APPENDIX B

SOCIOECONOMIC CONDITIONS

APPENDIX B.1

SOCIOECONOMIC CONDITIONS BACKUP

A. TABLES REFERENCED IN CHAPTER 4

Table B.1-1
Direct Business and Institutional Displacement[1]

Block	Lot	Business Name	Estimated Employment[2]	Sub-district	Build Year	NAICS Economic Sector
1996	61	100% Brushless Car Wash & Gas Station	5	A	2015	Retail Trade
1996	29	3225 Broadway Service Station	6	A	2015	Retail Trade
1997	34	3251 Broadway Auto Center/German Parking	19	A	2015	Other Services
1995	35	612 West 129th St. Gas station	4	A	2015	Retail Trade
1997	64	Alpine Beef	4	A	2015	Wholesale Trade
1998	3	Ace Packing	3	A	2015	Wholesale Trade
1997	56	Andrea Claire	20[3]	A	2015	Arts, Entertainment, and Recreation
1997	61	Arc Athletics	2	A	2015	Arts, Entertainment, and Recreation
1997	34	Architectural Antiques (aka Steven Stollman)	1	A	2015	Transportation and Warehousing
1986	65	Artel Design	1	A	2015	Arts, Entertainment, and Recreation
1998	24,26	Ashland Chemical	17	A	2015	Wholesale Trade
1986	65	AT&T Wireless	0	A	2015	Information
1997	34	Big City Autoparts	7	A	2015	Retail Trade
1987	7	Body Pro Body Shop	4	A	2015	Other Services
1986	65	Broadway Video	4	A	2015	Information
1986	65	Cingular Interactive	0	A	2015	Information
1996	1	Cotton Club	20	A	2030	Accommodation and Food Services
1986	65	Daphne Studio (no Daphne Fashion)	6	A	2015	Manufacturing
1997	56	Deborah Bradley Construction & Management Services	12	A	2015	Construction
1997	30	Despatch Moving and Storage Co.	36	A	2015	Transportation and Warehousing
1997	61	Dinosaur Bar-B-Que	35	A	2015	Accommodation and Food Services
1987	1	El Mundo Department Store (El Mundo Kids)	83	A	2030	Retail Trade
1995	31	Eritrean Community Center	0	A	2015	Other Services
1996	20	Fearless Lee	18	A	2015	Other Services
1996	23	GMC Parking	4	A	2015	Other Services
1999	36	Hamilton Pharmacy	4	A	2030	Retail Trade
1996	34	Hudson North American	37	A	2015	Transportation and Warehousing
1997	48	Iglesia de Dios Pentecostal (Pentecostal Church of God, International Movement)	3	A	2015	Other Services
1997	29	Iglesia el Encuentro Con Dios (Meeting With God Pentecostal Church, Inc)	6	A	2015	Other Services
1996	20	Jennifer Nuss	1	A	2015	Arts, Entertainment, and Recreation
1999	36	Josh's Place Catering	12	A	2030	Accommodation and Food Services
1997	34	JV Auto Repair aka Javier Auto Repair	5	A	2015	Other Services
1995	31	Katz Brothers Paint Corp.	6	A	2015	Other Services
1986	65	LA Mode Upholstery Co.	3	A	2015	Other Services
1996	18	Liberty Auto Body	3	A	2015	Other Services
1997	61	LifeTV	10	A	2015	Information

Table B.1-1 (cont'd)
Direct Business and Institutional Displacement[1]

Block	Lot	Business Name	Estimated Employment[2]	Sub-district	Build Year	NAICS Economic Sector
1997	52	Los Compadres Auto Repair	9	A	2015	Other Services
1997	9	Mamais Contracting Corporation	60	A	2015	Construction
1986	10	Manhattan Wheel Alignment/GM Auto Repair	6	A	2015	Other Services
1995	31	Mi Floridita Restaurant and Bakery	27	A	2015	Accommodation and Food Services
1986	1	Mobil Gas station aka 3260 Service Station	4	A	2015	Retail Trade
1997	61	Moxnet	5	A	2015	Information
1996	16, 18	MTP 3300 Broadway Corporation (Parking)	2	A	2015	Other Services
1998	13	MTP 3300 Broadway Corporation (Parking)	2	A	2015	Other Services
1998	61	New 2000 Auto Electric	3	A	2015	Other Services
1996	36	New Millennium Auto Repair	2	A	2015	Other Services
1987	9	Night Towing Service	2	A	2015	Other Services
1986	65	Optical Imaging	1	A	2015	Professional, Scientific, and Technical Services
1997	34	Padilla Auto Repair	2	A	2015	Other Services
1986	65	Pathways to Housing	11	A	2015	Health Care and Social Assistance
1997	40	Pearlgreen Corporation	38	A	2015	Wholesale Trade
1997	55	Pedro y Jorge Body Shop	2	A	2015	Other Services
1986	65	Peggy Moorman/Quaytman	1	A	2015	Arts, Entertainment, and Recreation
1997	1	Pepito's Auto Repair	10	A	2015	Other Services
1997	61	Peter Gluck and Partners/ARCS	40	A	2015	Professional, Scientific, and Technical Services
1997	49	Pizzo Brothers	53	A	2015	Construction
1987	7	Prestige Transmission	7	A	2015	Other Services
1996	16	Publishers Circulation	8	A	2015	Wholesale Trade
1987	7	Rico Auto Repairs	13	A	2015	Other Services
1996	20	Strands of Hair/Gerard Dure Salon	2	A	2015	Other Services
1996	20	Thomas White	1	A	2015	Arts, Entertainment, and Recreation
1999	36	T-Mobile USA, Inc.	0	A	2030	Information
1997	61	Triple Threat TV	6	A	2015	Information
1996	56	Tuck it Away	6	A	2015	Transportation and Warehousing
1997	44	Tuck it Away	6	A	2015	Transportation and Warehousing
1998	29	Tuck it Away	13	A	2015	Transportation and Warehousing
1986	30	U-Haul Co.	8	A	2015	Real Estate and Rental Leasing
1987	9	Unique Auto Diagnostics	3	A	2015	Other Services
1987	7	Used Clothing Store	1	A	2015	Retail Trade
1998	6, 10	Verizon New York	34	A	2015	Information
1998	57, 61	Verizon New York	3	A	2015	Information
1997	34	Victoriano Auto Repair	5	A	2015	Other Services
1986	65	Wilkinson & Associates	1	A	2015	Arts, Entertainment, and Recreation
1987	1 & 7	Y & H Garages aka Y & H Enterprises	2	A	2015	Other Services
1997	33	Yobanis Auto Repair	2	A	2015	Other Services

Table B.1-1 (cont'd)
Direct Business and Institutional Displacement[1]

Block	Lot	Business Name	Estimated Employment[2]	Sub-district	Build Year	NAICS Economic Sector
2004	12	125th St. Tire Corp.	4	B	2015	Other Services
2004	12	Admiral Electric Corp	16	B	2015	Construction
2005	12	Hudson River Café	12	B	2015	Accommodation and Food Services
2004	8	MTP 3300 Broadway Corporation (Parking)	1	B	2015	Other Services
2005	32	Tommy Hilfiger	1	B	2015	Wholesale Trade
1988	1	Tuck it Away	5	B	2015	Transportation and Warehousing
2004	8	Westside Stone and Marble	9	B	2015	Construction
1988	1	C-Town	22	O	2015	Retail Trade
1988	1	Danny's Beauty Salon	4	O	2015	Other Services
1988	1	Marena Unisex	4	O	2015	Other Services

Note: [1] Direct business and institutional displacement is defined by the *CEQR Technical Manual* as the involuntary displacement of businesses or institutions from the site of a proposed action. Columbia University has been purchasing property to facilitate the assemblage of the project site for development. Owners who operated businesses on their property and decided to sell their properties to the University are not defined as directly displaced by the Proposed Actions under CEQR because they voluntarily sold their properties. Similarly, commercial tenants who have vacated their space pursuant to an agreement with the University are not defined as directly displaced. The businesses and institutions that have vacated space now owned by Columbia University are discussed in Appendix C, "Recent Trends." Businesses and institutions that are new to the Project Area (i.e., since 2000) and that have signed short-term leases with Columbia University also are not considered directly displaced because they entered a voluntary lease agreement with the University, knowing that they would eventually be displaced.

[2.] For businesses and institutions that provided an unspecified range for their number of employees in response to AKRF interviews and letters, the midpoint of that range was used for "Estimated Employment." Hudson North American provided a range of 23—50 employees, and 3225 Broadway Service Station provided a range of 5–7 employees.

[3.] Approximately 20 artists maintain a presence at 638 West 131st Street, where they share studio space on two floors of the building.

Sources: Claritas, Inc., Appleseed, Inc., Dunn & Bradstreet Selectory Database, Columbia University, and AKRF, Inc.

Table B.1-2
Retail Survey, Broadway
Between West 123rd and West 138th Streets

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**17**	**16.5%**	**CONVENIENCE GOODS**	**27**	**26.2%**
General Merchandise Stores	**2**	**1.9%**	**Food Stores**	**19**	**18.4%**
Department stores, conventional national chains			Grocery stores, delis, bodegas	8	
Department stores, discount national chains			Supermarkets	4	
Miscellaneous general merchandise stores	2		Meat and fish markets	2	
Apparel and Accessory Stores	**4**	**3.9%**	Retail bakeries	1	
Men's and boy's clothing	1		Fruit and vegetable markets	1	
Women's and girl's clothing	1		Candy, nut, and confectionary	1	
Family clothing			Miscellaneous/specialty foods (health food)	2	
Children's clothing			**Miscellaneous Convenience Goods**	**8**	**7.8%**
Shoes	2		Drug and proprietary stores	5	
Other apparel and accessories			Liquor stores	2	
Furniture, Home Furnishings, and Equipment Stores	**3**	**2.9%**	Florists		
Furniture stores	1		Cigar stores and stands		
Floor covering stores			News dealers and newsstands	1	
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores			Photocopy stores		
Household appliance stores			Photo developing		
Audio and video electronics (beepers, cell phones)	2		Other miscellaneous convenience goods		
Records and musical instruments			**EATING AND DRINKING PLACES**	**21**	**20.4%**
Computer			Restaurants/Luncheonettes	8	
Miscellaneous Shopping Goods Stores	**8**	**7.8%**	Refreshments/"Fast-food" places	12	
Sporting goods and bicycle			Other eating places—caterers, catering halls		
Books			Drinking places (alcohol)	1	
Stationary/Office Supply	1		**NEIGHBORHOOD SERVICES**	**21**	**20.4%**
Jewelry	2		Video rentals		
Hobby, toy, and games			Banks	1	
Camera and photographic supplies	1		Cleaners and tailors	4	
Gifts, novelties, and souvenirs			Hair and nail care	5	
Luggage and leather goods			Laundry	2	
Sewing, needlework, and piece goods			Travel agencies	1	
Religious articles			TV/Audio/Appliance repair		
Optical goods			Shoe repair		
Used merchandise			Medical offices	1	
Other misc. shopping goods	3		Other professional offices	1	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**1**	**1.0%**	Home improvement services	1	
Paint, glass, and wallpaper			Funeral services		
Hardware	1		Health/Fitness club		
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy		
AUTO-RELATED TRADE	**5**	**4.9%**	Pawn shop		
Motor vehicle dealers			Paid parking		
Auto supplies	2		Other neighborhood services	5	
Gasoline and service stations	2				
Car rental	1				
STOREFRONT SUMMARY					
Total Storefronts	103	100.0%	Convenience Goods	27	26.2%
Shopping Goods	17	16.5%	Eating and Drinking Places	21	20.4%
Building Mtr'ls, Hardware, & Garden Supply	1	1.0%	Neighborhood Services	21	20.4%
Auto-Related Trade	5	4.9%	Vacant Storefronts	11	10.7%

Source: AKRF, Inc. field surveys conducted in July 2004.

Table B.1-3
Retail Survey, Amsterdam Avenue
Between West 123rd and West 138th Streets

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**6**	**8.8%**	**CONVENIENCE GOODS**	**15**	**22.1%**
General Merchandise Stores	**0**	**0.0%**	**Food Stores**	**12**	**17.6%**
Department stores, conventional national chains			Grocery stores, delis, bodegas	9	
Department stores, discount national chains			Supermarkets	2	
Miscellaneous general merchandise stores			Meat and fish markets	1	
Apparel and Accessory Stores	**1**	**1.5%**	Retail bakeries		
Men's and boy's clothing			Fruit and vegetable markets		
Women's and girl's clothing			Candy, nut, and confectionary		
Family clothing			Miscellaneous/specialty foods (health food)		
Children's clothing			**Miscellaneous Convenience Goods**	**3**	**4.4%**
Shoes			Drug and proprietary stores	2	
Other apparel and accessories	1		Liquor stores	1	
Furniture, Home Furnishings, and Equipment Stores	**2**	**2.9%**	Florists		
Furniture stores			Cigar stores and stands		
Floor covering stores			News dealers and newsstands		
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores			Photocopy stores		
Household appliance stores			Photo developing		
Audio and video electronics (beepers, cell phones)	1		Other miscellaneous convenience goods		
Records and musical instruments	1		**EATING AND DRINKING PLACES**	**12**	**17.6%**
Computer			Restaurants/Luncheonettes	5	
Miscellaneous Shopping Goods Stores	**3**	**4.4%**	Refreshments/"Fast-food" places	7	
Sporting goods and bicycle			Other eating places—caterers, catering halls		
Books			Drinking places (alcohol)		
Stationary/Office Supply			**NEIGHBORHOOD SERVICES**	**26**	**38.2%**
Jewelry			Video rentals	1	
Hobby, toy, and games			Banks	1	
Camera and photographic supplies			Cleaners and tailors	2	
Gifts, novelties, and souvenirs	2		Hair and nail care	11	
Luggage and leather goods			Laundry	3	
Sewing, needlework, and piece goods	1		Travel agencies[1]	1	
Religious articles			TV/Audio/Appliance repair		
Optical goods			Shoe repair	1	
Used merchandise			Medical offices	1	
Other misc. shopping goods			Other professional offices[2]	1	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**1**	**1.5%**	Home improvement services		
Paint, glass, and wallpaper			Funeral services		
Hardware	1		Health/Fitness club		
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy		
AUTO-RELATED TRADE	**1**	**1.5%**	Pawn shop	1	
Motor vehicle dealers			Paid parking		
Auto supplies	1		Other neighborhood services[3]	3	
Gasoline and service stations					
Car rental			**VACANT STOREFRONTS**	**7**	**10.3%**

STOREFRONT SUMMARY					
Total Storefronts	68	100.0%	Convenience Goods	15	22.1%
Shopping Goods	6	8.8%	Eating and Drinking Places	12	17.6%
Building Mtr'ls, Hardware, & Garden Supply	1	1.5%	Neighborhood Services	26	38.2%
Auto-Related Trade	1	1.5%	Vacant Storefronts	7	10.3%

Notes: [1]This travel agency also includes income tax services.
[2]Other professional offices includes: Jackson Hewitt Tax Services
[6]Other neighborhood services include: Money Gram (for check cashing), money transfer, and driving school
Source: AKRF, Inc. field surveys conducted in May, 2006.

