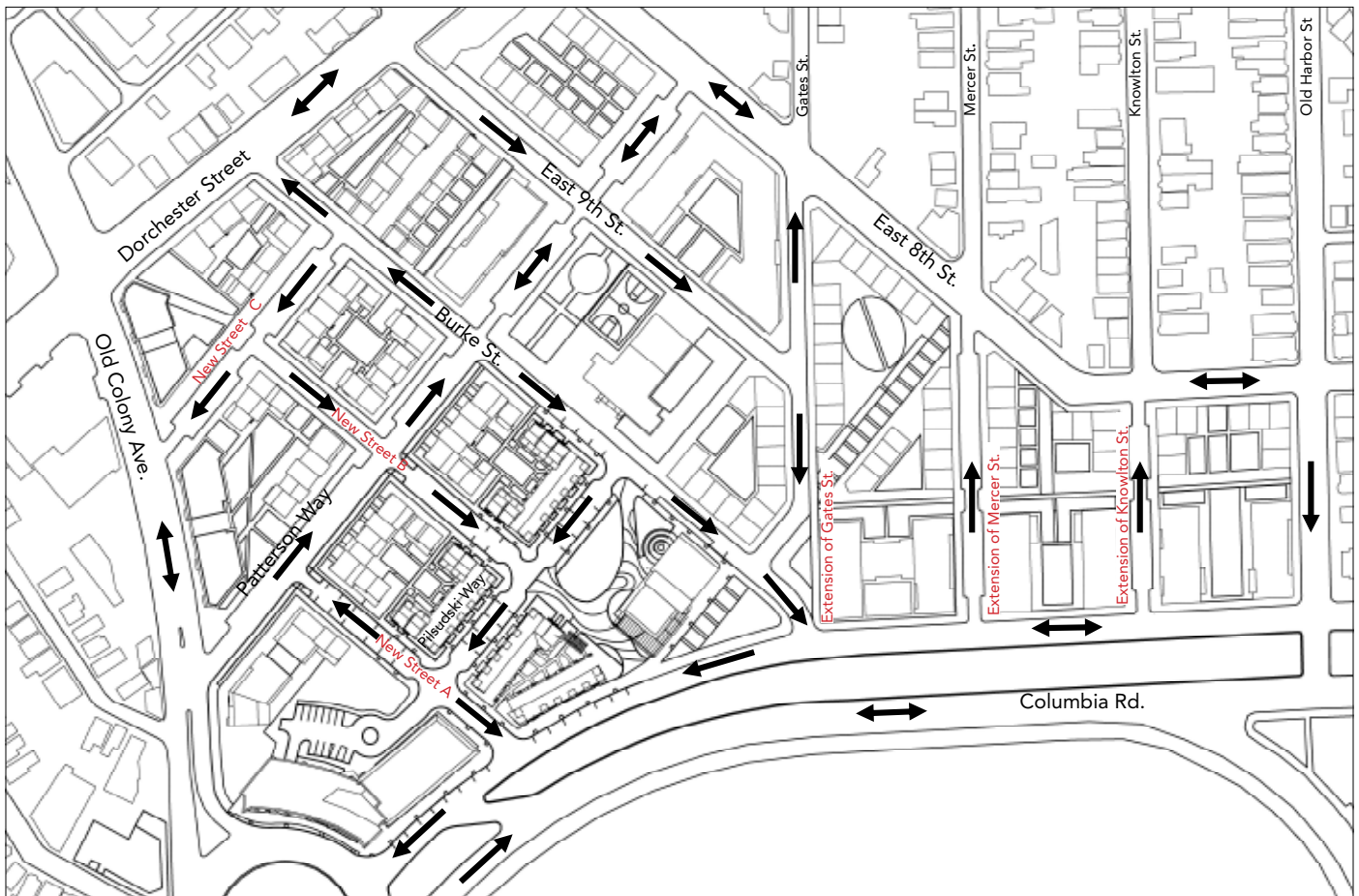


Figure 5 Proposed master plan street- layout and directions



## F. TRAFFIC, PARKING AND TRANSPORTATION

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to be the primary vehicular connection from Telegraph Hill to Columbia Road.

### New Streets

In an effort to eliminate the existing large blocks and provide on-street parking closer to residents, three new streets will be incorporated in the Master Plan design (Fig.4) including:

- Phase II New Street A – this street will run parallel to Burke Street and connect Patterson Way to Columbia Road with an intersection at Pilsudski Way. East of Pilsudski Way, the street would be one-way eastbound and west of Pilsudski Way the street would be one-way westbound. (Note that as part of Phase I, Pilsudski Way will be maintained as one-way southbound.)
- Phase II New Street B – this street will run parallel to Burke Street and connect from Phase II New Street C to Pilsudski Way. Travel will be one-way westbound.
- Phase II New Street C – this street will run parallel to Patterson Way and connect Old Colony Avenue to Burke Street. Travel will be one-way southbound.

### Intersection of Columbia Road/Burke Street

The existing intersection of Columbia Road/Burke Street provides egress from the development from both Burke Street and Mercer Street. School buses leaving the Perkins School travel east of Burke Street, turn right onto Mercer Street, and then turn right onto Columbia Road. Under the Master Plan design, Burke Street would be extended east directly to Columbia Road such that traffic will only need to make one right turn onto Columbia Road.

While the existing Burke Street/Columbia Road intersection has long pedestrian crossing distances, the new design will significantly shorten the crosswalk along Columbia Road. The intersection has been designed to accommodate bus maneuvers.

As part of the new street design near the Community Center, Knowlton Street will form a new intersection with Burke Street, west of Columbia Road. It is recommended that the southbound Burke Street approach be controlled by a stop sign.

### Traffic Calming

In addition to the circuit breakers described above, many of the intersections will have neckdowns that prevent on-street parking immediately adjacent to intersections, allowing better sight distance for drivers who are turning. In addition to the traffic calming benefits of neckdowns that reduce travel speeds and make pedestrians more visible, pedestrians have a shorter crosswalk distance.

Chokers, as noted previously, are proposed on Mercer Street and Gates Street and will link newly created open spaces on the three blocks between Old Harbor Street and the extension to Knowlton Street.

Based on the resident survey, approximately half of Old Colony residents own a car and about 70% responded that they typically use the MBTA for work and social trips. The results of a parking space inventory corroborate that the existing parking supply provides about 0.50 spaces per residential unit.

## F. TRAFFIC, PARKING AND TRANSPORTATION

### PARKING

#### ISSUES

The inventory of on-street and off-street parking spaces within and adjacent to the Old Colony development is shown in Table 2. As shown in Figure 6, there are 394 on-street parking spaces within the Old Colony development and on adjacent curbs of perimeter streets.

Most of these on-street spaces, 83%, are South Boston Resident spaces with 10% designated as visitor spaces. While 6% are designated for use by the Boston Public School during schools days between 7AM and 4 PM, these spaces are available outside these hours for resident and visitor use.

Along the opposite curbs of bordering streets, there are 143 parking spaces, mostly designated as South Boston Visitor spaces. Many of these spaces, which primarily support the parking demands of nearby businesses, other residents, and recreational uses near Old Colony, are not likely to be used by Old Colony residents because they are mostly located across major streets (Old Colony Avenue, Dorchester Street, East Eighth Street, and Columbia Road).

Table 2. Existing On-Street Parking Spaces

	Within Old Colony and along adjacent curbs		Opposite curbs on perimeter streets <sup>1)</sup>	
	Count	Percentage	Count	Percentage
South Boston Resident 6PM to 10AM	328	83%	39	27%
South Boston Visitor 2 hrs. 6PM to 10AM	40	10%	89	62%
Handicapped	2	1%	0	0%
Boston Public School Parking No parking on school days 7AM to 4 PM	24	6%	0	0%
Unrestricted	0	0%	15	11%
<b>Total</b>	<b>394</b>	<b>100%</b>	<b>143</b>	<b>100%</b>

- 1) Spaces on opposite curbs that border Old Colony, including the west side of old Colony Avenue, the northwest side of Dorchester Street, the north side of East Eighth Street, the east side of Old Harbor Street, and the south side of Columbia Road.

## F. TRAFFIC, PARKING AND TRANSPORTATION

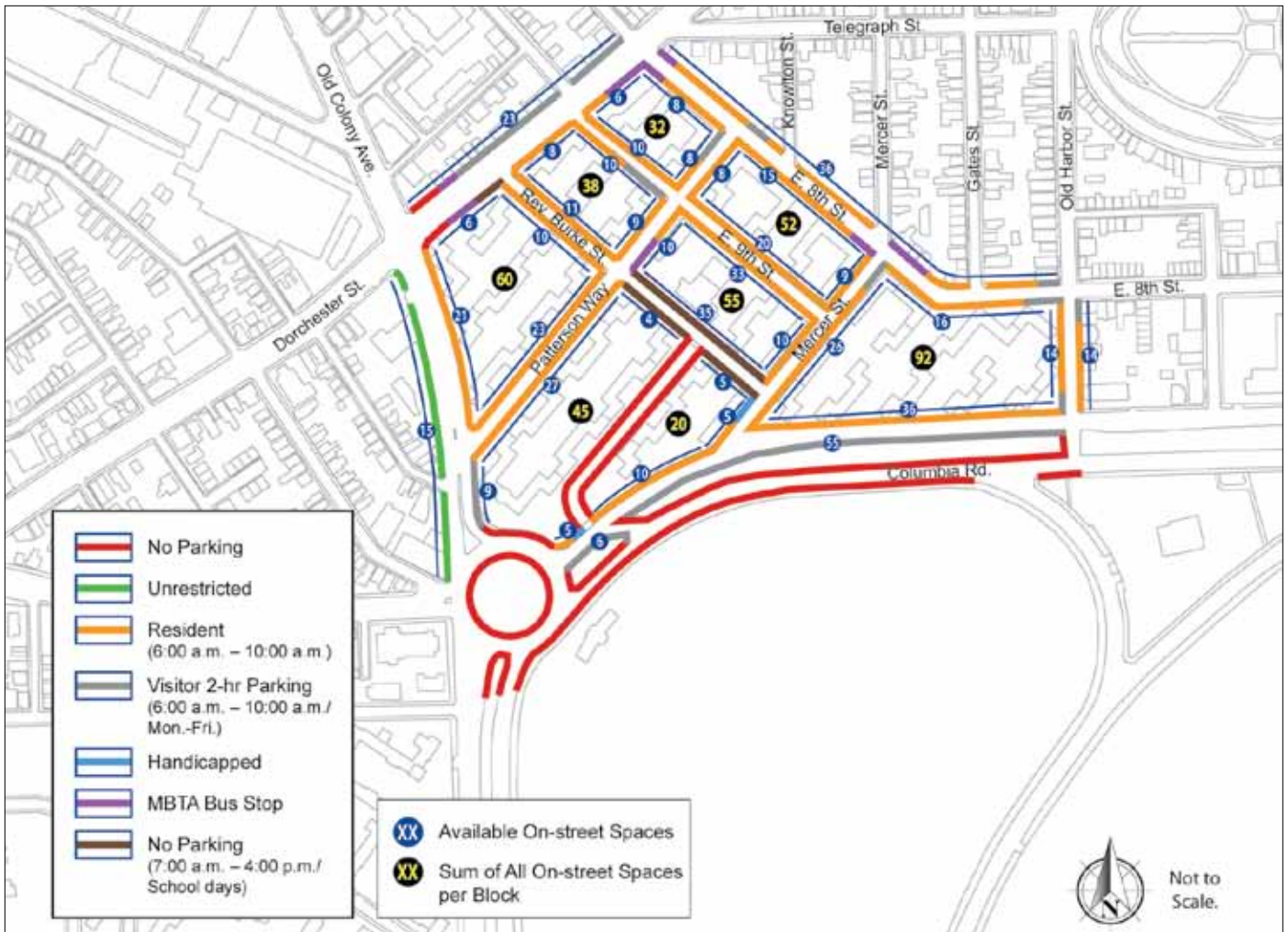


Figure 6 Existing Parking at Old Colony

In addition to the on-street spaces, there are four active off-street parking areas adjacent to some buildings. In total, these areas provide about 35 additional spaces. There are also four other areas that were previously used as off-street parking but are now inactive and either are gated or have become storage areas for dumpsters and/or construction materials.