Table B.1-4
Retail Survey, West 125th Street between Amsterdam and Broadway

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**2**	**14.3%**	**CONVENIENCE GOODS**	**5**	**35.7%**
General Merchandise Stores	**1**	**7.1%**	**Food Stores**	**2**	14.3%
Department stores, conventional national chains			Grocery stores, delis, bodegas	1	
Department stores, discount national chains			Supermarkets	1	
Miscellaneous general merchandise stores	1		Meat and fish markets		
Apparel and Accessory Stores	**0**	0.0%	Retail bakeries		
Men's and boy's clothing			Fruit and vegetable markets		
Women's and girl's clothing			Candy, nut, and confectionary		
Family clothing			Miscellaneous/specialty foods (health food)		
Children's clothing			**Miscellaneous Convenience Goods**	**3**	**21.4%**
Shoes			Drug and proprietary stores	1	
Other apparel and accessories			Liquor stores	1	
Furniture, Home Furnishings, and Equipment Stores	**1**	7.1%	Florists		
Furniture stores			Cigar stores and stands		
Floor covering stores			News dealers and newsstands	1	
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores			Photocopy stores		
Household appliance stores			Photo developing		
Audio and video electronics (beepers, cell phones)			Other miscellaneous convenience goods		
Records and musical instruments	1		**EATING AND DRINKING PLACES**	**2**	**14.3%**
Computer			Restaurants/Luncheonettes		
Miscellaneous Shopping Goods Stores	**0**	**0.0%**	Refreshments/"Fast-food" places	2	
Sporting goods and bicycle			Other eating places—caterers, catering halls		
Books			Drinking places (alcohol)		
Stationary/Office Supply			**NEIGHBORHOOD SERVICES**	**5**	**35.7%**
Jewelry			Video rentals		
Hobby, toy, and games			Banks	1	
Camera and photographic supplies			Cleaners and tailors		
Gifts, novelties, and souvenirs			Hair and nail care	2	
Luggage and leather goods			Laundry		
Sewing, needlework, and piece goods			Travel agencies		
Religious articles			TV/Audio/Appliance repair		
Optical goods			Shoe repair		
Used merchandise			Medical offices	1	
Other misc. shopping goods			Other professional offices	1	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**0**	**0.0%**	Home improvement services		
Paint, glass, and wallpaper			Funeral services		
Hardware			Health/Fitness club		
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy		
AUTO-RELATED TRADE	**0**	**0.0%**	Pawn shop		
Motor vehicle dealers			Paid parking		
Auto supplies			Other neighborhood services		
Gasoline and service stations					
Car rental					
STOREFRONT SUMMARY					
Total Storefronts	**14**	**100.0%**	Convenience Goods	5	35.7%
Shopping Goods	2	14.3%	Eating and Drinking Places	2	14.3%
Building Mtr'ls, Hardware, & Garden Supply	0	0.0%	Neighborhood Services	5	35.7%
Auto-Related Trade	0	0.0%	Vacant Storefronts	0	0.0%

Source: AKRF, Inc. field surveys conducted in July 2004.

Table B.1-5
Retail Survey, Broadway
between West 114th and West 146th Streets

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**86**	**24.0**	**CONVENIENCE GOODS**	**80**	**22.3**
General Merchandise Stores	**8**	**2.2**	**Food Stores**	55	15.3
Department stores, conventional national chains			Grocery stores, delis, bodegas	40	
Department stores, discount national chains			Supermarkets	6	
Miscellaneous general merchandise stores	8		Meat and fish markets	3	
Apparel and Accessory Stores	28	7.8	Retail bakeries	1	
Men's and boy's clothing	5		Fruit and vegetable markets	1	
Women's and girl's clothing	1		Candy, nut, and confectionary	2	
Family clothing	9		Miscellaneous/specialty foods (health food.)	2	
Children's clothing			**Miscellaneous Convenience Goods**	25	7.0
Shoes	8		Drug and proprietary stores	10	
Other apparel and accessories	5		Liquor stores	6	
Furniture, Home Furnishings, and Equipment Stores	24	6.7	Florists	1	
Furniture stores	3		Cigar stores and stands	1	
Floor covering stores	2		News dealers and newsstands	1	
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores	4		Photocopy stores	1	
Household appliance stores			Photo developing	5	
Audio and video electronics (beepers, cell phones)	11		Other miscellaneous convenience goods		
Records and musical instruments	4		**EATING AND DRINKING PLACES**	**52**	**14.5**
Computer			Restaurants/Luncheonettes	18	
Miscellaneous Shopping Goods Stores	**26**	**7.2**	Refreshments/"Fast-food" places	32	
Sporting goods and bicycle			Other eating places—caterers, catering halls		
Books	1		Drinking places (alcohol)	2	
Stationary/Office Supply	2		**NEIGHBORHOOD SERVICES**	95	26.5
Jewelry	9		Video rentals		
Hobby, toy, and games	2		Banks	5	
Camera and photographic supplies			Cleaners and tailors	12	
Gifts, novelties, and souvenirs	4		Hair and nail care	38	
Luggage and leather goods			Laundry	6	
Sewing, needlework, and piece goods	1		Travel agencies	6	
Religious articles			TV/Audio/Appliance repair		
Optical goods	2		Shoe repair		
Used merchandise			Medical offices	2	
Other misc. shopping goods	5		Other professional offices	13	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**5**	**1.4**	Home improvement services		
Paint, glass, and wallpaper			Funeral services		
Hardware	5		Health/Fitness club		
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy	2	
AUTO-RELATED TRADE	**5**	**1.4**	Pawn shop		
Motor vehicle dealers			Paid parking		
Auto supplies	2		Other neighborhood services		
Gasoline and service stations	2				
Car rental	1				
STOREFRONT SUMMARY					
Total Storefronts	**359**	**100.0**	Convenience Goods	**80**	**22.3**
Shopping Goods	86	24.0	Eating and Drinking Places	52	14.5
Building Mtr'ls, Hardware, & Garden Supply	5	1.4	Neighborhood Services	95	26.5
Auto-Related Trade	5	1.4	Vacant Storefronts	36	10.0

Source: AKRF, Inc. field surveys conducted in July 2004.

Table B.1-6
Retail Survey, Amsterdam Avenue between 114th & 146th Streets

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**14**	**6.8%**	**CONVENIENCE GOODS**	**38**	**21.5%**
General Merchandise Stores	**2**	**1.1%**	**Food Stores**	**29**	**16.4%**
Department stores, conventional national chains			Grocery stores, delis, bodegas	23	
Department stores, discount national chains			Supermarkets	2	
Miscellaneous general merchandise stores	2		Meat and fish markets	3	
Apparel and Accessory Stores	**2**	**1.1%**	Retail bakeries		
Men's and boy's clothing			Fruit and vegetable markets		
Women's and girl's clothing			Candy, nut, and confectionary	1	
Family clothing			Miscellaneous/specialty foods (health food)		
Children's clothing			**Miscellaneous Convenience Goods**	**9**	**5.1%**
Shoes			Drug and proprietary stores	4	
Other apparel and accessories	2		Liquor stores	1	
Furniture, Home Furnishings, and Equipment Stores	**4**	**2.3%**	Florists[2]	1	
Furniture stores	1		Cigar stores and stands	1	
Floor covering stores			News dealers and newsstands		
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores			Photocopy stores	2	
Household appliance stores			Photo developing		
Audio and video electronics (beepers, cell phones)	2		Other miscellaneous convenience goods		
Records and musical instruments	1		**EATING AND DRINKING PLACES**	**42**	**23.7%**
Computer			Restaurants/Luncheonettes	26	
Miscellaneous Shopping Goods Stores	**6**	**3.4%**	Refreshments/"Fast-food" places	15	
Sporting goods and bicycle			Other eating places—caterers, catering halls[3]	1	
Books	1		Drinking places (alcohol)		
Stationary/Office Supply			**NEIGHBORHOOD SERVICES**	**61**	**34.5%**
Jewelry			Video rentals	1	
Hobby, toy, and games			Banks	1	
Camera and photographic supplies			Cleaners and tailors	5	
Gifts, novelties, and souvenirs	2		Hair and nail care	26	
Luggage and leather goods			Laundry	5	
Sewing, needlework, and piece goods	1		Travel agencies[4]	3	
Religious articles			TV/Audio/Appliance repair	2	
Optical goods	1		Shoe repair	1	
Used merchandise			Medical offices	4	
Other misc. shopping goods[1]	1		Other professional offices[5]	7	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**2**	**1.1%**	Home improvement services		
Paint, glass, and wallpaper			Funeral services		
Hardware	2		Health/Fitness club		
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy		
AUTO-RELATED TRADE	**2**	**1.1%**	Pawn shop	1	
Motor vehicle dealers			Paid parking		
Auto supplies	2		Other neighborhood services[6]	5	
Gasoline and service stations					
Car rental			**VACANT STOREFRONTS**	**20**	**11.2%**
STOREFRONT SUMMARY					
Total Storefronts	179	100.0%	Convenience Goods	38	21.2%
Shopping Goods	14	7.8%	Eating and Drinking Places	42	23.5%
Building Mtr'ls, Hardware, & Garden Supply	2	1.1%	Neighborhood Services	61	34.1%
Auto-Related Trade	2	1.1%	Vacant Storefronts	20	11.2%

Notes: [1]Other misc. shopping goods include: school/art supplies store
[2]The florist also includes a nail salon.
[3]Other eating places includes: internet café
[4]Some travel agencies also include income tax services.
[5]Other professional offices include: West Harlem Group Assistance, accountants, New Future Foundation Management, and print shop/lawyer/accountant
[6]Other neighborhood services include: driving schools, money transfer services

Source: AKRF, Inc. field surveys conducted in May, 2006.

Table B.1-7
Retail Survey, West 125th Street
between Frederick Douglas Blvd. and Broadway

Category	Establishments		Category	Establishments	
	No.	Percent		No.	Percent
SHOPPING GOODS	**22**	**22.9**	**CONVENIENCE GOODS**	**12**	**12.5**
General Merchandise Stores	**2**	**2.1**	**Food Stores**	8	8.3
Department stores, conventional national chains			Grocery stores, delis, bodegas	7	
Department stores, discount national chains			Supermarkets	1	
Miscellaneous general merchandise stores	2		Meat and fish markets		
Apparel and Accessory Stores	10	10.4	Retail bakeries		
Men's and boy's clothing	1		Fruit and vegetable markets		
Women's and girl's clothing	2		Candy, nut, and confectionary		
Family clothing	2		Miscellaneous/specialty foods (health food)		
Children's clothing			**Miscellaneous Convenience Goods**	4	4.2
Shoes	2		Drug and proprietary stores	1	
Other apparel and accessories	3		Liquor stores	1	
Furniture, Home Furnishings, and Equipment Stores	7	7.3	Florists	1	
Furniture stores	1		Cigar stores and stands		
Floor covering stores			News dealers and newsstands	1	
Drapery, curtain, and upholstery stores			Pet shops		
Miscellaneous home furnishing stores	2		Photocopy stores		
Household appliance stores			Photo developing		
Audio and video electronics (beepers, cell phones)	3	3.1	Other miscellaneous convenience goods		
Records and musical instruments	1		**EATING AND DRINKING PLACES**	**14**	**14.6**
Computer			Restaurants/Luncheonettes	1	
Miscellaneous Shopping Goods Stores			Refreshments/"Fast-food" places	12	
Sporting goods and bicycle			Other eating places—caterers, catering halls		
Books			Drinking places (alcohol)	1	
Stationary/Office Supply			**NEIGHBORHOOD SERVICES**	32	33.3
Jewelry			Video rentals		
Hobby, toy, and games			Banks	3	
Camera and photographic supplies			Cleaners and tailors	1	
Gifts, novelties, and souvenirs			Hair and nail care	14	
Luggage and leather goods			Laundry	2	
Sewing, needlework, and piece goods			Travel agencies		
Religious articles			TV/Audio/Appliance repair		
Optical goods			Shoe repair		
Used merchandise			Medical offices	3	
Other misc. shopping goods	2		Other professional offices	3	
BLDING MTR'LS, HARDWARE, & GARDEN SUPPLY	**2**	**2.1**	Home improvement services		
Paint, glass, and wallpaper	1		Funeral services		
Hardware	1		Health/Fitness club	1	
Retail nurseries, lawn, and garden supply stores			Car service		
Lumber and other building materials			Pharmacy	3	
AUTO-RELATED TRADE	**1**	**1.0**	Pawn shop	1	
Motor vehicle dealers			Paid parking		
Auto supplies	1		Other neighborhood services	1	
Gasoline and service stations					
Car rental					
STOREFRONT SUMMARY					
Total Storefronts	**96**	**100**	Convenience Goods	**12**	**12.5**
Shopping Goods	22	22.9	Eating and Drinking Places	14	14.6
Building Mtr'ls, Hardware, & Garden Supply	2	2.1	Neighborhood Services	32	33.3
Auto-Related Trade	1	1.0	Vacant Storefronts	13	13.5

Source: AKRF, Inc. field surveys conducted in July 2004.