With the current availability of about 429 parking spaces for the 845 existing units, the current parking space ratio is about 0.5 spaces per unit, not including spaces located on the opposite side of the development's perimeter streets.



### RECOMMENDATIONS

As part of the effort to reduce the existing large development blocks, several new streets will be incorporated into the Master Plan providing additional opportunities for on-street parking. The master plan design reduces off-street isolated parking lots and provides adequate on-street parking spaces distributed throughout the development and close to the housing units.

Based on the master plan design, the potential number of future on-street parking spaces has been estimated as shown in Table 3. The estimate of future parking spaces assumes that all surrounding sides of a parcel would have on-street parking spaces.

With the master plan proposing around 650 residential units, the resulting parking ratio, without any off street parking provided, will be between 0.61 spaces per unit and 0.71 spaces per unit. Even at the low end of this range, the proposed parking ratio is 20% higher than the existing ratio of 0.5 spaces per unit. While the ratio does not include the 143 parking spaces that are available on the opposite curbs of the perimeter streets, these spaces will occasionally be used by Old Colony residents and visitors further contributing to the supply.

While the master plan does not propose any off-street parking (with the exception of the small surface lot behind the Phase I mid-rise), it is understood that some of the future phases may require a modest amount of off-street parking to accommodate disabled and elderly residents –particularly the multi-family buildings. However, the total on-street supply suggests that, beyond accessibility requirements, a redeveloped Old Colony does not require off-street surface lots.

### ISSUES

Within the development, the large existing blocks can hinder the most direct walking route and cause pedestrians to travel on the paved areas between buildings rather than on available

## F. TRAFFIC, PARKING AND TRANSPORTATION

Table 3. Summary Estimate of Future Parking Spaces

Location	Potential Parking Spaces	Parking Ratio (to be determined)
<b>Phase II and Future Phases On-street parking on internal streets</b>	257	.61 to 0.71 Spaces per unit  (650 to 750 units)
<b>Phase II and Future Phases On-street parking on perimeter streets (adjacent curb)</b>	140	
<b>Phase I On-street and off-street parking <sup>1)</sup></b>	62	
<b>Subtotal</b>	459	

1) Phase I, includes 35 spaces on Pilsudski Way/new courtyard streets and 15 on Columbia Road.

Table 4. Detailed Estimate of Future Parking Spaces

Location	Potential Parking Spaces	
<b>Phase II On-street parking on internal streets</b>		
Patterson Way between Old Colony Avenue and E. Eighth Street - Both sides	58	
Burke Street between Dorchester Street and Mercer Street - Both sides	45	
East Ninth Street between Dorchester Street and Mercer Street - Both sides	49	
Knowlton Street (extension) between East Eighth and Columbia Road - Both sides	18	
Mercer Street (extension) between East Eighth and Columbia Road - Both sides	26	
Gates Street (extension) between East Eighth and Columbia Road - Both sides	18	
Old Harbor Street between East Eighth and Columbia Road - Both sides	12	
Phase II New Street A	4	
Phase II New Street B	4	
Phase II New Street C	23	
<b>Subtotal - Phase II On-street parking on internal streets</b>	257	

## F. TRAFFIC, PARKING AND TRANSPORTATION

<b>On-street parking on internal streets</b>		
<b>Adjacent Curbs</b>		
<b>On-street parking on perimeter streets</b>		
Old Colony Avenue Between Columbia Road and Dorchester Street – east side	30	
Dorchester Street Between Old Colony Avenue and East Eighth Street – south side	20	
East Eighth Street Between Dorchester Street and Old Harbor Street – south side	36	
Old Harbor Street Between E. Eighth Street and Columbia Road – west side	12	
Columbia Road Between Old Harbor Street and Old Colony Avenue – south side	42	
<b>Subtotal - Adjacent Curbs</b>	<b>140</b>	
<b>On-street parking on perimeter streets</b>		
<b>Phase I</b>		
<b>On-street and off-street parking <sup>1)</sup></b>	62	
<b>Total – Phase I, Phase II and curbs on adjacent streets</b>	<b>459</b>	
<b>Opposite Curbs</b>		
<b>On-street parking on perimeter streets</b>		
Old Colony Avenue Between Columbia Road and Dorchester Street - East side	15	
Dorchester Street Between Old Colony Avenue and East Eighth Street – South side	23	
East Eighth Street Between Dorchester Street and Old Harbor Street - South side	36	
Old Harbor Street Between E. Eighth Street and Columbia Road - West side	14	
Columbia Road Between Old Harbor Street and Old Colony Avenue – North side	55	
<b>Subtotal Opposite Curbs</b>	<b>143</b>	
<b>On-street parking on perimeter streets</b>		

1) Phase I, includes 35 spaces on Pilsudski Way/new courtyard streets and 15 on Columbia Road.

### PERKINS SCHOOL

#### TRAFFIC ISSUES

The Michael J. Perkins Elementary School is located at 50 Burke Street. On school days, students arrive by bus and parent drop-off. Buses and most parents arrive via Patterson Way and depart via Burke Street to Columbia Road.

About 20 off-street parking spaces are provided on the school grounds for school staff with visitor parking on Patterson Way. To facilitate bus activity and student safety, parking is prohibited on Burke Street between Patterson Way and Mercer Street between 7:00 a.m. and 4:00 p.m. on school days.

#### RECOMMENDATIONS

Under the Master Plan, vehicular access and egress to the school will remain the same as under existing conditions. The off-street supply and location of staff parking will not change. Parking regulations along Burke Street will remain in place. The changes discussed earlier (in the Vehicular Traffic and Circulation section) for the Columbia Road/Burke Street intersection have been designed to accommodate school bus turning maneuvers.



## G. UTILITIES

### WATER SYSTEM

Water Mains in and around Old Colony		
Street	Pipe Type	Year Built
Old Colony Ave.	12" PCI SL	1911 (cleaned and lined 1988)
Columbia Rd. (West of Mercer Street)	12" PCI SL	1903 (cleaned and lined 1970)
Columbia Rd. (East of Mercer Street)	16" PCI SL	1902 (cleaned and lined 1970)
Old Harbor Street	12" PCI SL	1910
East Eighth Street	12" CLDI SL	2002
Dorchester Street	16" PCI SH 20" PCI SL 12" DI SL	1896-1904 1870 (cleaned and lined 1975) 1997
East Ninth Street	8" DI SL	1997
Mercer Street	12" CI SL	1940
Rev. Richard Burke Street	16" PCI SL	1899

The Old Colony Housing Development is fed primarily by Boston Water and Sewer Commission's Southern Low Service (SL), which provides water to South Boston, Boston Proper and parts of Roxbury. The water mains are a mix of older cast iron (CI) and pit cast iron pipe (PCI) with newer ductile iron pipes (DI) located in Dorchester Street, East Eighth Street and East Ninth Street. Similar to most of the systems in the City of Boston, the water system is looped to provide redundancy in the water supply system allowing the shutdown of an isolated section of a water main for repair or maintenance without interrupting service.

The site is serviced by several 8" water lines feeding the Old Colony blocks, and 12" and 16" water lines found in the perimeter and through public streets of the site. There are master meters in pits for the 8" water lines as well as the main lines beneath the streets.

The chart to the left is a summary of the water mains in and around the Old Colony Housing Development.

### SEWER SYSTEM

A combined sewer system collects the sanitary sewer and storm drainage from Old Colony Housing. There has, however, been some sewer separation work in Columbia Road. According to BWSC records, a portion of the Boston Main Drain System runs underneath the block defined by Patterson Way, Rev Richard A Burke Street, Mercer Street and Old Colony Avenue at approximately mid-block. This system was built in the late 1800s and used to collect the City's sanitary sewer and drainage and discharge it into Boston Harbor. Most of this system was abandoned with the construction of the New Boston Main Interceptor, which diverts flows to Deer Island for secondary treatment prior to discharging into the Harbor.

An existing 12" sewer line serves most of Old Colony and connects to Columbia Road to the south. Typical branch sewer

lines of 8” and 10” connect to the existing buildings. The 12” sewer line is cracked and in poor condition. Ultimately, sewer service to the site is connected to a combined sewer which flows to the Columbus Park Headworks where it is pumped to the Deer Island Treatment Plant. Future redevelopment will likely generate reduced wastewater loads because of the use of low-flow plumbing fixtures as well as a presumed reduced residential density.

Cracks have been found in the underground sewage pipes, causing leakage. These cracks have been identified and are being repaired. PVC pipes have replaced ageing pipes in the basements, fixing leaks; however, continued deterioration of the underground utilities is an ongoing issue and full replacement is likely warranted in several locations throughout the property.

The following chart is a summary of the combined sewer lines in and around the Old Colony Housing Development.