Table B.1-8
Development Under Construction or Proposed in the Project and Study Areas Expected To Be Completed in the Future Without the Proposed Actions by 2015

Project Name/Address	Development Proposal/Program	Build Year	Estimated Employment
Science, math, and engineering secondary school (grades 6-12) and Columbia University office space: east side of Broadway and West 132nd Street	*90,000 sf; approximately 650 students and 35 faculty/administrators* *127,296 sf administrative space for Columbia University*	*2015*	*429*[1]
Columbia University Studebaker Building/615 West 131st Street	*Conversion to 220,500 sf of administration uses.*	*2008*	*882*[1]
Columbia University, former Warren Nash Service Station building (3280 Broadway)	*Conversion to 207,710 sf office space for Columbia University*	*2015*	*644*[1]
West Harlem Waterfront park *Hudson River between St. Clair Place and West 133rd Street*	*Creation of waterfront destination with new piers, open space, gateway plaza, multi-purpose building (40,000 sf), landscaped areas (approx. 2.26 acres), and new pedestrian/bicycle way (9,995 sf); relocation of Fairway Market parking lot to upland location.*	*2008*	*22*[2]
655 West 125th Street rezoning from M1-2 to C6-2 (Block 1996, Lot 56)	*Existing storage use and building to be demolished. New development to include 80 residential units, 19,100 sf community facility space, and 19,100 sf retail space.*	*2008*	*50*[4]
614 West 131st Street rezoning from M1-2 to C6-2 (Block 1997, Lot 44)	*Existing storage use and building to be demolished. New development to include 42 residential units and 12,000 sf of community facility space.*	*2008*	*44*[4]
3261 Broadway rezoning from M1-2 to C6-2 *(Block 1998, Lot 29)*	*Existing storage use and building to be demolished. New development to include 113 residential units, 16,000 sf of community facility space, and 16,000 sf of retail space.*	*2008*	*56*[4]
3300 Broadway rezoning from M1-2 to C6-2 (Block 1987, Lot 1)	*Existing commercial uses and building to be demolished. New development to include 125 residential units, 19,600 sf of community facility space, and 19,600 sf of retail space.*	*2008*	*109*[2]
3320 Broadway rezoning from M1-2 to C6-2 (Block 1988, Lot 1)	*Landmarked portion, Claremont Theater: rehabilitation and floor area transferred.* *Remainder of building:125 residential units, 19,800 sf of community facility space, and 19,800 sf of retail space.*	*2009*	*107*[2]
3329 Broadway rezoning	*Conversion first floor to retail (4,733 sf), conversion floors 2-6 for residential and additional new floors 7-10 for residential, for total of 18 residential units*	*2008*	*12*[4]
Hudson River Café/2346 Twelfth Avenue	*New 2,787-sf restaurant and outdoor seating area*	*2007*	*19*[2]
Columbia University, 560 Riverside Drive	*Building a new entrance along West 125th Street*	*2010*	*0*[1]
Columbia University, new academic building at southwest corner of Broadway and West 125th Street	*250,840-sf academic building*	*2010*	*401*[1]

Table B.1-8 (cont'd)
Development Under Construction or Proposed in the Project and Study Areas Expected To Be Completed in the Future Without the Proposed Actions by 2015

Project Name/Address	Development Proposal/Program	Build Year	Estimated Employment
Mink Building *Amsterdam Avenue between West 126th and West 128th Streets*	*Conversion of approximately 120,000 sf to office space*	*2007*	*480*[2]
Citarella (former Taystee Factory) *West 126th Street between Morningside and Amsterdam Avenues*	*80,000 sf renovation, to include corporate offices, warehouse/storage area, food preparation/packaging/shipping, and some retail*	*2007*	*320*[2]
West 127th Street HPD Cornerstone Development	200 residential units, 40,000 sf commercial	2010	169[2]
Columbia University, academic/research building at southeast corner of Broadway and West 120th Street	*170,000-sf academic/research building*	*2010*	*187*[1]
City College, School of Architecture	*Conversion of 65,550 sf of space into a new School of Architecture, Urban Design and Landscape Architecture*	*2008*	*105*[2]
City College, new instructional research building on south campus	*New 55,000-sf building for the Science Division*	*2009*	*61*[2]
City College, new research building on south campus	*190,000-sf new CUNY science facility*	*2010*	*209*[2]
701 West 135th Street	*Renovation of 2,386 sf of commercial space (currently vacant)*	*2007*	*9*[2]
125th Street Corridor and Related Actions/West 125th Street, between Morningside Avenue and Frederick Douglass Boulevard	*260 residential units (52 affordable), 71,632 sf retail, 103,958 sf office, 11,890 sf community facility within ½ mile of Project Area (west of Frederick Douglass Boulevard)*	*2017*[3]	*663*[2]

Note: Projects listed in italics are within the primary study area. All projects are within the secondary study area (which includes the primary study area).

Sources: New York City Economic Development Corporation, New York City Department of City Planning, Manhattan CB9, New York City Department of Housing Preservation and Development, *New York Construction*, March 2004; Columbia University; City College; *West Harlem Waterfront EAS*, August 2005; *Zoning Map Amendment 3261 Broadway EAS*, December 2005; *Zoning Map Amendment 3300-3320 Broadway EAS*, December 2005; *Zoning Map Amendment 655 West 125th Street EAS*, December 2005; *Zoning Map Amendment 614 West 131st Street EAS*, December 2005.

[1]Employment figures estimated by Columbia University.
[2]Employment figures estimated using standard employment ratios (employees per square foot).
[3]Development will be assumed for the 2015 analysis year for this EIS.
[4]Employment figures based on Tuck-it-Away and Hudson North American rezoning applications.

Table B.1-9
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
45 Hamilton Terrace	4	0	0
420 West 116th Street	122	0	122
411 West 116th Street	325	0	325
70-76 Morningside Drive	19	0	19
1116 Amsterdam Avenue	254	0	254
1124 Amsterdam Avenue	256	0	256
2940 Broadway	258	0	258
501-509 West 114th Street	482	0	482
545-599 West 114th Street	308	0	308
12201238 Amsterdam Avenue	114	0	114
537 West 121st Street	11	0	11
517 West 121st Street	252	0	252
503 West 121st Street	114	0	114
633 West 115th Street	7	0	7
605-615 West 115th Street	330	0	330
608-610 West 116th Street	24	0	0
614-618 West 116th Street	156	0	156
434 Riverside Drive	22	0	22
2961 Broadway	76	0	76
3005 Broadway	232	0	232
3007 Broadway	492	0	492
605-607 West 116th Street	105	0	105
49 Claremont Avenue	111	0	111
97-101 Claremont Avenue	46	0	46
600 West 122nd Street	277	0	277
401 West 118th Street	18	0	0
411-415 West 120th Street	52	0	52
1241-1243 Amsterdam Avenue	64	0	0
425 West 121st Street	213	0	213
347 West 122nd Street	12	0	0
345 West 122nd Street	10	0	0
341 West 122nd Street	10	0	0
531 Manhattan Avenue	11	0	0
533 Manhattan Avenue	10	0	0
537 Manhattan Avenue	4	0	0
539 Manhattan Avenue	13	0	0
541 Manhattan Avenue	11	0	0
543 Manhattan Avenue	8	0	0
547 Manhattan Avenue	7	0	0
549 Manhattan Avenue	12	0	0

Table B.1-9 (cont'd)
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
344 West 123rd Street	11	0	0
348 West 123rd Street	8	0	0
350 West 123rd Street	9	0	0
356 West 123rd Street	8	8	0
358 West 123rd Street	7	7	0
353 West 122nd Street	13	0	0
343 West 122nd Street	11	0	0
346 West 123rd Street	6	0	0
354 West 123rd Street	10	0	0
360 West 123rd Street	11	11	0
351 West 122nd Street	9	0	0
355 West 122nd Street	10	0	0
357 West 122nd Street	7	0	0
371 West 123rd Street	9	0	0
357 West 123rd Street	8	0	0
351 West 123rd Street	6	0	0
373 West 123rd Street	10	0	0
396 West 123rd Street	9	0	0
359 West 123rd Street	6	0	0
355 West 123rd Street	7	0	0
349 West 123rd Street	9	0	0
345 West 123rd Street	9	0	0
307 West 125th Street	19	0	0
528 West 123rd Street	48	48	0
524-527 Riverside Drive	104	0	104
520-523 Riverside Drive	492	0	492
530 Riverside Drive	3,333	0	3,333
311 West 126th Street	15	15	0
306 West 127th Street	18	0	0
308 West 127th Street	23	0	0
312 West 127th Street	13	0	0
314 West 127th Street	17	0	0
401 West 127th Street	8	0	0
6 Convent Avenue	7	0	0
12 Convent Avenue	7	0	0
14 Convent Avenue	10	0	0
4 Convent Avenue	11	0	0
8 Convent Avenue	7	0	0
17-19 Old Broadway	23	0	0
536 West 126th Street	16	0	0
538 West 126th Street	16	0	0
540 West 126th Street	16	0	0
551 West 125th Street	40	0	0
473 West 140th Street	8	0	0
469 West 140th Street	8	0	0
465 West 140th Street	11	0	0
454 West 141st Street	5	5	0
458 West 141st Street	4	0	0
462 West 141st Street	2	2	0

Table B.1-9 (cont'd)
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
464 West 141st Street	6	0	0
474 West 141st Street	8	0	0
467 West 140th Street	7	0	0
452 West 141st Street	4	0	0
460 West 141st Street	7	0	0
468 West 141st Street	6	0	0
616 West 138th Street	8	0	0
618 West 138th Street	10	0	0
614 West 138th Street	10	10	0
30 Hamilton Place	155	0	155
48 Hamilton Place	9	9	0
52 Hamilton Place	10	10	0
540 West 140th Street	12	0	0
546 West 140th Street	9	0	0
550 West 140th Street	10	0	0
50 Hamilton Place	10	10	0
544 West 140th Street	7	0	0
548 West 140th Street	8	0	0
551 West 141st Street	12	0	0
537 West 141st Street	4	4	0
533 West 141st Street	5	0	0
519 West 141st Street	7	7	0
105 Hamilton Place	6	0	0
512 West 142nd Street	12	0	0
514 West 142nd Street	12	0	0
518 West 142nd Street	12	0	0
530 West 142nd Street	11	11	0
536 West 142nd Street	11	0	0
538 West 142nd Street	8	8	0
548 West 142nd Street	10	0	0
554 West 142nd Street	14	14	0
510 West 142nd Street	8	0	0
516 West 142nd Street	12	0	0
522 West 142nd Street	6	6	0
552 West 142nd Street	14	0	0
607 West 138th Street	7	0	0
315 Convent Avenue	4	0	0
323 Convent Avenue	10	0	0
327 Convent Avenue	11	0	0
329 Convent Avenue	12	0	0
333 Convent Avenue	12	0	0
339 Convent Avenue	6	0	0
47 Hamilton Terrace	3	0	0
414 West 145th Street	18	0	0
51 Hamilton Terrace	9	0	0
413 West 144th Street	12	12	0
52 Hamilton Terrace	7	7	0
48 Hamilton Terrace	7	0	0
46 Hamilton Terrace	9	0	0

Table B.1-9 (cont'd)
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
44 Hamilton Terrace	7	7	0
40 Hamilton Terrace	8	0	0
34 Hamilton Terrace	8	0	0
18 Hamilton Terrace	8	0	0
3 Hamilton Terrace	7	0	0
416 West 14th Street	9	0	0
406 West 145th Street	7	0	0
402 West 145th Street	7	7	0
400 West 145th Street	8	8	0
416 West 144th Street	6	0	0
42 Hamilton Terrace	5	5	0
36 Hamilton Terrace	8	0	0
419 West 141st Street	8	0	0
421 West 141st Street	1	1	0
37 Hamilton Terrace	12	0	0
43 Hamilton Terrace	8	0	0
133 Edgecombe Avenue	90	90	0
342 West 145th Street	10	10	0
225 Edgecombe Avenue	12	0	0
207 Edgecombe Avenue	10	10	0
205 Edgecombe Avenue	7	0	0
203 Edgecombe Avenue	10	10	0
201 Edgecombe Avenue	8	0	0
197 Edgecombe Avenue	12	12	0
191 Edgecombe Avenue	11	0	0
187 Edgecombe Avenue	8	0	0
188 Edgecombe Avenue	10	10	0
192 Edgecombe Avenue	10	10	0
194 Edgecombe Avenue	10	10	0
196 Edgecombe Avenue	10	10	0
206 Edgecombe Avenue	11	0	0
208 Edgecombe Avenue	9	0	0
210 Edgecombe Avenue	9	0	0
214 Edgecombe Avenue	8	0	0
216 Edgecombe Avenue	9	0	0
218 Edgecombe Avenue	7	0	0
220 Edgecombe Avenue	9	0	0
224 Edgecombe Avenue	10	0	0
2226 Edgecombe Avenue	12	0	0
228 Edgecombe Avenue	65	0	0
336 West 145th Street	10	10	0
324 West 145th Street	21	0	0
322 West 145th Street	21	0	0
320 West 145th Street	22	0	0
51 Bradhurst Avenue	11	0	0
49 Bradhurst Avenue	9	0	0
47 Bradhurst Avenue	12	0	0
45 Bradhurst Avenue	11	0	0
43 Bradhurst Avenue	10	0	0

Table B.1-9 (cont'd)
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
41 Bradhurst Avenue	14	0	0
39 Bradhurst Avenue	12	0	0
37 Bradhurst Avenue	14	0	0
35 Bradhurst Avenue	14	0	0
33 Bradhurst Avenue	11	0	0
31 Bradhurst Avenue	11	0	0
29 Bradhurst Avenue	9	0	0
27 Bradhurst Avenue	7	0	0
1641-1659 Amsterdam Avenue	138	0	138
475 West 141st Street	6	0	0
465 West 141st Street	3	0	0
463 West 141st Street	12	12	0
453 West 141st Street	3	3	0
282 Convent Avenue	10	0	0
456 West 142nd Street	9	0	0
458 West 142nd Street	8	8	0
462 West 142nd Street	9	9	0
464 West 142nd Street	5	5	0
475 West 142nd Street	5	5	0
471 West 142nd Street	7	7	0
469 West 141st Street	9	0	0
296 Convent Avenue	7	0	0
460 West 142nd Street	10	10	0
473 West 142nd Street	9	0	0
473 West 143rd Street	11	0	0
471 West 143rd Street	5	0	0
461 West 143rd Street	12	0	0
324 Convent Avenue	13	0	0
326 Convent Avenue	14	0	0
328 Convent Avenue	8	0	0
334 Convent Avenue	17	0	0
336 Convent Avenue	12	0	0
454 West 144th Street	7	0	0
468 West 144th Street	4	4	0
470 West 144th Street	6	0	0
474 West 144th Street	8	0	0
473 West 144th Street	7	0	0
471 West 144th Street	8	0	0
465 West 144th Street	8	0	0
463 West 144th Street	9	0	0
461 West 144th Street	12	0	0
453 West 144th Street	6	6	0
348 Convent Avenue	6	6	0
356 Convent Avenue	19	0	0
456 West 145th Street	7	7	0
462 West 145th Street	9	0	0
468 West 145th Street	12	12	0
476 West 145th Street	5	0	0
463 West 143rd Street	9	0	0

Table B.1-9 (cont'd)
Single Room Occupancy (SRO) Unit Inventory

Building address	SRO Rooms Identified by MISLAND Data	SRO Rooms Confirmed by Field Survey	
		Non-Institutional SRO Rooms	Institutional SRO Rooms
469 West 144th Street	9	0	0
354 Convent Avenue	4	0	0
466 West 145th Street	9	9	0
539 West 142nd Street	13	0	0
537 West 142nd Street	2	0	0
529 West 142nd Street	9	9	0
517 West 142nd Street	11	0	0
515 West 142nd Street	6	0	0
511 West 142nd Street	8	8	0
507 West 142nd Street	70	70	0
512 West 143rd Street	7	0	0
520 West 143 Street	9	0	0
524 West 143rd Street	6	0	0
528 West 143rd Street	10	0	0
531 West 143rd Street	7	7	0
513 West 142nd Street	8	0	0
522 West 143rd Street	7	0	0
515 West 144th Street	9	9	0
520-522 West 145th Street	80	80	0
529 West 144th Street	25	25	0
513 West 144th Street	7	0	0
507 West 144th Street	7	0	0
503 West 144th Street	6	6	0
515 West 145th Street	70	0	0
511 West 145th Street	59	0	0
639 West 142nd Street	7	0	0
623 West 142nd Street	9	0	0
601 West 142nd Street	90	90	0
637 West 142nd Street	7	7	0
631 West 142nd Street	7	7	0
621 West 142nd Street	11	0	0
617 West 142nd Street	8	8	0
611 West 142nd Street	9	0	0
612 West 146th Street	6	0	0
607 West 145th Street	6	0	0
Total SRO Rooms:	**11,718**	**843**	**8,856**

Sources: New York City Department of City Planning's 2005 MISLAND Multiple Dwellings database, and verified through AKRF, Inc. field surveys conducted September 2006.