Sewer Lines in and around Old Colony.	
Street	Pipe Size
Old Colony Ave.	Increases from 10” to 24” in a southerly direction
Columbia Rd. (West of Mercer Street)	36” x 54”; separate sanitary and storm drain lines are also constructed from the traffic circle to Rev. Richard A. Burke St.
Old Harbor Street	10”
East Eighth Street	12” x 16” (north of Mercer Street); 15” increasing to an 18” x 24” in a westerly direction (south of Mercer Street)
Dorchester Street	12” increasing to an 18” (west of East Ninth Street); 20” x 28” (east of East Ninth Street)
East Ninth Street	42” x 70”
Mercer Street	20” x 24” from East Eighth Street to East Ninth Street; 56” x 70” from East Ninth Street to Rev. Richard Burke Street; 24” sanitary sewer southwest of Rev. Richard A. Burke Street.
Rev. Richard Burke Street	12” increasing to 15” in a southerly direction; 64” x 78” south of Mercer Street

### LANDSCAPE PLAN



The landscape master plan for Old Colony has four important goals related to reinforcement of the public realm:

- The creation of significant public spaces that relate to the South Boston neighborhood context, providing civic beauty and pride;
- Articulation of smaller landscaped courtyards that offer residents more intimately scaled spaces for outdoor use;
- Preservation, wherever possible, of the existing mature tree canopy at Old Colony and;
- The creation of quality streetscapes befitting a healthy, residential neighborhood.

The existing and new trees which will line the streets at Old Colony are designed to provide a leafy canopy to enhance the urban scale of the neighborhood. Because of the phased approach of Old Colony's redevelopment, the preservation of the existing trees will be vital to the visual continuity between the old and new parts of Old Colony. In addition, the new street trees will create an important visual matrix, integrating the different housing types employed throughout the Old Colony redevelopment. The environmental benefits of this extensive street tree canopy throughout Old Colony are well documented, such as a reduction of the urban "heat island effect", improvement of air quality, and mitigation of storm water runoff. The creation of continuous tree-ways for both the existing and proposed street trees will aid in their long term survival. Within the paved areas it is recommended that permeable paving systems be incorporated to the extent possible. The street trees suggested in the proposed plant palette are urban and seaside tolerant species that are well adapted to this setting, they will reach mature heights that are in scale to their civic landscape role and comparable to the existing tree canopy.

A long and broad pergola is proposed to compliment the public spaces at Old Colony, linking E. 8th Street to the community



*Existing Patterson Way Elm Trees*

center and Columbia Road. The pergola serves a similar function to Boston’s iconic pergola at Christopher Columbus Park. This important landscape element will offer residents and visitors a space that is urban in character while providing a place for strolling, gathering and sitting amidst shade, flowers and foliage

The scale of the proposed trees within courtyard areas is smaller than the trees suggested as street trees for the public spaces and urban realm. In addition, ornamental trees within these spaces will provide for a variety of seasonal interest with flowers or foliage color. As in the selection for the street trees, the proposed varieties are native or adapted species tolerant of urban and seaside conditions.

The final critical piece of the landscape master plan is the preservation of the existing healthy mature trees at old colony. As described in the existing conditions report, these mature specimens represent an unmatched visual asset to the landscape of Old Colony. The layout of the proposed housing elements in

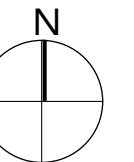






Proposed Landscape Plan

Plate 11





## H. LANDSCAPE PLAN

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Phase II and subsequent future phase takes into consideration the preservation of these trees. While it is not possible to stay outside the drip lines or canopy of all of these mature specimens, it was determined, in consultation with Boston Parks and Recreation arborists that all new development should stay within a setback line determined by the existing building footprints. This is particularly important along Patterson Avenue where the majority of the tree specimens exist. In addition, the inclusion and enforcement of thorough tree protection specifications in all construction packages related to development at Old Colony will be key.

Since most of a tree's roots are located in the upper few inches of soil, urban trees are vulnerable to construction impacts and long-term damage. Construction damage to roots is caused by grading, use of vehicles and tools. Long-term damage is caused by the compaction of the soil above the roots by use of vehicles, storage of materials, and excess pedestrian traffic.

Protection of a tree therefore includes the protection of the roots of the tree as well as its trunk, branches, and leaves. Roots are best protected by fencing off as large an area as possible around each tree, so that no driving, parking, walking, or storage of materials takes place where it may cause damage.

PROPOSED TREE PALETTE FOR OLD COLONY

Type	Botanical Name	Common Name
<b>Street Trees</b>		
T	Acer rubrum 'October Glory'	October Glory Red Maple
T	Ginko biloba	Ginko
T	Gleditsia triacanthos inermis 'Shademaster'	Shademaster Honeylocust
T	Platanus x acerfolia 'Bloodgood'	Bloodgood Planetree
T	Quercus palustris	Pin Oak
T	Tilia cordata	Littleleaf Linden
T	Tilia tomentosa 'Sterling'	Sterling Silver Linden
T	Ulmus japonica x wilsoniana 'Morton'	Accolade Elm
T	Ulmus parvifolia	Lacebark Elm
<b>Courtyard Trees</b>		
C	Junierpus virginiana 'Emerald Sentinel'	Emerald Sentinel Eastern Red Cedar
C	Nyssa sylvatica	Tupelo
C	Pinus nigra	Black Pine
C	Pinus parviflora	Japanese White Pine
C	Pyrus calleryana 'Cleveland Select'	Cleveland Select Pear
C	Sophora japonica 'Regent'	Regent Japanese Pagodatree
<b>Ornamental Trees</b>		
O	Amelanchier x grandiflora 'Princess Diana'	Princess Diana Shadbush
O	Hamamelis virginiana	Witchhazel
O	Koelreuteria Paniculata	Golden Rain Tree
O	Malus sargentii	Sargent Crabapple
O	Magnolia virginiana	Sweetbay Magnolia
O	Malus x zumi 'Calicarpa'	Zumi Crab
O	Syringa reticulata 'Ivory Silk'	Ivory Silk Tree Lilac

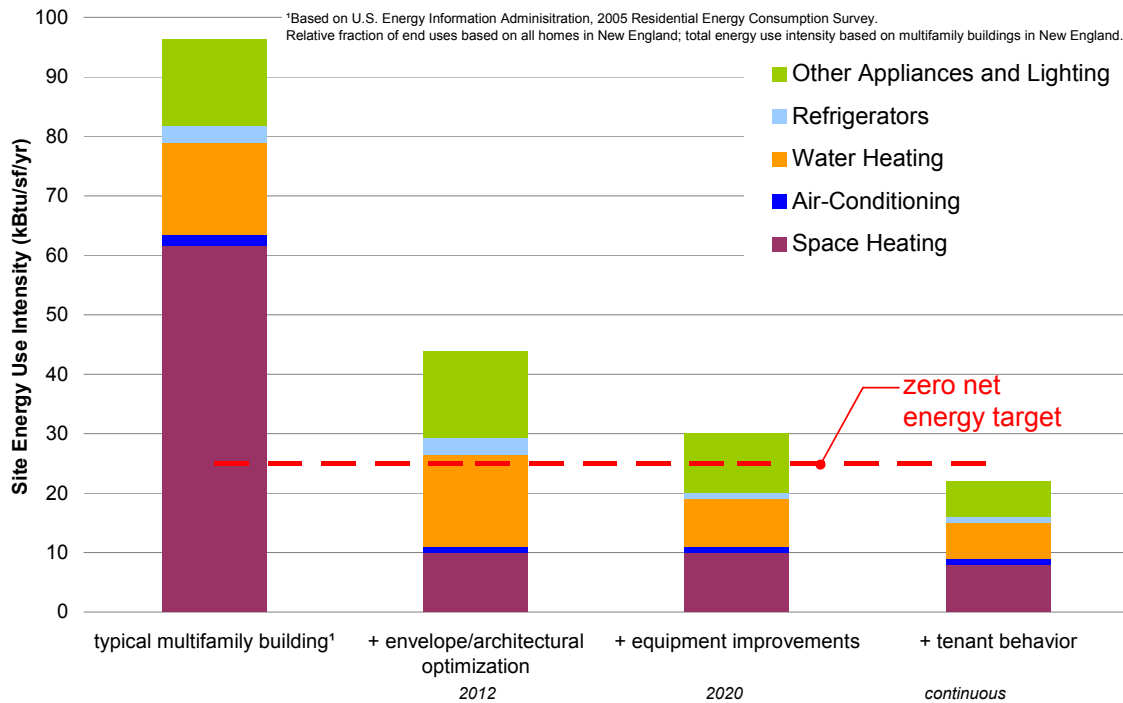


## INTRODUCTION

There are a series of strategies necessary to achieve zero net annual site energy at the redeveloped Old Colony. Achieving zero net energy performance requires both minimizing energy consumption and providing renewable energy systems to meet the remaining energy demand. The maximum available renewable energy on site defines the maximum permissible energy consumption, or zero net energy target.

The chart on the following page illustrates this process. A series of demand reduction measures are implemented to bring the total energy use below a target value. The target value represents the maximum possible on-site renewable energy generation.

Because sufficient funding may not be available for all measures necessary to achieve zero net energy as part of the initial redevelopment, the measures must be prioritized and incorporated in an energy master plan which allows achievement of the zero net energy goal at a future date. Thus, after initial redevelopment, or as various phases proceed, the development may be termed 'zero-net-energy ready'. This document describes the measures that may be part of the master plan, qualitatively assesses factors which may be used in their prioritization, and provides recommendations on the implementation (immediate and future) of these measures.



*Demand reduction measures necessary to reach zero net energy target*

## DEMAND REDUCTION MEASURES

### ENVELOPE OPTIMIZATION

Heat loss through the building envelope is the single greatest contributor to residential energy consumption. The insulating quality of the building envelope, including walls, windows, roof, foundation, and slab should be maximized and uncontrolled infiltration of outside air minimized. Rather than specifying specific construction methods, a more flexible approach is to provide a performance-based specification. Two possible approaches to performance-based specification are discussed under Specification of Performance Requirements below.

### SECONDARY ARCHITECTURAL MEASURES

Beyond envelope optimization, a variety of additional architectural measures play a smaller role in reducing energy consumption. These including optimizing floor plans for

daylighting and natural ventilation, optimizing glazing ratio for passive solar heat gain, providing thermal mass for passive solar heating, and control of summer sun. Again, rather than specifying specific construction methods, a more flexible approach is to provide a performance-based specification as discussed below.

### SECONDARY MECHANICAL MEASURES

A variety of efficiency measures may also be incorporated in the mechanical design, including heat recovery ventilators, high-efficiency boilers, chillers, water heaters, and geothermal. These would also be addressed under the performance-based specifications outlined below.

### TRANSPARENCY OF INFORMATION

Tenant behavior has an impact on nearly all aspects of energy consumption. The first step toward improving behaviors is providing information on energy consumption to all tenants. Tenant payment of all energy costs (including heating and cooling) provides the best incentive for energy conservation. However, even if tenants do not pay directly for electricity, heating, or cooling, they should receive a statement each month that shows their consumption and compares it to the average consumption for the development.

If centralized hydronic systems are provided, BTU meters must be provided for each unit in order to provide this information. Separate electric metering of each unit is a Green Communities requirement.

### TENANT PROGRAMS

Beyond transparency of information, incentive and educational programs may encourage energy-efficient behavior. Examples might include:

- Provide tenants with 'smart' master/slave power strips;
- Provide an incentive for tenants to purchase Energy Star rated electronics and appliances;

- Establish competitions (with appropriate awards) between buildings to minimize energy use (possibly modeled on similar competitions at university dormitories).

### LIGHTING

The Green Communities criteria include requirements for exterior and interior lighting. However, these may be exceeded for further energy reductions. Examples might include providing 100% Energy Star qualified hard-wired fixtures and automatic or manual switching schemes to encourage utilization of daylight. A manual switching scheme may be as simple as including receptacles for tenant-supplied lighting (table and floor lamps) on wall switches, so that it may be switched together with hard-wired fixtures from a single wall location.

### APPLIANCES

The Green Communities criteria include requirements for Energy Star appliances. Further energy savings can be achieved by requiring appliances which exceed the requirements of Energy Star, and by requiring the most efficient class of appliances (e.g. top-freezer refrigerators rather than side-by-side). Alternatives to appliances, such as providing indoor or outdoor space for line clothes drying may be considered.

### DOMESTIC HOT WATER DEMAND

The major users of hot water are typically showers, dishwashers, and laundry. Specification of high-efficiency appliances addresses dishwashers and laundry, although residents must also be encouraged to use dishwashers rather than hand-washing, which uses more water. The Green Communities criteria require 2.0 gpm showerheads; exceeding this requirement with an even lower flow will further reduce domestic hot water demand.

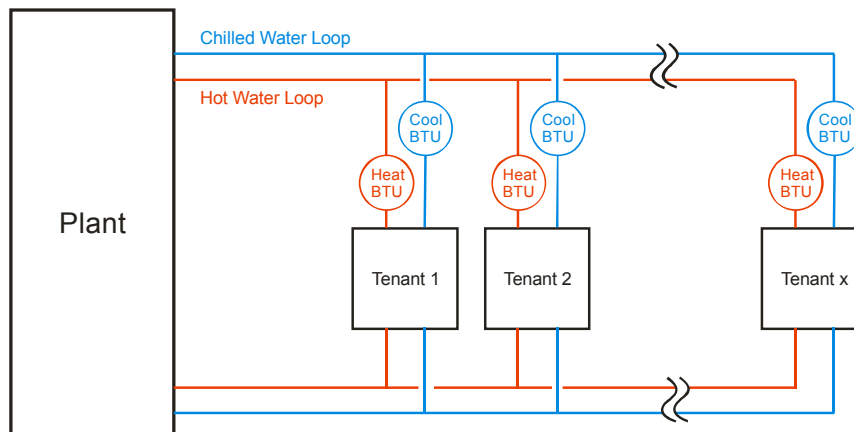


## ENERGY SUPPLY MEASURES

### CENTRALIZED HEATING AND COOLING SYSTEMS

Because renewable heating and cooling sources necessary to meet a zero net energy goal are unlikely to be provided in initial development phases, providing a central hydronic heating and cooling plant for each building (or group of buildings) increases the flexibility to replace heating and cooling sources with low-energy (e.g. geothermal, cogeneration) or renewable energy (e.g. solar thermal) systems in the future.

In parallel with providing a central plant in the development phase, it is recommended that cooling and heating energy use be sub-metered for each tenant unit. The intent behind this is similar to that of the mandatory individual or sub-metered electric meters under Section 5-4 of the Green Communities Criteria: "To raise residents' awareness of the cost associated with consumption, which may reduce energy use."



*Simple schematic of chilled water and hot water sub-meters*

### ADVANCED HEATING AND COOLING SYSTEMS

If a centralized (per building) heating and cooling system is provided, a proposed future plan for lower-energy or renewable generation of hot and chilled water should be considered. This may involve provision of space for a future central plant serving multiple development phases, or may remain a distributed

system. Future technologies may include combined heat and power, geothermal, or seasonal thermal storage. More detailed descriptions of these systems are provided at the end of this report.

### RENEWABLE-READY

Both photovoltaics and solar thermal systems are likely to contribute to a zero net energy solution but may not be purchased during initial development. The Green Communities criteria provide requirements for a PV-ready design; the same concepts may be used for solar-thermal-ready installation. The most flexible design will designate all roof area on all buildings as renewable-ready. To avoid redundant installations, some buildings might be designated as PV-ready, while others are designated as solar-thermal-ready.

Aside from reserving unobstructed roof area for PV panels, the Green Communities criteria indicate several points to demonstrate PV-readiness. Additional considerations expanding on the Green Communities criteria include:

- Orient buildings to permit access to sunlight
  - Note if nearby buildings or structural elements will shade PV's
  - Orientation is considered in the masterplan
- Design and include south facing architectural elements on the roof for PV
  - Consider sloped roofs to minimize components such as racks for PV mounting
- Run wiring from the prospective PV location to a central panel, as part of general electrical work
  - Rough-in building envelope penetration (air-sealed and insulated until needed)
  - Install conduit connecting to electric panel box
  - Provide space near panel box for inverter

## I. SUSTAINABILITY

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As for solar-thermal readiness, it would be useful to consider the following, in addition to the items noted above:

- Estimate projected hot water load;
- Provide supply and return hot water piping for solar-thermal system in vertical chase, sized sufficiently to provide projected annual hot water needs and insulated;
- Allocation of space for hot water tank, adjacent to the furnace/water heater.

### RENEWABLE ENERGY

Photovoltaic and/or solar thermal systems may also be installed on buildings at time of construction if sufficient funding is available. Investment in all other energy efficiency measures should be maximized prior to investing in renewable energy systems. Most energy efficiency measures are expensive to retrofit into buildings, whereas the price of renewable energy is likely to reduce over time while the technology and efficiency continue to improve.

## MEASURE PRIORITIZATION

The table below compares capital cost, energy impact, and phasing flexibility of the measures previously described. This is intended to initiate discussion regarding the relative prioritization of these measures. Items which are low phasing flexibility should be implemented at initial development, while medium or high flexibility items might be implemented at a future date as funds become available. This is reflected in the timeline in the chart at the beginning of this chapter.

	Capital Cost			Energy Impact <sup>1</sup>			Phasing Flexibility <sup>2</sup>		
	Low	Med	High	Low	Med	High	Low	Med	High
<b>Demand Reduction</b>									
Envelope optimization			•			•	•		
Secondary architectural measures	•				•		•		
Secondary mechanical measures		•			•			•	
Transparency of information	•			•				•	
Tenant programs	•				•				•
Lighting	•				•			•	
Appliances		•			•			•	
Domestic hot water demand	•				•			•	
<b>Energy Supply</b>									
Centralized heating and cooling		•		•			•		
Advanced heating and cooling systems			•			•			• <sup>3</sup>
Renewable-ready	•			•			•		
Renewable energy			•			•			• <sup>4</sup>

<sup>1</sup>Relative contribution toward demand reduction or energy supply necessary to achieve net-zero energy

<sup>2</sup>Flexibility for implementation at later dates, after initial construction

<sup>3</sup>High flexibility only if centralized heating and cooling is provided

<sup>4</sup>High flexibility only if renewable-ready buildings are provided

*Considerations for prioritization of demand reduction and energy supply measures*



### SPECIFICATION OF PERFORMANCE REQUIREMENTS: HC-EUI

Specification of fixed design solutions (wall R-values, mechanical efficiencies, etc.) to achieve a net-zero-ready design can create unnecessary inflexibility in the developer procurement process. Envelope optimization, secondary architectural measures, and secondary mechanical measures are particularly design-dependent and interrelated demand reduction measures.

Rather than specifying a fixed design solution, the intended annual energy use intensity (kBtu/sf/yr) for heating and cooling only might be specified. Energy use is often evaluated according with an overall energy use intensity, or EUI, which includes all energy uses within the building. However, energy end uses other than heating and cooling (lighting, hot water, appliances) are not as design-dependent and can be more fairly addressed through prescriptive specifications as discussed in the Demand Reduction section. Therefore, an alternative metric, the heating and cooling EUI (HC-EUI), is proposed as the best possible performance specification. The HC-EUI only includes the portion of the overall EUI dedicated to heating and cooling. With a performance specification for HCEUI, the developer is required to develop the optimal building envelope and mechanical systems to achieve a target HC-EUI.

Two different models might be used for this performance specification. In either model, the procedure for calculating and evaluating the HC-EUI must be clearly specified (to allow apples to apples comparisons).

#### FIXED PERFORMANCE SPECIFICATION (HC-EUI)

In this model, BHA specifies the maximum permitted heating and cooling EUI. To truly achieve net-zero-ready, this might be in the range of 10-15 kBtu/sf/yr. The challenge with this method is that very few (if any) developers are likely to provide a realistic proposal meeting such an aggressive requirement. As an interim step, a higher performance requirement could be used, which is gradually ratcheted downward for future developments.

**BID PERFORMANCE SPECIFICATION (HC-EUI)**

In the alternative model, developers are required to declare the maximum HC-EUI they will achieve; they are setting their own performance specification. This becomes another item used in the evaluation of developer proposals, so that developers committing to lower HC-EUIs (closer to 10-15 kBtu/sf/yr) are rated more favorably, but there is a trade-off with the incremental cost. The developer is then required to meet their HC-EUI target in their agreement with BHA. This model introduces additional risk for developers but introduces a competitive process that may minimize the trade-off between energy performance and cost.

**PERFORMANCE SPECIFICATION EVALUATION (HC-EUI)**

In either performance specification model, it is important for BHA to understand roughly what HC-EUI to expect for a given set of envelope criteria. Because the Green Communities Criteria 2008 mandate an energy efficiency verification according to EnergyStar standards, it is useful to use the referenced EnergyStar standards as guidelines for generating ballpark HC-EUI's. This required verification is reflected in a home efficiency rating— HERS Index—by meeting EnergyStar standards as established by the Residential Energy Services Network (RESNET). The HERS Index is calculated via energy analysis using a RESNET accredited software tool such as REM/Rate™. A comparative envelope study was performed using REM/Rate™ and the categories of envelopes defined below<sup>1</sup>:

- Envelope criteria that meet the point of diminishing returns in Massachusetts as discussed in the Old Colony Site Redevelopment (Phase 1) Charrette Minutes dated January 25th, 2010.
- Envelope criteria that meet the prescriptive measures defined in the International Energy Conservation Code 2006.
- Envelope criteria that surpass the prescriptive measures defined in the International Energy Conservation Code 2006.

<sup>1</sup>Note that the Green Communities Criteria 2008 indicates that Residential structures four stories or above must exceed ASHRAE 90.1-2004 by 15%. This was not addressed as the intent is to provide the design team a sense of relationship between performance and building specifications.