B. ANALYTICAL ASSUMPTIONS FOR SOCIOECONOMIC WORST-CASE DEVELOMENT SCENARIO

For purposes of providing a conservative analysis of the Proposed Actions, a reasonable worst-case development scenario for the Academic Mixed-Use Area (Subdistrict A) was developed specifically for the socioeconomic conditions assessments. The "socioeconomic reasonable worst-case development scenario" maximizes the amount of potential University general academic and academic research space, and minimizes on-site housing for graduate students,

faculty, and other employees, and private commercial ground-floor space. Table B.1-10 compares the programming assumptions of the socioeconomic reasonable worst-case development scenario with those of the Illustrative Plan.

Table B.1-10
Comparison Between Illustrative Plan and Socioeconomic Worst-Case Scenario

	Illustrative Plan		Reasonable Worst-Case	
	2015	**2030**	**2015**	**2030**
Above Grade				
Community Facilities				
Academic	743,190	1,360,768	705,000	2,000,000
Community use	—	—	—	—
University housing	53,600	403,960	—	350,000
Academic research	351,310	2,596,957	361,939	2,295,016
Recreation	—	239,313	—	—
Total Community Facilities	*1,042,990*	*4,612,698*	*1,066,939*	*4,645,016*
Commercial				
Office	60,449	162,618	—	—
Retail	—	—	18,250	65,000
Restaurant	—	—	18,250	65,000
Total Commercial	*60,449*	*162,618*	*36,500*	*130,000*
Total Above Grade	***1,103,439***	***4,775,016***	***1,103,439***	***4,775,016***
Below Grade				
Research support	59,563	296,201	58,563	296,201
Below-grade program	69,830	69,830	69,830	69,830
Recreation (swim/dive center)	—	145,431	—	145,431
Parking (Including ramp)	—	848,605	—	848,605
Central energy plant	50,870	70,199	50,870	70,199
Mechanical/circulation/loading	94,638	366,166	94,638	366,166
Storage	31,294	189,225	31,294	189,225
Total Below Grade	***305,195***	***1,985,657***	***305,195***	***1,985,657***
Grand Total	**1,408,634**	**6,760,673**	**1,408,634**	**6,760,673**

Even though it may never occur, the socioeconomic reasonable worst-case development scenario would generate the greatest potential off-site demand for housing and commercial space, which in turn would maximize potential indirect residential and business displacement pressures. Direct displacement is unaffected by variations in the types of uses considered for a worst-case scenario.

C. UNIVERSITY-GENERATED HOUSING DEMAND ANALYSIS

The detailed analysis of indirect residential displacement in Chapter 4, "Socioeconomic Conditions," included estimates of the propensity for University employees and students working and studying in the Academic Mixed-Use Area to seek housing in the primary and secondary study areas. To estimate this demand, Columbia prepared a comprehensive housing demand model based on an analysis of employees and students at the University's existing campuses. The housing demand model and underlying data analysis are described in detail below.

EXISTING EMPLOYEE AND STUDENT INVENTORY

As a first step in its analysis, Columbia prepared a comprehensive inventory of all employees and students active at the University as of October 2005. This point in the year—the mid-point of the fall academic term—represents the period of maximum employment and enrollment in the annual academic cycle of the institution. Drawing on a variety of data sources, including the University's Human Resources, Student Information, and University Housing databases, a new database was prepared containing the following data elements for each employee or student:

- University affiliation by campus, school and department;
- Basic demographic information, including age, ethnicity, and family size;
- Job information, including employment category, rank, and related attributes (for employees only);
- Expected annual Columbia-paid employment compensation, including any compensation paid to students working part-time for the University;
- Home address (including an indicator of whether the person was living in University housing); and
- Office address.

CATEGORIZATION OF THE EXISTING EMPLOYEE AND STUDENT POPULATION

A statistical analysis of key population attributes was conducted to determine the most appropriate categorization of the employee and student population for modeling purposes. Based on meaningful differences in compensation, housing preferences, and demographics, the below population categories were chosen. Each of these was, a result of the analysis, subdivided into persons with either a (1) full-time or (2) part-time University affiliation based on employment or enrollment. All modeling was conducted at the level of these population categories and was then aggregated for analysis of cumulative demand.

1. Employees
    a. Faculty (divided into science, non-science, and clinical)
    b. Researchers (divided into science, non-science, and clinical)
    c. Post-doctoral student researchers (divided into science, non-science, and clinical)
    d. Administrators (including officers and support staff)
2. Students
    a. Graduate (divided into science and non-science)
    b. Undergraduate
    c. Special

EXISTING SPACE INVENTORY

To calculate current employment densities, a full inventory was conducted of Columbia buildings on all of its campuses and at off-site locations. Total gross square footage was recorded for each building (or portion of a building, where Columbia did not own or lease the entire building). Each property was then assigned either to one of the space categories utilized in the General Project Plan (GPP) and Environmental Impact Statement (EIS)—academic,

academic research, administrative, recreation, University housing, or support—or to other uses not relevant to the Proposed Actions (notably, clinical facilities).

EXISTING EMPLOYMENT DENSITIES AND FORECAST EMPLOYMENT

Each existing employee was assigned to an existing University property based on the employee's Office Address (or departmental affiliation when Office Address was not available). Using these assignments, Columbia calculated the employment densities (i.e., number of employees per 1,000 gross square feet [gsf]) for all of its existing properties. Within each space category, a smaller set of buildings was identified that most closely resembled the function and layout of the planned buildings to be constructed with the Proposed Actions. Based on the employment densities identified for all buildings and for the smaller set of representative buildings within each category, final employment densities were derived to model the number of employees expected as a result of the Proposed Actions.

Utilizing these employment densities—along with additional industry-standard employment densities for non-University uses, such as retail and restaurant—total employment was calculated for the Proposed Actions based on the number of gsf assigned to each space category under the socioeconomic reasonable worst-case development scenario. Within each space category, the number of persons employed in each of the population categories listed above was calculated by examining the mix of employees belonging to those segments in all existing properties within the space category. Thus, from the total gross square footage assumed for development under the socioeconomic reasonable worst-case development scenario, total employment and the number of employees was forecast for each population category.

FORECAST STUDENT ENROLLMENT

To forecast the number of students expected to study at the proposed Columbia academic and academic research facilities, a detailed enrollment forecast model was constructed. The model examined historical enrollment trends for full- and part-time students within each school of the University by campus and by the student population categories identified above. The model established the base population for each school in the fall term of the 2004–2005 academic year. For each combination of school, campus, and population category, an annual forecast growth rate was established, along with a determination of what portion of existing and future student enrollment would be located at the proposed facilities. From these forecast projections, the total number of students expected to study at the proposed university area was determined. Also determined was the number of students expected to relocate from existing campuses, along with the number of students expected to fill (over time) the academic space vacated by the students relocated to the proposed university area.

FORECAST HOUSING DEMAND

Utilizing the employment and enrollment forecasts described above, potential University-generated demand for housing in the primary and secondary study areas was calculated as follows. First, the home address of each existing employee or student was analyzed using a geographic information system (GIS) application to determine whether the address was located within either ¼ or ½ mile of the employee or student's home campus. Second, from the analysis of these approximately 39,000 individual addresses, the overall propensity of persons in each population segment to live within ¼ or ½ mile of the current home campus was established. Third, these current housing propensities were used as the basis for establishing potential

University-generated housing demand in the primary and secondary study areas. At current University campuses, a much larger proportion of total building square footage is allocated to University housing compared with the proposed university area. Since the availability of this housing greatly influences the propensity of employees and students to live nearby their home campuses, using the current housing propensities would exaggerate potential housing demand in the study areas. As a highly conservative assumption, forecast potential housing demand in the primary and secondary study areas was established for each population segment by summing the total percentage of persons who live within ¼ mile (for the primary study area) or ½ mile (for the secondary study area) of the home campus in properties that are not University housing, plus one-half the percentage of persons living in University housing within the same ¼- and ½-mile boundaries.

Having calculated a highly conservative propensity for potential housing demand within the primary and secondary study areas, total potential demand for housing was projected by multiplying the forecast housing propensity for each population segment by the forecast number of employees and students in that segment. The student forecasts account for the fact that a portion of students relocating from the Morningside Heights campus already live within the study areas and therefore would not generate new housing demand. Total forecast potential housing demand was then reduced by the number of units (if any) of University housing to be constructed in the Project Area under the assumptions of the socioeconomic reasonable worst-case development scenario. The remaining unmet potential housing demand was used as the basis for the analysis conducted in Chapter 4.

D. NEW UNIVERSITY POPULATION DEMOGRAPHIC ANALYSIS

To analyze the potential demographic characteristics of the projected University-generated populations in the Project Area and in the primary and secondary study areas, Columbia assumed that demographic characteristics for future employees and students working and studying at the proposed university area would be similar to those for existing employees and students. As described above in section C, the University prepared a detailed analysis of its employee and student population, and segmented that population for modeling purposes based on meaningful differences in demographic characteristics, compensation, and housing propensities. Employment and enrollment was forecast for each of the population segments listed above, and potential housing demand was calculated for each. Using best available information on the family size for each population segment, the total potential University-generated population within the project areas was determined. For the purposes of the population demographic analysis, family members were assumed to have the same demographic characteristics as the employee or student with whom they were associated. ✷

APPENDIX B.2

RESIDENTIAL RELOCATION SITES: ENVIRONMENTAL ANALYSIS

Appendix B.2: Residential Relocation Sites: Environmental Analysis[1]

A. INTRODUCTION

As described in Chapter 4, "Socioeconomic Conditions," the Proposed Actions would result in the direct displacement of residential units in Subdistrict A of the Project Area. Columbia has acquired control of three sites outside of the Project Area to provide relocation sites for new, permanent, affordable replacement housing buildings for tenants directly displaced from existing residential buildings in Subdistrict A of the Project Area. Housing on the replacement sites would be constructed by third party developers in accordance with New York City Department of Housing Preservation and Development (HPD) standards and would be of the same or better quality than those occupied by tenants in their existing buildings. Tenants would relocate from these buildings, or from interim housing, when their new housing is ready for occupancy, which could occur prior to the 2015 analysis year.

This analysis assesses the potential environmental impacts in each of the City Environmental Quality Review (CEQR) impact categories that could result from the construction and operation of the three new residential buildings to provide permanent replacement housing for tenants directly displaced in the Project Area.

The development of the replacement housing would require approvals from HPD and the State of New York Homeless Housing Assistance Program (HHAP).

B. DESCRIPTION OF REPLACEMENT HOUSING

The three sites to be developed as replacement housing are located ¼ to ¾ mile from the Project Area—two are located in Community District 9 and one is located in Community District 10. The three sites are shown in Figure B.2-1. Relocation Site 1 is located at 3581 Broadway between West 147th and West 148th Streets. Relocation Site 2 is located at 555 West 125th Street, on the northeast corner of Old Broadway and West 125th Street. Relocation Site 3 is located at 322-328 St. Nicholas Avenue and 319 West 126th Street, on the east side of St. Nicholas Avenue between West 126th Street and West 127th Street.

The three sites would accommodate residents of: the two residential buildings owned by HPD as part of its Tenant Interim Lease (TIL) Program; the two residential buildings that are owned and operated by the Charles Innis Housing Development Fund Corporation, a subsidiary of the Harlem Congregations for Community Improvement, Inc. (HCCI); and the two residential buildings owned and operated by the West Harlem Group Assistance (WHGA) Renaissance Apartments, Limited Partnership, a subsidiary of WHGA. People currently residing in the two churches in Subdistrict A (Iglesia el Encuentro con Dios and Iglesia de Dios Pentecostal) would be relocated together with the churches.

[1] This Appendix is new to the FEIS.

As described in Chapter 4, 75 residential units would be displaced from six existing buildings in the Project Area. In addition, there are two residential units at a church property (Iglesia el Encuentro con Dios) located at 601 West 130th Street, and eight residential units (of which seven are occupied) at another church property (Iglesia de Dios Pentecostal) located at 622 West 131st Street. Occupants of residential units at both church properties would be relocated to sites that have been identified by the churches as new locations for their purposes.

A total of 106 new housing units would be created on the three replacement sites, for a net increase of 31 new residential units on the three replacement sites as compared with existing conditions (see Table B.2-1).

Table B.2-1
Replacement Residential Units to be Created

Owner	Existing Units Displaced from Project Area	Relocation Site	Replacement Units	Net Increase
HPD	38	1	42	4
West Harlem Group Assistance	16*	2	22	6
HCCI	21	3	42	21
TOTAL	**75**		**106**	**31**

Notes: * The residential buildings on Block 1999, Lots 31 and 32 are currently undergoing renovation and will each contain 8 units upon completion of renovation. The buildings each formerly contained 11 units as reported in the DEIS.

In addition to the 75 units that would be displaced in the Project Area from existing buildings described above, another residential building with rent-protected housing units would also be affected in the Project Area, the privately owned apartment building at 600 West 133rd Street. The 50 units in this building are subject to federal and City rent regulations, which extend to 2015 and 2029, respectively. Before that site would be available to Columbia to commence construction of the Academic Mixed-Use Development Plan, the Empire State Development Corporation (ESDC) would require the occupants of those units be relocated to equal or better housing units at affordable rents. However, specific relocation plans have not been determined at this time.

RELOCATION SITE 1

Relocation Site 1 is located at 3581 Broadway (Block 2094, portion of Lot 29), on the west side of Broadway between West 147th and West 148th Streets (see Figure B.2-2), approximately ¾ mile from the Project Area in the Hamilton Heights neighborhood of Community District 9. The relocation site occupies the northern half of the block front on the west side of Broadway between West 147th and West 148th Streets. The site is part of larger lot that extends south to West 147th Street, which would be divided into two separate zoning lots as part of this action. Relocation Site 1 is occupied by a one-story building containing three vacant commercial spaces and one clothing store (see Figure B.2-3).

Relocation Site 1 would be developed with a new building on the northern portion of the lot that would serve as replacement housing for approximately 38 units in the Project Area owned by HPD as part of its Tenant Interim Lease Program (TIL). At least 42 residential units would be developed at Relocation Site 1, approximately four more than those in HPD's TIL Program that would be displaced from the existing sites. The proposed building at Relocation Site 1 would

also contain ground-floor retail space and ground- and second-floor space for the Iglesia el Encuentro con Dios, currently located at 601 West 130th Street in the Project Area.

Relocation Site 1 has a total site area of 7,294 square feet (sf). The existing building on the site would be demolished, and a new mixed-use building on the site would be built as-of-right under the Zoning Resolution. The site's existing zoning is R8 residential with a C1-4 commercial overlay (additional discussion of zoning, including zoning maps, is provided below in Section C, "Analyses"). The site's R8 zoning allows residential development at maximum floor area ratio (FAR) of 6.02; residential space can be up 7.2 FAR (applicable for sites on wide streets, like Broadway) if developed following Quality Housing regulations. The Quality Housing provision of the New York City Zoning Resolution is intended to encourage development consistent with the character of established neighborhoods. It allows larger buildings, but with lower heights and higher lot coverage. Certain amenities (e.g., street trees, landscaping, and recreation space) must also be provided in Quality Housing buildings. Community facilities can be built to an FAR of 6.5 in R8 zoning districts. The commercial overlay allows commercial development on the site at an FAR of up to 2.0.

Assuming full development of the site according to its existing zoning, the new building on Relocation Site 1 could be 52,517 zoning square feet (zsf) in size under Quality Housing regulations. Quality Housing buildings can be a maximum of 120 feet high on wide streets in R8 zoning districts, or approximately 12 stories. Assuming full development of the corner site (coverage of 80 percent of corner lots is permitted under Quality Housing, so the building footprint could be approximately 5,800 sf), and assuming two stories would be devoted to church and retail use, the remaining space available for residential use would be 40,800 sf. Assuming an average dwelling unit size of 900 sf,[1] this would result in a building with as many as 44 residential units. The building would have a base of 60 to 85 feet high, after which it would set back. For analysis purposes, it is assumed that the building would house 42 units and would be approximately 12 stories tall. (A building developed without use of the Quality Housing provisions in the Zoning Resolution could be higher, but would have less floor area.)

Accessory parking is required for residential developments in R8 districts outside the Manhattan core on zoning lots larger than 10,000 sf. For lots larger than 15,000 sf (such as the existing zoning lot on which Relocation Site 1 is located), parking must be provided for 40 percent of the dwelling units (unless this would result in the requirement for 15 spaces or fewer, in which case the parking requirement is waived). The requirement for the proposed 42 units would be 16 spaces, and therefore 16 accessory parking spaces for the residential units would be provided on Relocation Site 1. However, if the dwelling units fit within certain categories of government-assisted housing, as set forth in Section 25-25 of the Zoning Resolution, the percentage of dwelling units for which parking spaces are required would be reduced. In that case, no parking spaces would need to be provided, because the parking requirement is waived if 15 or fewer parking spaces are required.

As discussed later in this appendix, Columbia will, at the time of its acquisition of the site, enter into a Restrictive Declaration for Relocation Site 1 that ensures the following:

- A Construction Protection Plan (CPP) would be prepared by the third-party developer in consultation with the New York City Landmarks Preservation Commission (LPC) and/or the

[1] This is the average unit size assumed for residential development in the Draft Environmental Impact Statement for the 125th Street Corridor Rezoning and Related Actions, dated September 28, 2007.

New York State Office of Parks, Recreation and Historic Preservation (OPRHP) as appropriate to avoid any potential adverse construction-related impacts on the Bunny Theater or other buildings of the State and National Register-eligible Upper Broadway Historic District located within 90 feet of Relocation Site 1. The third-party developer would also consult with LPC and/or OPRHP as appropriate with respect to the design of the new building to ensure that it is appropriate to the historic character of the historic district.

- Any development of the project site would proceed under the oversight of the New York City Department of Environmental Protection (DEP) with respect to the testing and remediation of hazardous materials.
- The new building to be built on the Relocation Site 1 would provide double-glazed windows and alternative means of ventilation (e.g., air conditioning) so that 35 dBA of window-wall noise attenuation is achieved on all facades of the building.

These measures would ensure that the proposed Relocation Site 1 building would not result in significant adverse historic resources, hazardous materials, or noise impacts.

RELOCATION SITE 2

Relocation Site 2 is located at 555 West 125th Street (Block 1982, Lot 1) on the northeast corner of Old Broadway and West 125th Street in Community District 9 (see Figure B.2-4). As shown in Figure B.2-1, this site is immediately outside the Project Area. It is currently occupied by a one-story commercial building containing a laundromat and shoe store (see Figure B.2-5).

Relocation Site 2 would be developed with a new approximately 22-unit residential building as replacement housing for approximately 16 units located at 3285 and 3287 Broadway that are owned and operated by West Harlem Group Assistance (WHGA) Renaissance Apartments, Limited Partnership, a subsidiary of WHGA. As described in Chapter 4, WHGA previously relocated existing tenants from the units at its current site while the property undergoes renovation. Upon completion of the renovations, the existing WHGA buildings in the Project Area will contain a total of 16 units. The units at Relocation Site 2 would replace the 16 units (after renovation) in the Project Area, and would accommodate approximately six additional affordable housing units. The proposed residential building at Relocation Site 2 would also contain ground-floor space for retail/community facility uses.

Relocation Site 2 has a total site area of 6,941 sf. The existing building on the site would be demolished and the site would be redeveloped with a new building constructed as-of-right under the Zoning Resolution. Relocation Site 2 is currently located in an R7-2 residential zoning district with a C2-4 commercial overlay. The R7-2 zoning allows residential development on the site to a maximum FAR of 3.44, with a maximum residential FAR of 4.0 under the Quality Housing provision (discussed above). The commercial overlay allows development of commercial uses at a maximum FAR of 2.0. However, Relocation Site 2 falls within the area proposed for rezoning under the New York City Department of City Planning (DCP)'s proposed 125th Street Corridor Rezoning (see Chapter 3, "Land Use, Zoning, and Public Policy" for a description of this rezoning proposal). If the rezoning is enacted as currently proposed, Relocation Site 2 would fall within an R7A residential district with a C2-4 overlay within the Special 125th Street District. The new R7A residential district would mandate the development of Quality Housing and would allow a maximum residential FAR of 4.0, the same as the maximum with Quality Housing under the site's existing zoning. Additionally, with the proposed new zoning, new buildings would be required to be built to the streetline, with a

minimum base height of 40 feet, and a maximum base height of 65 feet. Above this height, buildings would be required to set back. Maximum building heights would be limited to 80 feet.

Assuming the building would be developed on Relocation Site 2 to the maximum FAR under either the existing or proposed zoning, the new building would have a total zoning floor area of 27,764 sf. Assuming the maximum lot coverage permitted for Quality Housing development in the R7 district or for the proposed R7A district (80 percent of the lot can be covered), and assuming that the ground-floor retail space occupies the entire first floor (approximately 4,512 sf), a total of 23,252 sf would be devoted to residential use in the new building. Assuming an average unit size of 900 sf, this would result in as many as 25 apartments. The building could be developed to a maximum height of 80 feet (approximately eight stories) under either the current or proposed zoning. Quality Housing buildings in R7 districts must be built to the streetline, with a minimum base height of 40 feet and a maximum base height of 65 feet, after which the building must set back. This analysis assumes the development of 22 residential units, ground-floor retail, and a building of approximately seven stories on Relocation Site 2.

No parking would be required or provided at Relocation Site 2. In R7-2 districts, parking is not required for zoning lots smaller than 10,000 sf.

As discussed later in this appendix, Columbia will, at the time of its acquisition of the site, enter into a Restrictive Declaration for Relocation Site 2 that ensures the following:

- A CPP would be prepared by the third-party developer in consultation with LPC and/or OPRHP as appropriate to avoid any potential adverse construction-related impacts on the Old Broadway Synagogue, which is listed on the State and National Registers of Historic Places.
- Any development of the project site would proceed under the oversight of DEP with respect to the testing and remediation of hazardous materials.
- The new building to be built on the Relocation Site 2 would provide double-glazed windows and alternative means of ventilation (e.g., air conditioning) so that 35 dBA of window-wall noise attenuation is achieved on the north, east, and west facades of the building and 40 dBA of window-wall attenuation is achieved on the south façade of the building. To achieve 40 dBA of attenuation, special design measures would be necessary, such as specially designed windows and additional building insulation.

These measures would ensure that the proposed Relocation Site 3 building would not result in significant adverse historic resources, hazardous materials, or noise impacts.

RELOCATION SITE 3

Relocation Site 3 is located at 322-328 St. Nicholas Avenue and 319 West 126th Street (Block 1953, Lots 20, 45, 46, 47, and 123), on the east side of St. Nicholas Avenue between West 126th Street and West 127th Street (see Figure B.2-6), approximately ½ mile east of the Project Area in Community District 10. The site is currently vacant (see Figure B.2-7).

Relocation Site 3 would be developed with a new approximately 42-unit residential building as replacement housing for approximately 22 units located at 3281 and 3283 Broadway that are owned and operated by Charles Inniss Housing Development Fund Corporation, a subsidiary of the Harlem Congregations for Community Improvement, Inc. (HCCI). The proposed residential building at Relocation Site 3 would also contain space for retail/community facility uses.

Relocation Site 3 is a total of 8,108 sf and is currently vacant. The new building would be developed as-of-right under the Zoning Resolution. As shown in the zoning map provided later in this analysis (see Figure B.2-13), most of the site (Lots 20, 45, 46, 47, and more than half of Lot 123) is zoned R8, but an irregularly shaped portion of the site (consisting of less than half of Lot 123) falls within an R7-2 zoning district. Both the R8 and the R7-2 zoning districts permit residential and community facility use; the difference between the two districts relates to bulk. The R8 zoning district allows residential development at maximum FAR of 6.02; residential space can be up 7.2 FAR if developed following Quality Housing regulations. The R7-2 zoning allows residential development on the site to a maximum FAR of 3.44, with a maximum residential FAR of 4.0 under the Quality Housing provision. In both districts, community facilities can be developed to a maximum FAR of 6.5. Both zoning districts are described in more detail above in the discussions of Relocation Sites 1 and 2. The portion of the R8 district is approximately 7,408 sf, with approximately 700 sf in the R7-2 district.

Assuming full development of the site according to its zoning, the new building on Relocation Site 3 could be 56,137 zsf in size under Quality Housing regulations. It is assumed that the five separate lots would be merged into one zoning lot, and that new development would be along St. Nicholas Avenue, leaving the West 126th Street portion of the site undeveloped. Following Quality Housing regulations, the new building could be a maximum of 120 feet high (approximately 12 stories) along St. Nicholas Avenue. Assuming full development of the site, and assuming that the ground floor on St. Nicholas Avenue would be devoted to community facility use (6,386 sf), the remaining space available for residential use would be 49,751 sf. Assuming an average dwelling unit size of 900 sf, this would result in a building with as many as 55 residential units. As required by zoning, the building would have a base of 60 to 85 feet high on St. Nicholas Avenue, after which it would set back. For analysis purposes, it is assumed that the building would house 42 units and would be approximately 12 stories tall on St. Nicholas Avenue.

No parking would be required or provided at Relocation Site 3. In R8 districts, parking is not required for zoning lots smaller than 10,000 sf.

As discussed later in this appendix, Columbia will, at the time of its acquisition of the site, enter into a Restrictive Declaration for Relocation Site 3 that ensures the following:

- Any development of the project site would proceed under the oversight of DEP with respect to the testing and remediation of hazardous materials.
- The new building to be built on the Relocation Site 3 would provide double-glazed windows and alternative means of ventilation (e.g., air conditioning) so that 30 dBA of window-wall noise attenuation is achieved on all facades.

These measures would ensure that the proposed Relocation Site 3 building would not result in significant adverse hazardous materials or noise impacts.

C. ANALYSES

LAND USE, ZONING, AND PUBLIC POLICY

The following describes the existing conditions within 400 feet of each relocation site with regard to land use, zoning, and public policy and addresses any potential impacts to land use, zoning, and public policy that would be associated with the proposed residential buildings.

RELOCATION SITE 1

Relocation Site 1 is occupied by a one-story building containing three vacant commercial spaces and one clothing store. Land uses in the 400-foot study area, which generally extends between West 149th Street and West 116th Street and Riverside Drive and 200 feet east of Broadway, are primarily residential with some commercial and open space uses (see Figure B.2-8). Broadway is a major four-lane thoroughfare that runs north–south through the study area. The Broadway Malls, which are under the jurisdiction of the New York City Department of Parks and Recreation (DPR), divide Broadway into two lanes of traffic in each direction, and feature block-long promenades with sitting areas, trees, and other landscaping. Multi-family residential building with ground-floor retail and several low-rise commercial buildings line both sides of Broadway throughout the study area. The land uses west of Broadway are predominantly four- to five-story single-family and multi-family residential buildings. The land uses east of Broadway are similar, although taller, multi-unit residential buildings are found throughout the study area. Open spaces in the study area include the Palisades Playground at the intersection of West 148th Street and Riverside Drive, the Mo Pals Community Garden on West 147th Street, and Maggie's Garden on West 149th Street. Community members maintain the garden, which is part of the New York Restoration Project, a nonprofit organization that creates parks and gardens throughout New York City. In addition, a portion of Riverside Park between West 146th and West 149th Streets is located in the study area for Relocation Site 1.

As discussed earlier, Relocation Site 1 is located in an R8 residential zoning district with a C1-4 commercial overlay (see Figure B.2-9). R8 districts are high-density residential districts that permit residential and community facilities. Typical buildings in R8 districts range from mid-rise, eight- to 10-story apartment buildings to much taller, narrower buildings set back from the street on large zoning lots. Commercial uses are not permitted. The maximum FAR is 6.02, or 7.2 for buildings developed according to Quality Housing. Community facilities can be developed to a maximum FAR of 6.5. C1-4 commercial districts are mapped as overlays within residential districts, typically along streets that serve the surrounding neighborhood's local retail needs. Typical uses include grocery stores, dry cleaners, restaurants, and barber shops. When mapped as overlays in R8 residential districts, the maximum commercial FAR for C1-4 overlays is 2.0, although in a building with residential uses, commercial uses must be located below the second story.

The R8 residential district is mapped throughout the entire study area west of a line 100 feet east of Broadway, and the C1-4 commercial overlay is mapped within 100 feet of both sides of Broadway throughout the study area. All of the study area east of the line 100 feet east of Broadway is mapped as an R7-2 residential district. R7-2 residential districts are medium-density residential districts in which residential development is permitted to a maximum of 3.44 FAR, or 4.0 with the provision of Quality Housing. Community facilities are permitted to a maximum FAR of 6.5.

The proposed building at Relocation Site 1 would replace the existing commercial building with an approximately 12-story building, with retail located on the first floor and a church (Iglesia el Encuentro con Dios) located on the first and second floors. The proposed replacement housing on Relocation Site 1 would be located approximately ¾ mile from the existing units that it would replace. At Relocation Site 1, the new 12-story residential building with ground-floor retail and the church on the ground and second floors would be consistent with the land use of Broadway in study area, which is lined with multi-family residential buildings with ground-floor retail use. As a Quality Housing building, it would be contextual in terms of bulk and massing with other

surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high. It would also be compatible with the rest of the study area, which is predominantly residential. The new building would not require any changes to zoning or public policy in the study area.

RELOCATION SITE 2

Relocation Site 2 is occupied by a one-story commercial building containing a laundromat and a shoe store. The 400-foot study area generally extends between West 129th Street and New York City Housing Authority (NYCHA) Ulysses S. Grant Houses, and Broadway and the NYCHA Manhattanville Houses (see Figure B.2-10). Within this area, land uses include residential, residential with ground-floor retail, commercial, open space, and institutional uses (see Figure B.2-10). The elevated No. 1 subway line runs along Broadway through the study area. The study area includes a number of low-rise residential buildings, as well as the Manhattanville Houses to the north and the Grant Houses across West 125th Street, to the south. Low- to mid-rise multi-family apartment buildings with ground-floor retail space are located in the area close to Old Broadway. One of these buildings, directly north of Relocation Site 2, appears to be a single-room occupancy hotel. The larger housing complexes, Manhattanville Houses and Grant Houses, are located to the north and south. The Manhattanville Houses comprises six 20-story buildings, with approximately 1,200 apartments. The Grant Houses comprises nine buildings that are between 13 and 21 stories, with approximately 1,900 apartments. The block across from Relocation Site 2 contains residential buildings with ground-floor retail along West 125th Street and Broadway and two residential buildings that front on West 126th Street. A low-rise commercial building occupies the southeast corner of Broadway and West 125th Street. Typical retail uses in the study area along West 125th Street and along Broadway include banks, clothing stores, electronic stores, delis, and restaurants.