# I. SUSTAINABILITY

The HC-EUI's are summarized in the table below for the three categories of envelopes on both a 3-story building and a 4-story building. Both building models include a footprint of 7970 sf, floor-to-floor heights of 11 ft, 8 units per floor, and a conditioned basement. Default indoor energy usage per RESNET standards were assumed (775 kWh/hr Refrigerator load, 0.46 cycles/kWh Dishwasher energy factor, and 70.4 cfm/Watt Ceiling Fan load). Additional details pertaining to input assumptions are found in RESNET's Standards.

<b>Envelope Criteria</b>	<b>Meeting Point of Diminishing Returns in MA</b>	<b>Surpassing International Energy Conservation Code 2006</b>	<b>Meeting International Energy Conservation Code 2006</b>
Basement Walls	R-20	R-20	R-10
Floor	R-10	R-10	R-10 (Perim Only)
Above Grade Walls	R-40	R-30	R-19
Roof	R-60	R-60	R-38
Windows	U-0.3	U-0.32	U-0.35
Glass SHGC	0.45	0.45	0.45
Infiltration	3 ACH @ 50 Pa	5.15 ACH @ 50 Pa	5.15 ACH @ 50 Pa
<b>HC-EUI (kBtu/sf)</b>			
Heating+Cooling (3 Story Building)	11.2 kBtu/sf	16.9 kBtu/sf	19.5 kBtu/sf
Heating+Cooling (4 Story Building)	8.7 kBtu/sf	14.2 kBtu/sf	16.1 kBtu/sf

*Comparison of HC- EUIs for three and four story residential buildings*

HC-EUI's above reflect mechanical system assumptions as follows: 90% AFUE Boiler and 14 SEER A/C. Less efficient mechanical equipment can add roughly 2-3 kBtu/sf to the HC-EUI.

The exercise of calculating HC-EUI for a set of envelope criteria in REM/Rate™ can be a simple and effective method of HC-EUI demonstration on the part of the developer. If a bid performance specification is used, developers need not provide final HERS rating documents at the time of bid —the commitment to meet a specific HC-EUI and description of general approach are sufficient

for the purposes of performance specification evaluation. BHA can use the table above to assess whether a developer's stated approach to meeting their HCEUI bid is reasonable.

Finally, it should then be stressed that all developers use REM/Rate™ so that BHA can retain an apples-to-apples comparison. Prior to beginning of construction, the developer's detailed REM/Rate™ calculations should be submitted to BHA to confirm the specified (or bid) HC-EUI has been achieved.

### OTHER ENERGY END USES

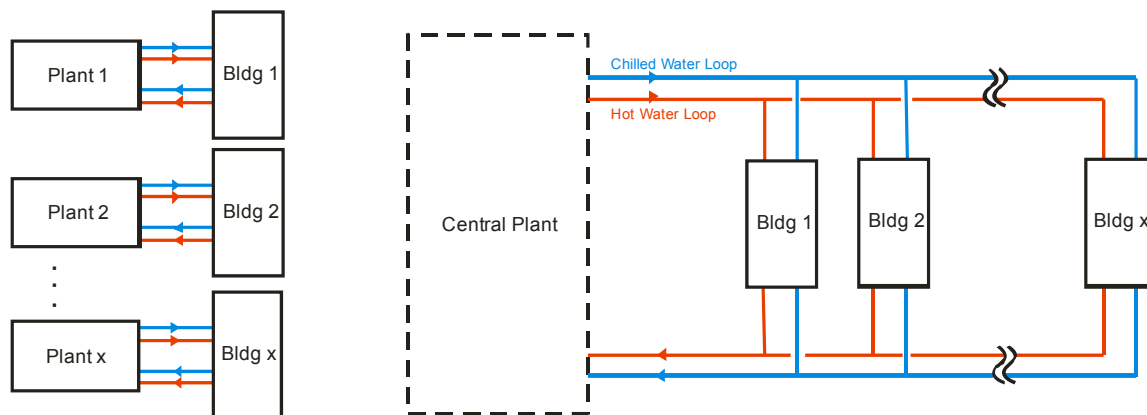
Other energy uses (lighting, plug loads, appliances, domestic hot water) are not as design-dependent and may more easily be reduced through prescriptive specification, for example, of BHA-standard lighting control strategies, appliance specifications, plumbing fixture specifications, etc. These construction standards must be combined with aggressive tenant programs in order to approach a net-zero-ready development.



## ADVANCED HEATING AND COOLING SYSTEMS

This section describes the centralized, advanced heating and cooling systems which might be implemented at a future development stage in order to reduce the energy required for production of hot and chilled water.

A **centralized plant** serving all buildings, rather than one plant serving each building or group of buildings, has various advantages. All components are localized which facilitate operations and maintenance, and area requirements are somewhat reduced. Since a completely centralized plant will warrant larger units, increased efficiency at part-load performance can help reduce energy use. Furthermore, modifying a distributed system to a completely centralized plant would facilitate future retrofits to lower-energy or renewable generation of hot and chilled water for the entire site.



*Comparison of distributed plant and central plant*

**Geothermal** boreholes provide heat exchange with the deep earth, which remains at a fairly constant temperature year-round. The boreholes are constructed by drilling a small (~8" diameter) borehole several hundred feet deep, sinking a U-loop of plastic tubing into the hole, and filling the remaining void with grout. Water (mixed with propylene glycol as antifreeze) is circulated through the tubing, thus picking up or rejecting heat to the earth

and returning at the relatively constant ground temperature (~55°F). The pictures below shows an example of the physical process of installing a geothermal borehole.

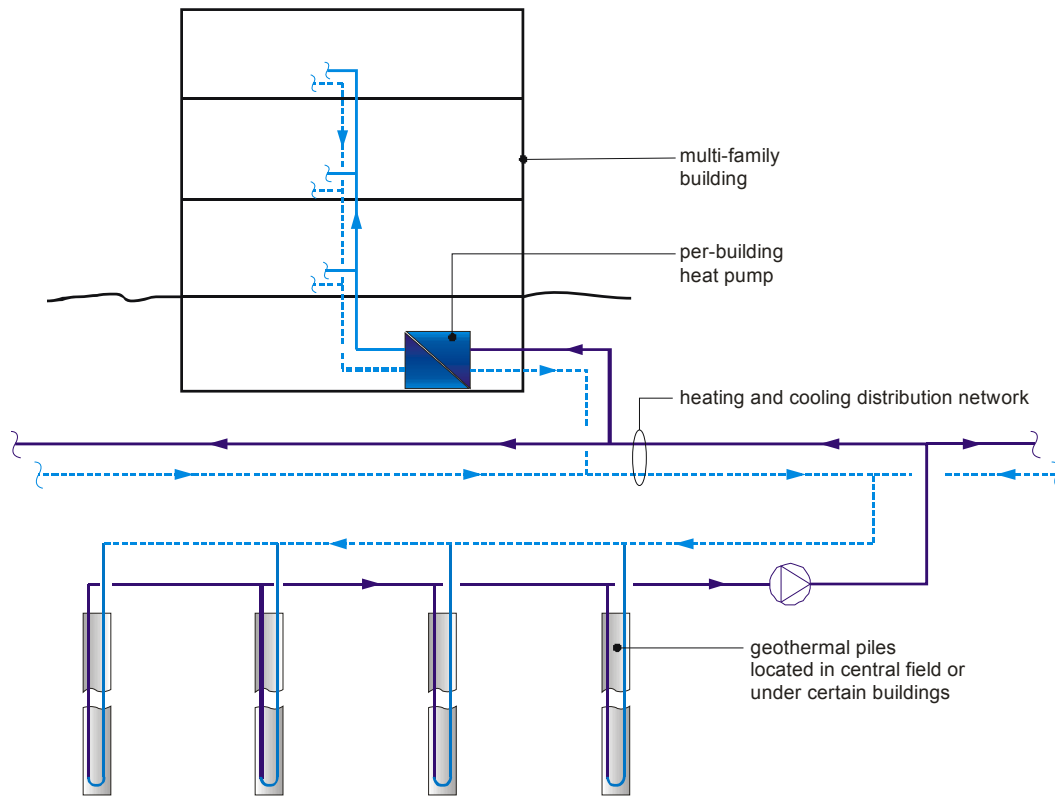


*Geothermal borehole installation*

The fluid which returns at moderate earth temperature may be connected to a heat pump which produces hot or chilled water for heating and cooling the building. Space should be set aside for the borehole field, unless it is planned in advance to be dug under buildings. The borehole field could be underneath a parking lot or even an alley. For most of the year, a heat pump provides much more efficient heating and cooling than can be achieved with a traditional chiller/cooling tower and boiler.

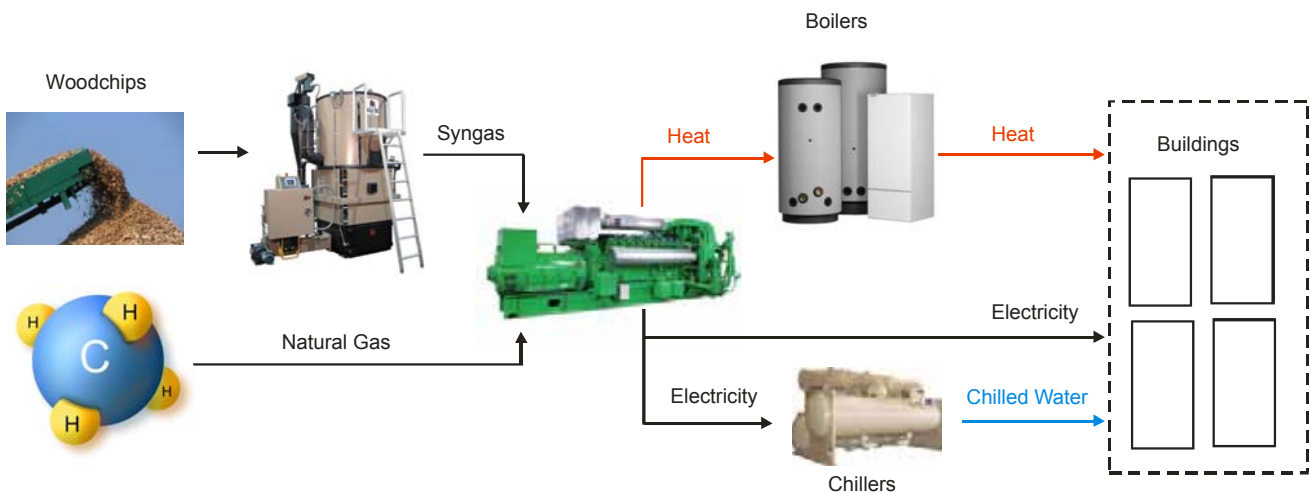
**Combined heat and electricity** generation (cogeneration) is much more efficient than stand-alone electrical generation, in which more than 60% of the available thermal energy is lost in exhaust stacks and cooling towers. Modern combined heat and power (CHP) systems make use of more than 80% of available thermal energy. A central system would provide the ability of loads to shift from one building to another as the demand shifts, without having to provide a separate system sized for each building. This results in an overall reduction of equipment size.