Institutional uses are also located on the same block as Relocation Site 2. The portion of the block on West 126th Street includes the New York Police Department (NYPD)'s 26th Precinct and Manhattan North Task Force, while the portion along West 125th Street includes the Our Children's Foundation office, the Antioch Baptist Church, and the Manhattan Pentecostal Church. St. Mary's Episcopal Church is located on the north side of West 126th Street, across from Relocation Site 2. The Church shares the block with the Sheltering Arms Playground, a DPR property; and the Manhattanville Health Center.

Relocation Site 2 is currently zoned as a residential R7-2 district with a C2-4 commercial overlay (see Figure B.2-11). As described above, R7-2 residential districts are medium-density residential districts that permit residential development to a maximum FAR of 4.0 (with Quality Housing) and community facility development to a maximum FAR of 6.5. Like the C1-4 commercial district described above, C2-4 commercial districts are mapped as an overlay district within residential districts. C2-4 districts permit a slightly wider range of uses than the C1-4 districts, including both neighborhood retail and local service businesses, such as funeral homes, home repair businesses (e.g., plumbers, electricians), and auto repair services. When mapped as overlays in R7-2 residential districts, the maximum commercial FAR for C2-4 overlays is 2.0.

All of the study area east of Broadway is zoned R7-2, and all of the area east of Broadway between West 125th and West 126th Streets is mapped with the C2-4 overlay. On the south side of West 125th Street at Broadway, a small area is mapped with a C1-4 overlay. The small portion of the study area west of Broadway includes an R8 residential district with a C2-4 overlay mapped in the area south of West 125th Street and an M1-2 manufacturing district north

of West 125th Street that is part of the Project Area. The M1-2 manufacturing district is a light industry district that serves as a buffer between higher density manufacturing uses and adjacent residential or commercial districts. Representative manufacturing uses include woodworking shops, auto storage and repair shops, and wholesale service and storage facilities. Offices and most retail uses are also permitted. Certain community facilities are allowed in M1-2 districts only by special permit.

As described earlier, Relocation Site 2 falls within the area proposed for rezoning under DCP's 125th Street Corridor Rezoning (see Chapter 3 for a description of this rezoning proposal) and would be located in a newly created 125th Street District. The proposed rezoning covers the area between 124th and 126th Streets, and Second Avenue and Broadway. The central component of this rezoning is a new special purpose district—the Special 125th Street District—mapped over the entire two-block-wide corridor between Second Avenue and Broadway. The proposed district would allow a range of retail, arts, entertainment, and cultural uses to physically and economically activate the street, and would include contextual zoning controls to respond to the specific scale and character of the corridor and adjacent streets, and support future job creation and career opportunities. If the rezoning is enacted as currently proposed, Relocation Site 2 would fall within an R7A residential district with a C2-4 overlay within the Special 125th Street District. The new R7A residential district would mandate the development of Quality Housing and would allow a maximum residential FAR of 4.0, the same as the maximum with Quality Housing under the site's existing zoning. Additionally, with the proposed new zoning, new buildings would be required to be built to the streetline, with a minimum base height of 40 feet, and a maximum base height of 65 feet. Above this height, buildings would be required to set back. Maximum building heights would be limited to 80 feet.

In addition, small portion of the study area currently mapped M1-2, north of West 125th Street and west of Broadway, is within the Project Area and is proposed for rezoning to C6-1. For more information on the proposed rezoning, see Chapter 1, "Project Description."

The maximum FAR allowed at Relocation Site 2 would not change as a result of the proposed 125th Street Corridor Rezoning. Whether or not that rezoning is enacted, the proposed residential building at Relocation Site 2 would replace the existing commercial building with an approximately seven-story building with approximately 22 residential units and retail and community facility space on the first floor, and would be located approximately ¼ mile from the existing residential units in the Project Area that it would replace. At Relocation Site 2, the new seven-story residential building with ground-floor retail space would be consistent with the character of West 125th Street in the area of Old Broadway, where multi-family apartment buildings with ground-floor retail space dominate. It would also be compatible with the overall residential use of the study area. As a Quality Housing building, it would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a maximum height of 80 feet. The new building at Relocation Site 2 would not require rezoning and would be consistent with either the existing zoning or the proposed 125th Street Corridor Rezoning.

RELOCATION SITE 3

Relocation Site 3 is currently vacant. Land uses within the 400-foot study area, which generally extends between West 125th and 128th Streets, Frederick Douglass Boulevard, and St. Nicholas Terrace, include commercial, residential, residential with ground-floor retail, vacant land, open space, and institutional (see Figure B.2-12). Much of the block containing Relocation Site 3

consists of vacant lots and vacant buildings. The area on West 126th Street that is adjacent to the U-shaped Relocation Site 3 consists of a church, the Progressive Baptist Church, and a community garden, the William B. Washington Memorial Garden. The Garden, which is maintained by community members and DPR, is planted with trees, flowers, herbs, and vegetables. Some occupied residential buildings are located on West 126th and West 127th Streets between vacant lots and community garden spaces.

The eastern portion of the block, fronting on and close to Frederick Douglass Boulevard, includes occupied buildings. The buildings with frontage on Frederick Douglass Boulevard include four residential buildings with ground-floor retail and the Greater Zion Hill Baptist Church on the southwest corner of Frederick Douglass Boulevard and West 127th Street. The remaining portion of the block includes vacant buildings and open space. The Clayton Williams Garden, which is a part of the Community Service Sentencing Project, is located on the northwest corner of Frederick Douglass Boulevard and West 126th Street. This garden is also planted with trees, flowers, herbs, and vegetables.

Most of St. Nicholas Avenue in the study area is lined with apartment buildings, many with ground-floor retail space. The project block and block to the north are predominantly vacant, but opposite the project block, a former school has been redeveloped as a residential building.

West 125th Street is a major four-lane thoroughfare that runs east–west through the southern portion of the study area. Retail buildings line both sides of West 125th Street through the study area. Typical retail uses include clothing stores, restaurants, delis, and music stores. On the south side of West 125th Street, these include a large-scale retail complex known as Harlem USA with such national chain retailers as Old Navy and Chuck E. Cheese. The portion of the study area west of St. Nicholas Avenue consists predominantly of multi-unit residential buildings, except for a U.S. Postal Service facility on West 126th Street. The area east of St. Nicholas Avenue and north of West 127th Street is primarily vacant land and vacant buildings, except for occupied mixed-use residential and commercial buildings on the northwest corner of Fredrick Douglass Boulevard and West 127th Street.

As described earlier, Relocation Site 3 is located primarily in an R8 residential district, with a small portion located in an R7-2 district (see Figure B.2-13). As shown in the figure, the study area includes a C4-4 district and small portions of C4-5 and C4-7 districts to the south of West 126th Street (mapped along the West 125th Street commercial corridor). North of West 126th Street, it includes the R8 district along St. Nicholas Avenue, and R7-2 districts near St. Nicholas Terrace and Frederick Douglass Boulevard. A C1-4 commercial overlay is mapped along some block fronts facing Frederick Douglass Boulevard. C4 commercial districts are mapped in regional commercial centers located outside of the central business districts. Typical retail uses include specialty and department stores, theaters, and other commercial and office uses that serve a larger area. C4-4 and C4-5 districts permit commercial development to a maximum FAR of 3.4 and residential development to a maximum of 3.44 FAR. C4-7 commercial districts permit commercial development to a maximum of 10.0 FAR, which can be increased to 12.0 with an urban plaza bonus. Residential development is permitted to a maximum of 12.0 FAR with an urban plaza bonus or provision of inclusionary housing.

As noted earlier, DCP is proposing rezoning of the 125th Street Corridor. In the study area for Relocation Site 3, the blocks along the north side of West 125th Street would be rezoned to a new C4-4D district in the Special 125th Street District. This new zoning district would allow residential development to an FAR of 5.4, or to a maximum of 7.2 with the provision of Inclusionary Housing. It would also allow commercial development to a maximum FAR of 4.0

and community facility development to a maximum FAR of 6.0. Buildings would have a mandatory base of 60 to 85 feet, after which the building must set back. Maximum buildings heights would be 120 feet. As a result of the 125th Street Corridor Rezoning, new development is anticipated to occur within the study area for Relocation Site 3 on the blocks between West 125th and West 126th Streets. Two sites were identified in the Draft Environmental Impact Statement for the 125th Street Corridor Rezoning and Related Actions as projected development sites, where redevelopment is most likely to occur. These sites are located at the northeast corner of St. Nicholas Avenue and West 125th Street, and at the northwest corner of Frederick Douglass Boulevard and West 125th Street (extending through to 126th Street). At these two sites, the existing retail buildings are projected to be redeveloped as larger commercial buildings with ground-floor retail space. In addition, several other parcels on the north side of West 125th Street in the study area were identified as potential development sites, indicating that redevelopment is possible. These sites may see redevelopment with residential buildings with ground-floor retail space.

The proposed residential building at Relocation Site 3 would replace the five vacant unoccupied lots with a 12-story building on St. Nicholas Avenue with approximately 42 residential units and ground-floor community facility space. The portion of the site on West 126th Street would not be developed. The proposed residential building at Relocation Site 3 would be located approximately ¾ mile from the existing residential units in the Project Area that it would replace. The new residential and community facility use on Relocation Site 3 would be consistent with existing land uses in the study area, which are predominantly residential and institutional. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high, similar in height to the many six-story buildings in the study area. The new building would also support and strengthen the land use character of the neighborhood by replacing vacant land with an active use. No changes to zoning or public policy would be required.

POTENTIAL IMPACTS OF RELOCATION HOUSING

Overall, each of the proposed residential buildings would be compatible with the existing and anticipated future land use in the areas surrounding each site. As discussed above, each of the study areas is predominantly residential, and the new residential buildings would be consistent with and supportive of that land use character. No changes to zoning or public policy would be required for any of the sites. Therefore, the proposed residential buildings would not conflict with existing or proposed land use or zoning and would not result in any significant adverse impacts on land use, zoning, or public policy.

As discussed in Chapter 3, "Land Use, Zoning, and Public Policy," the Proposed Actions' new uses would create a vibrant, mixed-use neighborhood in the Project Area in an area virtually devoid of open spaces and generally characterized by auto repair businesses, parking lots, moving and storage facilities, and sites with low-density commercial or industrial buildings. The active ground-floor uses, as required by the proposed Special Manhattanville Mixed-Use Zoning District, located along West 125th Street, Twelfth Avenue, and Broadway, would create compatible uses along these commercial corridors and, in combination with the proposed zoning urban design requirements such as widened sidewalks and open space, would serve to connect these blocks to the residential neighborhoods along Broadway to the north and south. The addition of three new mixed-use buildings outside of the Project Area in the surrounding

neighborhoods would be compatible with land uses in their respective neighborhoods and would not change the overall effects of the Proposed Actions.

SOCIOECONOMIC CONDITIONS

According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if an action may reasonably be expected to create substantial socioeconomic changes within the area affected by the action that would not occur in the absence of the action. Actions that would trigger a CEQR analysis include the following:

- Direct displacement of a residential population so that the socioeconomic profile of the neighborhood would be substantially altered.
- The displacement of substantial numbers of businesses or employees; or the direct displacement of a business or institution that is unusually important: because of its critical social or economic role in the community and unusual difficulty in relocating successfully, because it is of a type or in a location that makes it the subject of other regulations or publicly adopted plans aimed at its preservation, because it serves a population uniquely dependant on its services in its present location, or because it is particularly important to neighborhood character.
- Introduction of substantial new development that is markedly different from existing uses, development, and activities within the neighborhood. Such an action could lead to indirect displacement. Residential development of 200 units or fewer or commercial development of 200,000 sf or less would typically not result in significant socioeconomic impacts.

Combined, all three proposed residential buildings would contain a total of approximately 106 affordable housing units at three separate locations, replacing 75 units that would be displaced in the Project Area, for a net increase of 31 units. Each site would also include retail space and/or community facility space (including a church on Relocation Site 1). In total, the proposed residential buildings would not exceed the thresholds outlined above. Thus, the proposed residential buildings would not result in significant adverse impacts on socioeconomic character of the communities surrounding each relocation site, and no further analysis is necessary.

The new housing on Relocation Sites 1, 2, and 3 would be provided to replace housing units that would be displaced from the Academic Mixed-Use Area. Creating these new housing units would address this displacement and would not change the project's effects on socioeconomic conditions described in Chapter 4. As noted in Chapter 4, the Proposed Actions could directly displace 85 businesses and institutions (approximately 880 employees) in the Project Area; the creation of relocation housing would also displace businesses from the relocation sites. These three businesses (a clothing store on Relocation Site 1 and laundromat and shoe store on Relocation Site 2) have an estimated total of approximately 29 employees.[1] Because of their small size and local retail nature, these businesses are likely to be able to relocate within the immediate area. Overall, these and the other potentially displaced businesses and institutions were determined not to be of substantial economic value to the City or region as defined under CEQR, and would be able to relocate in the study areas or elsewhere in the City. The potentially displaced businesses and institutions do not contribute substantially to a defining element of neighborhood character in the primary and secondary study areas.

[1] Estimate based on 1 employee per 300 sf of retail space.

COMMUNITY FACILITIES

The proposed residential buildings would create 106 units of affordable housing at three separate locations, for a net increase of 21 affordable housing units relative to those that would be displaced by the Proposed Actions. The additional housing units would not change the conclusions made in Chapter 5, "Community Facilities," with respect to the Proposed Actions' effects on community facilities, as discussed below. Overall, as described below, the proposed residential buildings would not result in significant adverse impacts on community facilities and services, and no further analysis is necessary.

SCHOOLS

The *CEQR Technical Manual* recommends conducting a detailed analysis of public schools if a proposed project would generate more than 50 elementary/middle school and/or more than 150 high school students. Based on the number of residential units likely to be constructed and the student generation rates presented in Table 3C-2, "Projected Public School Pupil Ratios," of the *CEQR Technical Manual*, the 106 new residential units would collectively house a total of approximately 15 elementary school students, seven intermediate school students, and five high school students.[1] Of these, most units would replace units to be displaced from the Academic Mixed-Use Area, and therefore these students would not be new to the area's schools. The new units at Relocation Sites 2 and 3 would be in the same school district (Community School District [CSD] 5) as the Project Area; those at Relocation Site 1 would be in Community School District 6. The effects on these new units, together with other units anticipated as a result of the Proposed Actions, are described below.

In CSD 5, the total number of dwelling units would decrease slightly once the new relocation housing is completed. A total of 75 units would be displaced, and a total of 64 new units would be created within CSD 5 on Relocation Sites 2 and 3, for a net decrease in the total number of housing units in CSD 5. This would result in a slight decrease in the number of students expected in CSD 5 compared to the projections for the Proposed Actions described in Chapter 5 of this FEIS. As noted in Chapter 5, the schools in CSD 5 have adequate capacity for the new students expected as a result of the Proposed Actions.

While decreasing the number of apartments in CSD 5, the relocation housing would increase the number of housing units in CSD 6 by 42 units. Using the pupil generation rates described above, this would result in a total of six new elementary school students, two new intermediate school students, and three new high school students for CSD 6. No other new students would be introduced to this Community School District by the Proposed Actions. As noted in Chapter 5, elementary schools in CSD 6 were operating at 101 percent of capacity in the 2005-2006 school year and intermediate schools were operating at a utilization rate of 88 percent. Projections by the Department of Education for these schools for the future analysis years show enrollment decreasing, for utilization rates of 72 percent for elementary schools and 57 percent for intermediate schools in the 2015 and 2030 analysis years. The small increase associated with the new housing on Site 1 would not result in significant adverse impacts with respect to school capacity in CSD 6.

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[1] The pupil generation ratios are based on ratios established by the Department of Education and DCP. The ratios differ by income level (low, low-moderate, moderate-high, high). This analysis assumes that all of the proposed residential buildings' units would be low income.

LIBRARIES

According to the *CEQR Technical Manual*, significant impacts on library services may result if a proposed project would increase the average number of residential units served by library branches in the borough in which it is located by more than 5 percent. The analysis in Chapter 5 of this FEIS considers the Proposed Actions' effects on a combined library catchment area that considers all libraries within ¾ mile of the Project Area. As noted earlier, only a small number of the residential units would be new to the study area. The addition of the 31 new residential units to this catchment area would bring a total addition population of 72 people, based on the average household size of 2.33 persons per household in the Census Block Group that is currently home to the tenants who would be displaced. Together with the other 3,132 residents who would result from the Proposed Actions, the total increase in residential population from the Proposed Actions would be 3,204, which would represent an increase of approximately 1.1 percent over the population in the future without the Proposed Actions, which is below the CEQR threshold for a significant adverse impact. The number of new residents added to the combined library catchment areas by the Proposed Actions would be a very small percentage of the total annual library users. Therefore, no significant adverse impact on library resources would occur as a result of the Proposed Actions.

HEALTH CARE

Pursuant to *CEQR Technical Manual* guidelines, health care assessments focus on emergency and outpatient ambulatory services that could be affected by the introduction of a large low-income residential population that may rely heavily on nearby hospital emergency rooms and other public outpatient ambulatory services. Potential significant adverse impacts on health care facilities could occur if a proposed project would cause health care facilities within the study area to exceed capacity, or if a proposed project would result in a population increase of 5 percent or more who would seek services at these facilities. According to the *CEQR Technical Manual,* if a proposed project would generate more than 600 low- to moderate-income units, there may be increased demand on local public health-care facilities, which may warrant further analysis. The community facilities reasonable worst-case development scenario for the Proposed Actions, described in Chapter 5, would result in approximately 99 residential units in the Other Areas. Adding the net increase of affordable housing units to be created at replacement sites, the threshold of 600 units is not reached, and no additional analysis is required for the Proposed Actions.

DAY CARE

According to the *CEQR Technical Manual*, if a proposed project would add more than 50 eligible children to the study area's day care facilities, a detailed analysis of the proposed project's impact on publicly funded day care facilities should be performed. This threshold is based on the number of low- income and low- to moderate-income units within a proposed project. In Manhattan, projects that would create 357 units of low-income housing or 417 units of low- to moderate- income housing surpass the threshold for a detailed analysis of day care centers. Assuming that all of the proposed residential buildings' units would be low-income units, and assuming that the additional 99 residential units created by the community facilities reasonable worst-case development would also be low-income units, the total number of units would be below the threshold for a detailed analysis. Therefore, no further analysis is necessary.

POLICE AND FIRE

Finally, the *CEQR Technical Manual* recommends detailed analyses of police and fire service impacts only in cases of direct displacement. The Proposed Actions, including the proposed residential buildings at the relocation sites, would not directly displace either police or fire services; therefore, no further analysis is necessary.

OPEN SPACE

The *CEQR Technical Manual* recommends performing an open space assessment for projects that either physically displace an open space or generate enough new residents or workers to noticeably diminish the ability of an area's open spaces to serve existing or future populations. The *CEQR Technical Manual*'s threshold for a detailed analysis is an expected population increase of 200 or more residents or 500 or more employees. The small number of new residents, employees, and visitors at each of the relocation sites who would be associated with the new buildings would not be expected to result in significant demands for open spaces near the relocation sites. As noted earlier, a total of 106 new residential units would be created to replace 75 units that would be displaced from the Project Area. Based on the average household size of 2.33 residents per household in the Census Block Group that is currently home to the tenants who would be displaced, the 31 net new dwelling units would house a total of 72 residents. The new retail and community facility space on the sites would have an estimated 70 employees. This small number of new residents and employees would not be enough to warrant a detailed analysis according to the thresholds of the *CEQR Technical Manual*. Moreover, the new residential buildings at Relocation Sites 1, 2, and 3 would each provide recreational space at the building, as required by Quality Housing regulations.

The addition of the small number of new residents and new employees at the three relocation sites would not change the conclusions of the open space analysis conducted for the Proposed Actions (see Chapter 6, "Open Space"). As described in Chapter 6, the Proposed Actions would result in a significant adverse impact on passive open spaces in the ¼-mile study area. Relocation Site 1 is located outside the ¼-mile study area and therefore would not affect this conclusion. Relocation Sites 2 and 3 are within the ¼-mile study area and would slightly increase the population in the study area (adding a total of 63 residents and 30 workers from the 27 net new dwelling units and the ground-floor retail and community facility space on those two sites). Overall, the conclusions related to the ¼-mile study area provided in Chapter 6 would be unchanged as a result of the addition of housing on the relocation sites. Similarly, the addition of a small number of new residents to the ½-mile study area as a result of the new housing development also would not change the overall conclusions related to the adequacy of open space in the ½-mile study area.

The new buildings on the relocation sites would result in incremental shadows on some nearby open spaces (see "Shadows," below). As discussed below, these incremental shadows would not constitute significant adverse impacts.

SHADOWS

The shadow assessment considers actions that would result in new shadows long enough to reach a publicly accessible open space, important natural feature, historic landscape, or other historic resource if the features that make the resource significant depend on sunlight, and adversely affects its use and/or important landscaping and vegetation.

The *CEQR Technical Manual* states that an assessment of shadows is generally necessary only for actions that would result in new structures or additions to existing structures of at least 50 feet in height. The proposed residential buildings would result in new construction at three separate locations, and each building would exceed 50 feet in height.

For analysis purposes, it is anticipated that a 12-story building (at a maximum of 120 feet) would be constructed at Relocation Site 1 at 3581 Broadway; a seven-story building (maximum of 80 feet) would be constructed at Relocation Site 2 at 555 West 125th Street; and at Relocation Site 3, at 322-328 St. Nicholas Avenue, a 12-story building (maximum of 120 feet) would be constructed along the site's St. Nicholas Avenue frontage and the West 126th Street frontage would remain undeveloped.

The shadow assessment considers actions that would result in new shadows long enough to reach a publicly accessible open space, important natural feature, historic landscape, or other historic resource if the features that make the resource significant depend on sunlight, and adversely affects its use and/or important landscaping and vegetation. Following *CEQR Technical Manual* guidelines, shadows analyses consider the incremental shadows cast by a building on four representative days of the year:

- December 21, the winter solstice, shortest day of the year, when shadows are longest;
- March 21, the vernal equinox (which is equivalent to September 21, the autumnal equinox);
- May 6, midpoint between the equinox and summer solstice (which is equivalent to August 6);
- June 21, the summer solstice, shortest longest day of the year, when shadows are shortest.

The *CEQR Technical Manual* methodology does not generally consider shadows and incremental increases in shadows within 1½ hours of sunrise or sunset.

An initial shadow screening assessment was conducted for each of the Relocation Sites, using the height factors set forth in the *CEQR Technical Manual* for the length of a building's shadow at particular times of day on each of the analysis dates. [1]

RELOCATION SITE 1

The proposed 12-story building would be built on the northern portion of the lot, on the corner of West 148th Street and Broadway, replacing a one-story structure. With a maximum height of 120 feet, screening analysis indicated that the proposed building's shadow would be long enough to reach two nearby sun-sensitive resources, Riverside Park between West 147th and 129th Streets and the Broadway Malls between West 147th Street and West 150th Street. The western façade of the Jehovah Baptist Church at 536 West 148th Street, which contains sunlight-dependent features, abuts an adjacent building and would not be exposed to any potential incremental shadow.

[1] Following the methodology presented in Chapter 3E of the *CEQR Technical Manual*, the length of the shadow and the time of day can be determined by determining the angle of the project's shadow on the open space in relation to true north and then using Table 3E-2 to identify the shadow length factor and time of day for each of the four analysis dates.

Riverside Park

The proposed building's shadow would be long enough to reach small areas of the park next to Riverside Drive in the mornings in all seasons. (This is not the same area of Riverside Park that would be affected by shadows from new buildings in the Project Area.) However, it is likely that tall intervening buildings along the east side of Riverside Drive between West 147th Street and West 149th Streets already cast shadow on the areas where the proposed building's shadow would reach.

Disregarding any intervening buildings and the shadows they cast, on the June 21 analysis day the incremental shadow would only be long enough to reach the park for the first 10 minutes of the analysis period, exiting at about 7:07 AM. On the May 6/August 6 analysis day the incremental shadow would exit the park 18 minutes after the start of the analysis period. On the March 21/September 21 analysis day the incremental shadow would be long enough to last about 36 minutes (8:36 AM to 9:12 AM), and on December 21, when shadows are longest, the incremental shadow would last about an hour, exiting at 9:54 AM. These durations were conservatively calculated in the absence of intervening buildings and the existing shadows they cast.

Riverside Park also extends farther north and south of this area between West 147 and West 149th Streets. The adjacent portions of the park would not be cast in shadow from the proposed building during the same periods. These adjacent portions of the park are visible and accessible to any users of the park between West 147 and West 149th Streets who would be affected by the incremental shadows. The incremental shadows would not reduce the overall usability of Riverside Park due to their limited effects over the course of the year; therefore, there would be no significant adverse impacts on Riverside Park.

Broadway Malls

Incremental shadows from the new building would be long enough to move across portions of the Broadway Malls between West 147th Street and West 149th Street from the mid-afternoon to the end of the analysis period on the spring, summer, and fall analysis days, and between West 147th and West 150th Streets for about 30 minutes at the end of the December 21 analysis day. Shadows from other buildings in the area also fall on the Broadway Malls during these time periods. The adjacent mall to the north of West 150th Street and to the south of West 147th Street would not be cast in shadow from the proposed building during the same periods. These adjacent malls are visible and accessible to any users of the malls between West 147th and West 150th Streets who would be affected by the incremental shadows. The incremental shadows would not reduce the overall usability of the Broadway Malls due to their limited effects over the course of the year; therefore, there would be no significant adverse impacts on the Broadway Malls.

RELOCATION SITE 2

At an estimated height of 80 feet, the proposed building at Relocation Site 2, located at the corner of Old Broadway and West 125th Street, would cast a shadow long enough to reach St. Mary's Protestant Episcopal Church, Sheltering Arms Park, and the Old Broadway Synagogue. No new shadows are expected to be cast on these locations from any development expected to result from the proposed 125th Street Corridor Rezoning. This analysis therefore accounts for shadows cast by the new building on Relocation Site 2 and any existing buildings in the immediate area.

The new building on Relocation Site 2 would cast a shadow long enough to reach the front (southwest facing) façade of St. Mary's Protestant Episcopal Church, which has sunlight-dependent features, for approximately 14 minutes at the end of the June 21 analysis day (6:46 PM to 7:01 PM). Incremental shadow would not reach St. Mary's Church on any other analysis day. No significant adverse impacts are expected to occur, as the shadows would not last long enough or be large enough to result in a substantial reduction in sunlight to this sun-sensitive feature.

Sheltering Arms Park occupies much of the block around St. Mary's Church. The proposed building's shadow would be long enough to reach the park from about 6:46 PM to 7:01 PM on the June 21st analysis day, from about 6:00 PM to 6:18 PM on the May 6/August 6 analysis day, and approximately 4:45 PM to 5:29 PM on the March 21/September 21 analysis day. The proposed building's shadow would not fall southward enough to reach the park at all on the December 21 analysis day. No significant adverse impacts are expected to occur on this open space, as the duration and coverage of shadows would not be long enough or large enough to affect vegetation or park usage.

The Old Broadway Synagogue at 15 Old Broadway would not receive any incremental shadow, because a taller intervening building already casts shadow during those times when the proposed building would cast shadow on this resource. The United Pentecostal Church at 541 West 125th Street is located too far south to receive incremental shadow from the proposed building.

RELOCATION SITE 3

The proposed building at St. Nicholas Avenue and West 126th Street would rise to approximately 120 feet. Incremental shadows from the building would fall onto the community garden that is adjacent to Relocation Site 3 on West 126th Street, the William B. Washington Memorial Garden.

At the start of the June 21 analysis day at 6:57 AM, incremental shadow from the section of the proposed building north of the garden would fall toward the southwest, across the northern portion of the garden. This incremental shadow would move north and get smaller over the course of the morning, finally exiting completely at about 11:00 AM.

Existing shadow cast by the adjacent building to the west of the garden enters the western edge of the open space at about 1:30 PM. Incremental shadow from the proposed building would move into the northwest corner of the garden about an hour later at 2:30 PM, initially covering a small section. It would move across the northern part of the garden, growing slightly larger and then shrinking again after 4:00 PM as the existing shadow stretches eastward across the space. At about 5:00 PM the incremental shadow would exit the space as existing shadow reaches all the way across the garden. The area of incremental shadow would never cover more than about a third of the garden even at its maximum extent.

On the May 6/August 6 analysis day, incremental shadow cast by the northern part of the proposed building would fall across the northern part of the garden from 7:27 AM until about 9:30 AM. Incremental shadow cast by the southern part of the proposed building would enter the northern area of the garden at about 3:00 PM. The extent of new shadow would remain small as it moves into the northeast section of the garden, and would exit to the northeast at about 4:45 PM.

On March 21 and September 21, the northern section of the proposed building would cast an incremental shadow on a small area of the northern portion of the garden from the start of the

analysis day at 8:36 AM until about 9:45 AM. No incremental shadow would be cast on the garden for the rest of the day.

No incremental shadow would be cast on the garden on the December 21 analysis day.

During the late spring and summer months when sunlight is most important for survival of vegetation, most or all of the garden would receive sunlight from mid-morning to early afternoon. Through mid-afternoon the eastern and southern areas of the garden would continue to receive sunlight. Therefore, no significant adverse shadow impact would occur on the community garden.

No shadows would be cast onto the other community garden on the project block, at the corner of West 126th Street and Frederick Douglass Boulevard, because of its location relative to the project site (the garden is too far south relative to the project site to fall within the path of shadows from the project site). The Greater Zion Hill Baptist Church, located on the same block as Relocation Site 3 on the opposite corner, at Frederick Douglass Boulevard and West 127th Street, does not possess any sun-sensitive resources facing the proposed building. Therefore, the proposed residential building at Relocation Site 3 would not result in significant adverse shadows impacts, and no further analysis is necessary.