# I. SUSTAINABILITY



*Schematic of geothermal field*

Alternative fuel technologies may also be considered as part of a cogeneration system. The next logical step in moving toward sustainable energy systems is to fuel combined heat and power plants with renewable and carbon-neutral fuels. Biomass systems using fuels such as sustainably harvested wood are one step closer to being considered carbon-neutral.



Finally, a **seasonal solar heat collection and storage system** may be considered to provide space heating energy. Such a system takes advantage of the potential for renewable solar energy in Boston and will reduce the annual energy costs and CO<sub>2</sub> emissions associated with the development.

Use of solar energy to heat water for space heating is a simple and natural concept. However, in Boston, most of the available solar energy is in the summer, while the heating demand is in the winter. A seasonal thermal storage tank allows the sun's energy to be captured in the summer and saved for heating in the winter. This large, insulated tank is filled with water; during the summer, water is heated in solar thermal panels on building rooftops, and the hot water heats the water in the tank. In the winter, the hot tank water is used to heat water distributed in the heating supply network.



*Thermal storage tank under construction, Hamburg*

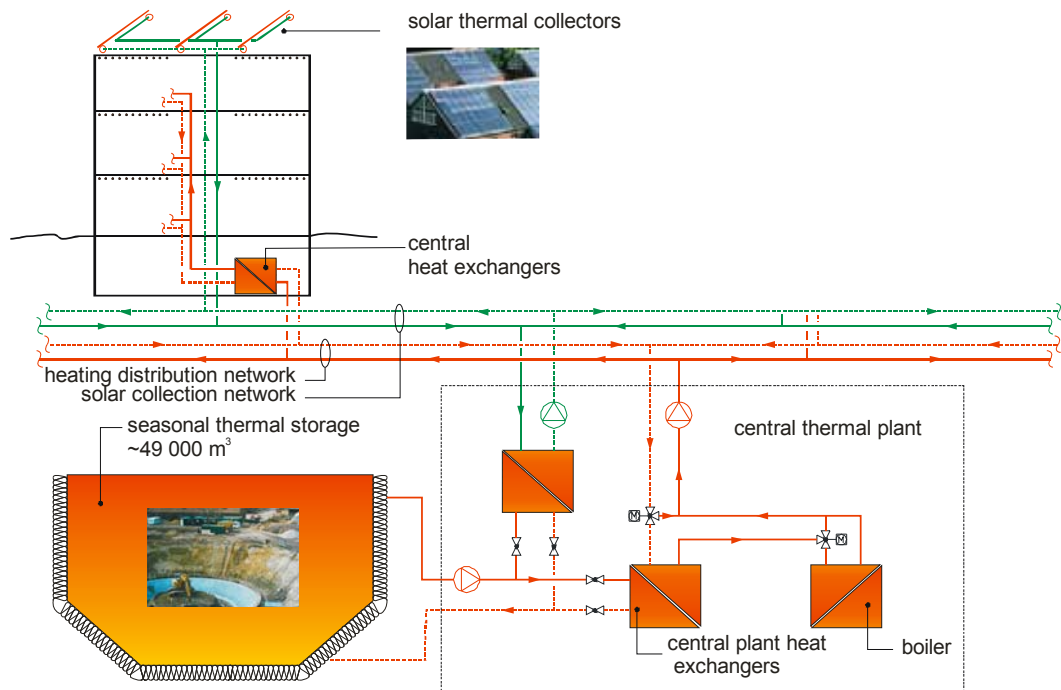




# I. SUSTAINABILITY

The system would be connected to a backup boiler heating system. If the thermal store is exhausted or cannot provide high enough temperatures, a boiler boosts the supply temperature to the necessary setpoint.

The heat capacity of the tank is dependent on the lowest temperature water that is still useful for heating – once the tank drops below this temperature, it is no longer useful until it is reheated. The relatively low temperatures used for radiant heating systems would maximize the heat storage capacity of the tank; if seasonal thermal storage may be installed in the future, radiant floor heating should be seriously considered.



*Schematic of thermal storage coupled with solar thermal collectors*

### INTRODUCTION

Research conducted for the existing conditions report found few shortages or gaps in services available to Old Colony residents in South Boston and on-site. Despite the availability of services, Old Colony residents do not take advantage of existing services, often because of a lack of knowledge and are, as a result, underserved. To effectively address this situation, the centerpiece of the proposed social services program for the redevelopment of Old Colony is a strong case management system.

Proposed programs and services respond to (1) identified gaps in service availability, (2) services that got the highest responses on the Resident Survey to the question “Please check each service that you or a member of your household could benefit from right now,” and (3) core programs and services that, for optimal utilization, would ideally be located on-site. The on-site community center planned for Old Colony will provide a permanent center where essential services can be brought closer to the Old Colony community. Additionally, there are a few services that are available in South Boston but do not have the capacity to meet the needs of Old Colony residents. This proposal advocates for expansion of these important programs.

### OLD COLONY COMMUNITY CENTER

The two-story, 10,000 square foot Community Center, located on Columbia Avenue and Mercer Street, will be built in the first phase of development and will be ready for occupancy in 2012. The first floor of the facility will include: a 1258 sq. ft. multipurpose room that can accommodate 100 people; a new 3000 sq. ft. space for the existing Old Colony Head Start program; and an 800+ sq. ft. central lobby with public restrooms and storage. The second story will include: a 750 sq. ft. Learning Center with fifteen computer stations; a 1000 sq. ft. flexible space for service programming; three offices with a shared conference room and storage; and men’s and women’s bathrooms. Services proposed for inclusion in the Old Colony Community Center would provide essential resources.



Head Start advertisement in Spanish

and programming to insure that Old Colony families are able to make considerable progress towards self-sufficiency and full participation in the South Boston community. To effectively weave Old Colony into the larger community, programming offered in the Center would be open to the larger South Boston community and critical South Boston providers would be invited to deliver some programming on-site.

### NEEDS ASSESSMENT AND FINDINGS

In order to determine the social service needs and interests of Old Colony residents, the Boston Housing Authority developed and administered a resident survey in February 2010. The survey, in both English and Spanish, was mailed to all 789 households with self-addressed stamped envelopes and was also made available at the Old Colony Master Plan resident meetings. During the meetings, translators were available to help residents understand and complete the survey. Of the 789 current households, 218 (28%) participated in the survey. Additional data was collected via a Relocation Survey conducted by the relocation team with every Phase One households in fall 2009, an Early Education Survey targeting all Phase Two households with children ages 0-5 in May 2010 (59% response rate) and a Phase Two Resident Survey conducted within preparation for the HOPE VI application in October 2010 (70% response rate).

The top barriers to increased self-sufficiency that emerge from the survey data are lack of income from employment (55% of respondents), lack of a high school credential (58% of responding heads of household) and lack of knowledge of existing supportive service resources (36%). The top service needs identified by residents are free meals or access to a food bank (26%), computer training programs (25%), exercise or nutrition programs (25%), job training/placement (24%), ESOL classes (19%), transportation programs (16%) and GED or literacy programs.

**Resident Characteristics.** Old Colony households tend to be small with more than 70% requiring a one or two bedroom. 42% of households are headed by an elderly or disabled person. The resident population is diverse with 39% of individuals identifying as Hispanic, 25% as Black Non-Hispanic, 19% as White Non-Hispanic, and 17% as Asian. More than 50% of the households have lived at the site for more than 5 years.

**Language.** More than half (59%) of Old Colony residents surveyed do not speak English as their primary language. While 47% responded that they would like ESL training for career advancement, survey results show only 11% of households have had a member enrolled in English language classes in the past two years.

**Income.** The average household income among Old Colony residents is \$15,757 and the median income is \$11,848. More than 80% of the households earn less than 30% of Area Median Income.

**Employment.** Less than half of residents are employed, and many of those who are employed are in low-paying positions. Survey results show that 19% of residents are currently looking either for work and 23% are looking for a better-paying job. Residents note that the most significant barriers to finding appropriate work are health problems (24%), language skills (23%), lack of job opportunities (22%), lack of professional training (17%), lack of a high school credential (17%) and mental health problems (16%).

**Economic Self-Sufficiency.** Per the survey, 42% of heads of household stated that their highest level of education is a high school diploma or GED, with another 58% having not achieved either of these. Residents would most like to see the following kinds of job training made available: computer training (50%), ESOL (47%), vocational training (43%), job readiness (41%), and GED/Adult Education (40%). Approximately 24% of residents indicated they could benefit from job training.

**Supportive Services.** Few Old Colony residents currently use supportive services. Access to free meals or a food bank is the service most frequently used in the past two years by most households (20%), according to the survey. Other services that residents note they have utilized are ESOL classes (11%), child care (11%), and GED or literacy classes (9%). For those residents that have not accessed social services, the main reasons were that they did not know the service was available (36%) or services were offered at inconvenient times (14%). Only 19% of survey respondents said that they had no trouble gaining access to services.

**Transportation.** About 70% of residents report that some of their work and social travel is done on transit, and 50% of residents state that it meets their needs. Additionally, 5% of residents bicycle, 17% get rides from family or friends, and 33% walk to work or social activities. About 45% of households own



## J. SOCIAL SERVICES

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a car, but only 37% state they generally use it to travel to work and social activities.

**Health.** Although 99% of survey respondents have health insurance coverage, Old Colony residents have significant unmet health needs. 53% indicated they need primary health services, 44% need dental, 30% need services to alleviate stress, anxiety and depression, 29% need nutrition and exercise programs and 26% need optical care. Plus 6% of respondents indicated a need for substance abuse treatment and 6% a need for domestic violence services.

**Children and Youth.** Children under age 18 make up 41% of the overall Old Colony population, and 50% of households include at least one child. Of the households with children ages 0-5, 23% currently use childcare provided by other than family members, 16% have family members caring for their children and another 5% need childcare but can't find it. Most households would like to see additional programs for young people, especially job training (45%), drug prevention programs (43%), after-school programs (41%), recreational or sports program (40%), performing arts programs (38%), youth mentoring programs (37%), and safe sex and birth control education (37%).

**Economic Development.** 36% of residents are interested in owning a home in the next five years. 15% would like to buy a home in their same neighborhood.

## CORNERSTONE PROGRAMS/SERVICES

### CASE MANAGEMENT

Intensive case management and a coordinated service referral program would be the nexus of the CSS program. This approach is critical for several reasons. Despite South Boston being a service-rich neighborhood, few Old Colony residents are connected to and receive needed services. In the Resident

Survey, lack of knowledge of existing supportive services resources was the reason cited most often (36%) by respondents for not utilizing services.

The South Boston Association of Non-profits, generally, and its Underserved Population Committee, specifically, should be a valuable partner in the effort to better connect Old Colony residents to existing resources. The Association is concerned about the underutilization of services by public housing residents and would undoubtedly welcome a close working relationship with Old Colony case management staff

### EDUCATION AND OTHER YOUTH SERVICES

Strengthening educational opportunities and outcomes for Old Colony children and youth is at the very center of the BHA's CSS Program. The program is intended to move beyond traditional case management by building a continuum of educational support from birth through college or vocational training. Case managers will engage and empower parents and guardians to become strong educational advocates for their children and help them successfully navigate three critical periods/transitions in their children's educational lives- preschool and kindergarten, middle school, and the end of high school. Case managers will work with parents and guardians on (1) enrolling their children in high-quality, early education programs and then navigating the kindergarten lottery process, (2) fostering ongoing communication and engagement with the Boston Public Schools to maximize their children's learning and school success, and (3) helping high school juniors and seniors apply to college or develop a concrete, specific plan for a career.

### EARLY EDUCATION PROGRAMS

The BHA has signed a Memorandum of Agreement (MOA) with Action for Boston Community Development (ABCD), Boston's Head Start and Early Head Start provider, which operates early education programming at Old Colony and at three other locations in South Boston, as well as at 20 other sites within

Boston. ABCD currently enrolls a total of 2,268 children in its Boston Head Start programs and an additional 186 infants and toddlers in Early Head Start. All four Head Start program sites in South Boston are accredited by the National Association for the Education of Young Children (NAEYC). ABCD currently operates two Head Start classrooms at Old Colony, serving 38 children, and it has an additional seven classrooms at its three other South Boston locations. All nine of these classrooms serve preschool-age children only; none offer Early Head Start slots for infants and toddlers but ABCD has been pursuing Early Head Start expansion for the underserved infant-toddler population. ABCD intends to relocate and expand its existing Old Colony program into space in the new Old Colony Phase One community center, ideally creating eight new slots of infant-toddler care as well as two new preschool slots for a total of 48 slots.

In addition to ABCD and its four South Boston sites, there are other high-quality early childhood education programs nearby, and they will be needed too in order to address the needs of the Old Colony community. For example, the Labouré Center has a NAEYC-accredited Early Childhood Services program that includes infant/toddler, transition and pre-school classrooms. The South Boston Neighborhood House has an early education and care program for preschool age children, also NAEYC accredited. And Julie's Family Learning Program offers a program for infants and toddlers, as well as a Montessori accredited preschool program for the children of mothers enrolled in other Julie's programs. These organizations are all members of the SBANP and are located conveniently nearby.

### AFTER-SCHOOL & SUMMER PROGRAMS

41% of respondents to the Old Colony Resident Survey would like to see after school programs available in the community; yet only 14% responded that their school-age children currently participate in after school programs. A factor in this discrepancy appears to be the lack of transportation from program to home. On-site after school and summer programming would remedy

this situation and help insure children are able to engage in a range of enrichment programs. Ideally, programming would focus on activities and resources that may not be available at home, including academic enrichment, homework assistance, access to computers to complete homework assignments, civic engagement projects, life skills development, recreational activities, nutrition education, field trips to area museums and historic sites, etc.

The Boys & Girls Club, clearly the program currently most utilized by Old Colony residents, offers an impressive array of programs with low or no fees at its current site, including considerable programming for teenagers. Relocation survey data for residents living in Phase I show that one in three school-age children are enrolled in after school programming. Of those, roughly a third are enrolled at the South Boston Boys & Girls Club. The Boys & Girls Club is committed to working with the case management team to dramatically expand Old Colony youth enrollment and participation. In addition, BHA and the Phase One Developer are working closely with South Boston Boys & Girls Club to explore opportunities for on-site programming in the new Community Center.

As part of the Old Colony Phase Two HOPE VI application planning, BHA received commitments from numerous local organizations to provide after school and summer educational opportunities for Old Colony youth including BELL Foundation, The Paraclete Foundation, The Steppingstone Foundation, Citizen Schools, Tenacity and Thompson Island Outward Bound. Case management staff will work with the Underserved Population Committee of the South Association of Non-profits to develop a strategy to more fully engage Old Colony teens with the wide array of after school programming and sports activities available in the community. Notably, there are a host of sports teams with little participation by public housing residents.



Computer Learning Center: A computer learning center is an important resource for computer and Internet access and should be included in the Old Colony redevelopment. Though only 8% of respondents to the Old Colony Resident Survey stated they or a member of their household had been involved in a computer training program in the past two years, 50% of respondents stated they would like to see computer training available in the community and 25% stated they or a member of their household could benefit from computer training right now. Public computers could be used by the residents for completion of homework assignments, instruction in computer applications, job search and on-line applications, and recreation. Ideally the lab would be located close to the library as complementary educational facilities. Alternately, if the library closes, some basic library functions and a small lending library could be incorporated into the center.

### POST-SECONDARY EDUCATION AND TRAINING

The Boston Private Industry Council (PIC)- Boston's Workforce Investment Board (WIB)- is committed to serving Old Colony residents through its three One Stop Career Centers which provides both group and individual job search assistance. PIC also employs Career Specialists stationed in every BPS high school as well as certain alternative programs who can provide workshops, individual counseling and job search assistance to Old Colony BPS students. Additionally, the Education Resource Institute, Inc. (TERI) is committed to offering workshops and individual counseling to Old Colony students and adults on planning and paying for college. They seek to reach underserved individuals who are often the first generation in their families to go to college and help raise the aspirations of youth and adults to include postsecondary education in their life plans. And finally, BHA is also pursuing commitments from training organizations such as Youth Build Boston and Year Up which help young adults acquire the professional and technical skills necessary to provide a viable path to self-sufficiency.

### BOSTON PUBLIC LIBRARY BRANCH

The Washington Village Branch of the Boston Public Library (BPL) has been one of the most utilized resources on site. It has been reported that an average of 30 children per day come to the library and roughly 200 children participate in the summer reading program. Most of the users have been children, who must rely on an adult or older sibling to access the South Boston branch library on East Broadway. City budgets cuts have resulted in the scheduled closure of the library in September 2010, but there is a current effort to secure future funding. Ideally library-related services, whether provided by BPL or another organization, will continue to be offered on-site. This could include some reference books for general learning and job development and a small lending library of children's books. Literacy programs, tutoring, help with homework, story hours, a summer reading program, and coordination with the ReadBoston's Storymobile would all be valuable resources for the community.

### RETAIN EXISTING ON-SITE RESOURCES

#### BOSTON CHILDREN'S MUSEUM GO-KIDS PROGRAM

25% of respondents to the Old Colony Resident Survey stated that a member of the household could benefit from an exercise or nutrition program now. The Go-Kids program has been working with Boston Housing Authority family developments to bring creative ways of looking at health and fitness to children and families in the places they live. Teen Ambassadors collaborate with residents to develop on-site activities for children and resources for adults.

#### BROWNIES

Currently, there is a Brownie troop on-site. Both the Girls and Boy Scouts of America have expressed interest in providing programming on site. This could provide an inexpensive way to expand accessible program offerings for youth.

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### GREATER BOSTON FOOD BANK

Food bank/free meals was the service most frequently identified in the Old Colony Resident Survey as used in the past two years (20%) or could be beneficial now (26%). Historically, the Food Bank has been periodically dropping off surplus food when they have it. Residents value this and would like to see it continue. The food is distributed immediately so there are no storage requirements.

### JUNIOR TASK FORCE

The Junior Task Force has been in existence for some time. It provides a valuable avenue for teens to become positively involved in their community and to gain leadership skills.

### KIT CARSON SENIOR SERVICES

As noted above, residents identified free meals as an important need so it seems valuable to maintain this service which provides hot lunch on-site once a week.

### PERKINS SCHOOL

This Boston Public Elementary School is located in the middle of the development. There are currently 66 Old Colony children attending the school. The master plan process has prompted an active collaboration between the BHA, the Phase One Developer and the Perkins School. The redevelopment process should endeavor to strengthen and sustain the school and its community. The Community Center has been designed to allow for Perkins School assemblies and other programming. The redevelopment has been integrated into the school curriculum through site tours, a student blog, and regular visits by the construction team to the classrooms. Finally, the master plan is flexible enough to allow for school expansion if feasible over time.

### UMASS/BOSTON SCHOOL OF NURSING AND HEALTH SCIENCES

Because seniors may have limited mobility, it seems important to

maintain, perhaps even expand, services for this age group that can be brought on-site and will be utilized. The offerings include health education games with seniors.

### AGENCIES COME TO OLD COLONY

To the extent it is possible, space could be made available on a part-time, hourly basis to community organizations that are interested in providing some services on-site. Priority should be given to those services identified as critical for Old Colony residents.

### RESOURCES TO BE DEVELOPED ON-SITE

#### ESOL

Fewer than half (44%) of Old Colony Phase Two residents speak English as their primary language, yet the ability to read, write, and understand English is essential in obtaining employment and becoming self-sufficient. In addition, the inability to carry on even a simple conversation in English insures the insulation of that individual from the wider community. Throughout the City of Boston, ESOL programs have long wait lists. This is particularly true for the introductory language classes where it is a challenge to teach students who have different native languages. To the extent possible, BHA will utilize partnerships with JFY Networks, SBANP-member Notre Dame Education Center and the Association of Haitian Women to help address this need. "Distance learning" for ESOL (utilizing computers & specialized software) is most effective when some kind of on-site support is provided. A casual series of social activities, utilizing very basic conversation English, could be an effective way to engage adult English learners and might be a good substitute to the more formal classes. This could include bingo games, volunteer projects such as putting together a mailing, cooking classes, teaching each other how to knit or crochet, a community walk or exercise class, etc.



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### ADULT EDUCATION

Old Colony residents' low educational achievement levels hamper them in a local economy where they are competing with a highly-educated applicant pool. To assist residents without a high-school diploma or GED, BHA will look to partner with Action for Boston Community Development, X-Cel Adult Education, JYF Networks and SBANP-member, Notre Dame Education Center, Inc.

### COMPUTER TRAINING

Most jobs today require at least basic computer skills, especially for jobs at the higher income levels that residents will need to attain self-sufficiency. A Learning Center with fifteen computer works stations is planned for the Community Center to be constructed in Phase One. A comprehensive training program and staff supervision of this space will be key to ensuring this resource is well utilized and as successful as the other computer learning centers created at BHA's HOPE VI redevelopment sites.

### JOB SKILLS TRAINING

If residents are to achieve self-sufficiency, they must have opportunities to increase their skill level and their income. In addition to working closely with the SBANP's Underserved Committee to ensure Old Colony residents take advantage of job training programs offered by South Boston providers, BHA will also work with key city-wide providers such as Boston's Private Industry Council (PIC), the Mayor's Office of Jobs and Community Services (JCS), Action for Boston Community Development (ABCD), Asian American Civic Association, and JFY Networks in this endeavor. Case management staff will be critical in ensuring that all residents with job training needs are placed in an appropriate program and that they are following through with their training obligations to reach successful completion.

### EMPLOYMENT

On-site staff to provide broad assistance with employment seems the only way to effectively increase the number of people

employed. What is lacking is a program, individual or mechanism to prepare residents for employment – job readiness, resume development, job search, on-line application, interviewing, etc. The Computer Learning Center would be a good site for many of these activities, but only if staff is available to assist residents with the process. It would be useful to develop a relationship with the relevant health care facilities in the area because many Old Colony residents are employed in this sector as home health aides or Certified Nursing Assistants. This effort could focus on extended care facilities and home health agencies.

### FINANCIAL LITERACY

Financial literacy is most attractive to the population when woven into a more appealing program. A possible approach for Old Colony residents would be to develop a financial literacy class with the focus of encouraging people to set up savings accounts to save for education or home ownership, calling it something like “Financial Tools for Making Your Dreams Come True.” If Old Colony residents have not already received much information on the earned income disregard provision of the Quality Housing and Work Responsibility Act of 1998, this could be promoted as an opportunity to begin such a savings account.

### GROUP ADULT FOSTER CARE

GAFC is intended to insure that people are able to age in place. The program is open to those 60 years of age or older, or 22 years or older and chronically disabled, who are eligible for MassHealth Standard, live in public or subsidized housing, and need daily assistance with one or more personal care tasks. Benefits include an individual care plan developed by a registered nurse and case manager, ongoing monitoring of needs, personal care services at home, up to one hour of services each day, and medication management. It may be that there are elderly or disabled Old Colony residents who are already receiving services through one of the agencies that provide GAFC. There are a number of area providers and they are generally looking for more clients, so it would be relatively easy to initiate or expand such an offering.

### HEALTH PROGRAMS

Although 99% of residents surveyed had health insurance, Old Colony residents have significant unmet health needs. Two key partners regarding health issues will be the Boston Public Health Commission and the South Boston Community Health Center. These organizations offer a range of health services including education and treatment related to smoking cessation, drug and alcohol prevention and intervention, asthma, diabetes, flu clinics, WIC services and pediatric dental to name a few.

Extending beyond the proposed health programs, BHA aims to promote wellness and improve resident health through every facet of the redevelopment, including the design of the housing and the materials used, the creation of open space within the site and improved access to nearby parks, and the decision to make the redeveloped housing no-smoking communities.

Services for exercise and nutrition were specifically requested by residents in the survey. Case managers could help interested residents connect to existing exercise and nutrition programs. Both the SNAP Food Stamp and WIC programs provide nutritional information and consultations to eligible families. The Condon Community Center and the Curley Community Recreation Center offer a range of exercise programs and opportunities. The Boston Children's Museum Go-Kids program has been brought on-site and provides health and fitness education for children and families. The South Boston Community Health Center offers pediatric exercise classes. In the past the Boston Public Health Commission has funded walking groups in many Boston communities, including Old Colony.

### FOOD PROGRAMS

In the responses to the survey of Old Colony residents, the service that got the highest response to the question "Please check each service that you or a member of your household could benefit from right now" was food bank/free meals. Case managers should work with families to identify which resources they are eligible for and best fit their needs.

Resources that enable eligible families to increase or stretch their food budgets and access fresh, local farm produce include the SNAP Food Stamp Program, Boston Bounty Bucks in which food stamps recipients can receive \$20 in vouchers by spending \$10 worth of food stamps at the local farmers' market, the WIC Program and the WIC Farmers' Market Nutrition Program benefit, Serve New England Food Coop, and the Dollar-a-Bag surplus food distribution program run by Fair Foods, Inc. There are four emergency food pantries in South Boston and the Project Bread hotline maintains a current list of both food pantries and free meal sites. The Brown Bag program gives a free bag of food each month to low-income seniors. The Summer Food Service program provides free meals for children during summer vacation. For seniors, Meals on Wheels & Dining Centers provide free meals.

Case managers should work with families to identify which resources they are eligible for and best fit their needs. There are resources that enable eligible families to increase or stretch their food budgets and access fresh, local farm produce.

### SNAP FOOD STAMPS

Eligibility can now be determined on-line. Case managers can encourage and assist eligible families through the application process. Historically this has been a very underutilized benefit, in part because of the onerous application process, but recent changes have streamlined this and increased utilization.

### BOSTON BOUNTY BUCKS

Farmers Market shoppers are able to swipe their benefit cards on portable credit card readers at the market to receive up to \$20 in vouchers by spending \$10 worth of food stamps. The South Boston Health Center manages the local Farmers' Market.

### WIC PROGRAM

The WIC Program provides supplemental foods, health care referrals and nutrition education at no cost to low-income



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pregnant, breastfeeding and non-breastfeeding post-partum women, and to infants and children up to 5 years of age, who are found to be at nutritional risk. The South Boston Health Center also manages the local WIC program. The WIC Farmers' Market Nutrition Program provides fresh, unprepared, locally grown fruits and vegetables to WIC participants. Again, WIC is an underutilized benefit.

### SERVE NEW ENGLAND

People who volunteer at least two hours a month can order low-cost food through Serve New England's food co-op. Serve New England has three chapters in Dorchester. If there were sufficient interest, Old Colony could become a new site.

### DOLLAR-A-BAG

The Dollar-a-Bag program is a surplus food distribution program run by Fair Foods, Inc., a non-profit community action organization based in Dorchester, MA. The Dollar-a-Bag program distributes fresh fruits and vegetables and other food items. In 2009 the cost increased to \$2/bag.

Additional resources include:

- 4 emergency food pantries in South Boston;
- The Project Bread FoodSource Hotline;
- The Summer Food Service Program ;
- Meals on Wheels; and
- The Brown Bag

### FINANCING PLAN

To be successful, the Old Colony master plan must keep design goals and overall project feasibility in balance. Doing so requires making strategic decisions about infrastructure, site work, building typologies and unit counts. To guide its decision-making process, the master planning team did an economic feasibility analysis, modeling likely funding sources and project costs (sources and uses).

### USES

The team built its analysis around the following per square foot construction cost assumptions for the two main building typologies proposed in the master plan.

- For the townhouses, assumed to be 2- to 3-story wood-frame buildings, the team estimated construction costs for Phase II at \$175 per square foot.
- For the masonry buildings, assumed to be 4-story structures, either steel frame or “block-and-plank” construction, an estimate of \$200 per square foot was used.

Starting with these basic construction cost figures, the master planning team added a construction contingency as well as hard cost allowances for various things specific to the Old Colony project: demolition (using figures based on the BHA’s specific demolition cost experience), soil remediation, site work, and new streets and utilities where appropriate. In addition, the team added a premium of \$15,000 per unit (roughly \$15 per square foot) for the sustainable design elements described earlier, in line with the team’s commitment to sustainable redevelopment and deep energy efficiency. This premium is based on a preliminary pricing analysis of the Phase I development.

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Finally, the team made estimates of the project's soft costs, including architectural / engineering, survey, geo-technical and geo-environmental, legal, financing and interest costs, based specifically on past and current mixed-finance HOPE VI project costs. A contingency was also included for these soft costs.

Overall, these assumptions yielded total project costs for Phase II of \$475,000-\$495,000 per unit, and approximately \$375 million for the entire Old Colony build-out. Affordable housing projects such as this one typically carry an extra cost burden (compared with unsubsidized housing) associated with the need to achieve multiple public policy objectives, including inclusion of sustainable design and materials, accommodation of existing residents, and creation of community spaces. This is true for Old Colony. However, the estimated costs for Old Colony are wholly consistent with other similar projects developed by both for-profit and non-profit entities, once one adjusts for project differences in unit mix, unit size, relocation requirements, community amenities, the need for demolition and environmental remediation, required reserve levels, etc. While it may be possible to reduce these projected costs somewhat if necessary, such savings are likely to be small, given the multiple goals and policy objectives the team aims to achieve, as well as the requirements of the HOPE VI program and other funding sources.

## SOURCES

In order to cover the development's projected costs and to achieve the levels of leverage required by the HOPE VI and other funding programs, the planning team will need to secure funds not just from HOPE VI but from a wide range of other sources, including the full spectrum of City and Commonwealth affordable housing programs:

- Community Development Block Grant (CDBG) / HOME programs (City of Boston);
- Neighborhood Housing Trust Fund (City);
- Capital funding for new streets and sidewalks (City);
- HOME program (Commonwealth of Massachusetts);
- Affordable Housing Trust funds (Commonwealth);
- Federal 4% and 9% Low Income Housing Tax Credit allocations (Commonwealth); and
- State 4% and 9% Low Income Housing Tax Credit allocations (Commonwealth).

The planning team estimated how much the project could likely secure from each of these programs for Phase II, based on the timing of funding rounds, as well as program guidelines about per unit and overall funding limits.

It is important to note that allocations of Low Income Housing Tax Credits, a major resource for affordable housing projects like this one, are currently yielding lower amounts of equity for projects than they typically have in the past, since the market for these credits is currently down, along with the economy as a whole. If the tax credit market improves, as expected, the project's financing should be able to reflect greater reliance on them. A related note is that because of the slow market for tax



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credits as well as the overall project size, the planning team has included State Low Income Housing Tax Credits, a relatively new resource, in the Old Colony budget projections. The project will likely need a significant share of the Commonwealth's total projected allocations in each round in order to be financially feasible. Without these credits, or a comparable source, the project could be a challenge to fund.

### PHASE II

After analyzing the assumptions described above about likely costs and available resources, the team concluded that a second phase of approximately 169 new units was financially feasible. The team assumed that this second phase would follow the general parameters outlined earlier in the master plan, in terms of geographic boundaries and street reconfigurations, with units located in two multi-family masonry buildings, and the remaining units in single and two-family townhouses. Unless future phases include significant additional infrastructure or different unit types and mix, this projected unit count should provide a basis for calculating the unit counts for future phases of the plan.

Securing the array of resources necessary to complete such a large project is challenging, and the financing structure which works today may be less feasible for future phases. Going forward from Phase II, the team may choose to consider ways either to reduce costs or to attract other resources. For instance, the team could explore the possibility of preserving and recycling existing building shells or creating some mixed-income housing, each of which might open up additional funding possibilities.