HISTORIC RESOURCES

Historic resources include both archaeological and architectural resources. For archaeological resources, the study area is generally defined as the project site, i.e., the area that would be disturbed by project construction. As described in the *CEQR Technical Manual*, a detailed assessment of archaeological resources is required for actions that would result in in-ground disturbance. Construction of the three residential buildings would require excavation at each of the three sites.

Study areas for architectural resources are determined based on the area of potential effect for construction-period impacts, such as ground-borne vibrations, and on the area of potential effects for visual or contextual effects, which is usually a larger area. Following the guidelines of the *CEQR Technical Manual*, the architectural resources study area for each of the three sites is defined as the area within an approximately 400-foot radius of the site. Architectural resources include designated New York City Landmarks (NYCLs) and Historic Districts; properties calendared for consideration as such; properties listed on or determined eligible for listing on the State and/or National Register of Historic Places (S/NR); and National Historic Landmarks. A list of such architectural resources was compiled. In addition, surveys of the study areas were undertaken to identify any buildings that could meet S/NR or NYCL eligibility criteria.

RELOCATION SITE 1

Archaeological Resources

As described in the *CEQR Technical Manual,* a detailed assessment of archaeological resources is required for actions that would result in in-ground disturbance. The proposed building at Relocation Site 1 would require excavation at the site (although there is an existing building on the site that has likely already disturbed the same area). In a comment letter dated October 29, 2007, the New York City Landmarks Preservation Commission (LPC) concluded that the project site has no archaeological significance (see Appendix B.3). Therefore, the proposed building has no potential for significant adverse impacts on archaeological resources and no further assessment is necessary.

Architectural Resources

Relocation Site 1 is occupied by a one-story commercial building located on the southwest corner of West 148th Street and Broadway and is located within the S/NR-eligible **Upper Broadway Historic District**, which includes Broadway and the buildings on either side of Broadway between West 135th and West 165th Streets. The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) has not made determinations with respect to contributing and non-contributing properties in this historic district. The Determination of Eligibility form completed by OPRHP for this historic district identifies that its significance lies in the uniformity of the five- and six-story apartment buildings that were constructed in the early 20th century, and also references some late 19th century rowhouses and altered historic theaters. The building on Relocation Site 1 is a plain, one-story brick structure. Although it was built circa 1913, it has been substantially altered and LPC has concluded that the building is not an architectural resource (see Appendix B.3).

There are five known architectural resources located in the 400-foot study area. These are the **Hamilton Theatre** at 3560-3568 Broadway (NYCL); **the Riverside Park and Riverside Drive Scenic Landmark** (NYCL-eligible, S/NR-eligible)[1], located in the westernmost portion of the study area; the **Bunny Theater** at 3589 Broadway (S/NR-eligible)[2]; and buildings located in the S/NR-eligible **Upper Broadway Historic District**, which includes the Hamilton Theatre and the Bunny Theater (see Figure B.2-14). In addition, the blocks between Riverside Drive and Broadway between West 146th and West 148th Streets contain a homogeneous group of buildings in terms of their height, style, and materials. With the exception of some removal of cornices and window replacements, the buildings in this area form a **Riverside Drive/West 146th-148th Streets Historic District** (NYCL-eligible, S/NR-eligible)[3], constituting an intact group of residential dwellings ranging from three- to four-story rowhouses on the cross streets and larger six- to 10-story apartment buildings along Riverside Drive (see Figure B.2-14). The majority of these buildings were constructed between 1905 and 1909 and coincided with the construction of the IRT Broadway subway line. Housing in the area attracted upper-middle-class and middle-class families who easily commuted to work from Harlem to lower Manhattan.

The S/NR-eligible and LPC-eligible Riverside Drive/West 146th-148th Streets Historic District features rowhouses on the cross streets that are clad in brick, brownstone, and limestone with detailed cornices, bay windows and terra-cotta embellishments (see Views 1 and 2 of Figure B.2-15). The south side of West 147th Street has some of the oldest homes in the study area, dating to 1893 (see View 3 of Figure B.2-16). There are also 6- to 10-story apartment buildings along Riverside Drive faced in limestone and brick with terra-cotta ornament (see View 4 of Figure B.2-16). Such architects as Neville & Bagge, George F. Pelham, Emery Roth, Henri Fouchaux, and Moore & Landsiedel, who designed the rowhouses and apartment buildings in this potential district, greatly contributed to the wealth of residential dwellings constructed in Harlem in the first decades of the 20th century.

Relocation Site 1 is located within the S/NR-eligible Upper Broadway Historic District. Because the building on the site is not an architectural resource and therefore does not contribute to the

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[1] NYCL eligibility determinations made by LPC on November 13, 2007 (see Appendix B.3).

[2] S/NR-eligibility determinations made by LPC in a comment letter dated November 13, 2007 (see Appendix B.3).

[3] NYCL eligibility determinations made by LPC on November 13, 2007 (see Appendix B.3).

significance of this S/NR-eligible historic district, its demolition would not adversely affect the historic character of the district. To avoid any potential adverse construction-related impacts on the Bunny Theater or other buildings of the S/NR-eligible Upper Broadway Historic District located within 90 feet of Relocation Site 1 and determined by OPRHP to contribute to the significance of this historic district[1], a Construction Protection Plan (CPP) would be prepared by the third-party developer in consultation with LPC and/or OPRHP as appropriate. The requirement to prepare this CPP would be set forth in a Restrictive Declaration that would be recorded against the property at the time Columbia acquires the property.

The other architectural resources in the study area are located more than 90 feet from Relocation Site 1; therefore, no direct construction-related impacts on these resources are expected.

Since Relocation Site 1 is located within the S/NR-eligible Upper Broadway Historic District, the third-party developer would also consult with LPC and/or OPRHP as appropriate with respect to the design of the new building to ensure that it is appropriate to the historic character of the historic district. The requirement to conduct this consultation would be set forth in the Restrictive Declaration to be recorded against the property at the time Columbia acquires the property.

The proposed residential building at Relocation Site 1 would not result in any contextual or visual impacts on any architectural resources. For analysis purposes, it is anticipated that the building would be 12 stories, which would be consistent with the height of other structures in the study area, including the seven-story apartment building across West 148th Street from Relocation Site 1 and the 10-story apartment building west of the project site on West 148th Street and Riverside Drive. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high. The proposed building would not obstruct any existing views to architectural resources in the study area or otherwise adversely impact the context of architectural resources in the study area. In comments provided on November 9, 2007, LPC concurred with the conclusions of this analysis.

The 400-foot study area for architectural resources for Relocation Site 1 does not overlap with the study area for architectural resources for the Proposed Actions described in Chapter 8, "Historic Resources." Because of the distance between Relocation Site 1 and the Project Area, there would be no cumulative contextual effects on any architectural resources.

RELOCATION SITE 2

Archaeological Resources

As described in the *CEQR Technical Manual*, a detailed assessment of archaeological resources is required for actions that would result in in-ground disturbance. The proposed building would require excavation at the site (although there is an existing building on the site that has likely already disturbed the same area). In a comment letter dated November 1, 2007, LPC concluded that the project site has no archaeological significance (see Appendix B.3). Therefore, the

[1] A distance of 90 feet is used as the area for potential damage for historic structures based on TPPN #10/88, issued by DOB on June 6, 1988, to supplement New York City Building Code regulations with regard to historic structures. TPPN #10/88 outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

proposed building has no potential for significant adverse impacts on archaeological resources and no further assessment is necessary.

Architectural Resources

Relocation Site 2 is occupied by a one-story commercial building located on the northeast corner of West 125th Street and Old Broadway. The property is not a known architectural resource (known architectural resources include properties listed on or determined eligible for listing on the S/NR, National Historic Landmarks, NYCLs and Historic Districts, or a property pending such designation). The building also does not meet the criteria for eligibility for S/NR listing or NYCL designation. In comments provided on November 13, 2007, LPC indicated that the building on the project site is not an architectural resource.

A number of architectural resources are located in or just outside of the 400-foot study area, which is located within the larger study area for architectural resources for the Proposed Actions, as discussed in Chapter 8, "Historic Resources" of this FEIS. These include the **Old Broadway Synagogue** (S/NR), which is directly north of Relocation Site 2 on the same blockfront; the **125th Street IRT Subway Station** (S/NR); the **Manhattan Valley IRT viaduct** (S/NR, NYCL); the **former McDermott-Bunger Dairy** (S/NR-eligible); the **Speyer School** (S/NR-eligible); the **New York Public Library, George Bruce Branch** (S/NR-eligible); **former Engine Company No. 37** (S/NR-eligible); **St. Mary's Protestant Episcopal Church, Parish House and Sunday School** (S/NR-eligible, NYCL); and **P.S. 43 Manhattanville Junior High School** (S/NR-eligible). The southwest portion of the study area partially falls within the **Tiemann Estate Historic District** (S/NR-eligible). These resources are listed in Table B.2-2 and are mapped in Figure B-2.17. They are described in Chapter 8 of this FEIS.

One of these architectural resources is located less than 90 feet from Relocation Site 2: the Old Broadway Synagogue located two lots north of Relocation Site 2 at 15 Old Broadway. To avoid accidental construction-related damage to this historic structure, a CPP would be prepared by the third-party developer, in consultation with LPC and/or OPRHP as appropriate. The requirement to conduct this consultation would be set forth in the Restrictive Declaration that would be recorded against the property at the time Columbia acquires the property. Because the remaining architectural resources in the study area are at a distance of more than 90 feet from Relocation Site 2, direct construction-related impacts are not expected on those resources.

The proposed residential building at Relocation Site 2 would not result in any contextual or visual impacts on architectural resources in the surrounding area. For analysis purposes, it is anticipated that the building would be approximately seven stories, which would be consistent with the height of other structures in the study area, including the two apartment buildings just east of Relocation Site 2 at 551 and 549 West 125th Street, which are five and six stories tall, respectively. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a maximum height of 80 feet. The proposed residential building at Relocation Site 2 would not obstruct any existing views to architectural resources in the study area or otherwise adversely affect the context of the architectural resources in the study area. In addition, the combination of the Proposed Actions in the Project Area and the new housing on Relocation Site 2 also would not result in a combined adverse effect to the context of any of the architectural resources in this study area. In comments provided on November 13, 2007, LPC concurred with the conclusions of this analysis.

Table B.2-2
Relocation Site 2
Architectural Resources in the 400-Foot Study Area

Ref. No.	Name	Address	Block/ Lot	S/NR	S/NR-Eligible	NYCL	NYCL-Eligible
1	Old Broadway Synagogue	15 Old Broadway	1982/49	X			
2	P.S. 43, Manhattanville Junior High School	509 West 129th Street	1933/37		X		
3	St. Mary's P.E. Church, Parish House and Sunday School	517-523 West 126th Street	1983/11		X	X	
4	Former Engine Co. 37	509 West 126th Street	1983/20		X		X
5	Speyer School	514 West 126th Street	1982/36		X		
6	Former McDermott Bunger Dairy	527-535 West 125th Street	1982/10		X		
7	New York Public Library, George Bruce Branch	518 West 125th Street	1980/22		X		X
8	125th Street IRT Subway Station	Broadway and West 125th Street	N/A	X			
9	Manhattan Valley IRT viaduct	Broadway from West 122nd to West 135th Streets	N/A	X		X	
10	Tiemann Estate Historic District	Tiemann Place and West of Broadway	Various		X		

Notes:
[1] Corresponds to Figure B.2-17
SR: New York State Register of Historic Places
NR: National Register of Historic Places
S/NR Eligible: Site has been found eligible for listing on the New York State and National Registers of Historic Places.
NYCL: New York City Landmark
NYCL Eligible: LPC has determined that the site appears eligible for NYCL designation.

RELOCATION SITE 3

Archaeological Resources

As described in the *CEQR Technical Manual*, a detailed assessment of archaeological resources is required for actions that would result in in-ground disturbance. The proposed building would require excavation at the site. In a comment letter dated November 1, 2007, LPC concluded that the project site has no archaeological significance (see Appendix B.3). Therefore, the proposed building has no potential for significant adverse impacts on archaeological resources and no further assessment is necessary.

Architectural Resources

Relocation Site 3 consists of five vacant lots on the northeast corner of West 126th Street and St. Nicholas Avenue. There are no architectural resources on the site.

There are four known architectural resources in the 400-foot study area. These are **P.S. 157** (S/NR), located across St. Nicholas Avenue from the project site at 327 St. Nicholas Avenue; the **former Provident Loan Society of New York Office Branch** (now the Greater Zion Hill Church) (S/NR-eligible), located at 2365 Frederick Douglass Boulevard; the **Amsterdam News Building** (S/NR-eligible), located at 2340 Frederick Douglass Boulevard; and the **Bishop**

Building (S/NR-eligible), located on the northeast corner of West 125th Street and Frederick Douglass Boulevard. In comments provided on November 14, 2007, LPC indicated that the study area does not include any other architectural resources.

The architectural resources in the study area are at a distance of more than 90 feet from Relocation Site 3, and therefore direct construction-related impacts are not expected on those resources.

The proposed residential building at Relocation Site 3 would not result in any visual or contextual impacts on the known architectural resources in the 400-foot study area. For analysis purposes, it is anticipated that the building would be approximately 12 stories. This would be consistent with the height of buildings on the same blockfront and throughout the study area, including the seven-story building located across West 126th Street from the project site, and the St. Nicholas Houses, located in the northeast portion of the study area on Frederick Douglass Boulevard from West 127th to West 131st Streets, which consists of thirteen 14-story buildings. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high, similar in height to the many six-story buildings in the study area. The proposed residential building at Relocation Site 3 would not obstruct any existing views to architectural resources in the study area or otherwise adversely impact the context of the architectural resources in the study area. In comments provided on November 14, 2007, LPC concurred with the conclusions of this analysis.

The 400-foot study area for architectural resources for Relocation Site 1 does not overlap with the study area for architectural resources for the Proposed Actions described in Chapter 8. Because of the distance between Relocation Site 1 and the Project Area, there would be no cumulative contextual effects on any architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

The *CEQR Technical Manual* defines urban design as the components and visual resources that determine a neighborhood's "look"—its physical appearance, including the size and shape of buildings, their arrangement on blocks, the street pattern, and noteworthy views that may give an area a distinctive character. A preliminary screen assesses whether a project would have substantially different bulk or setbacks than exist in an area and whether substantial new, above-ground construction would occur in an area that has important views, natural resources, or landmark structures. Proposed projects that would result in a building or structures substantially different in height, bulk, form, setbacks, size, scale, use, or arrangement than exists require a detailed assessment. A detailed assessment is also required for proposed projects that would change block form or would demap an active street; map a new street; or affect street hierarchy, streetwalls, curb cuts, pedestrian activity, or other streetscape elements. The following provides an urban design and visual resources assessment of each residential building.

RELOCATION SITE 1

Relocation Site 1 is located on the west side of Broadway between West 147th and West 148th Streets. In this study area, Broadway is a busy four-lane roadway divided by the landscaped Broadway Malls. Relocation Site 1 is occupied by a one-story commercial building. The building's ground-floor facing on Broadway is clad in stone and painted brown, with awnings advertising each of the commercial uses. The side of the building along West 148th Street has no adornments, except for posters taped to its sides. Overall, the building has few architectural

adornments. Adjacent to the relocation site, the remaining block frontage on the west side of Broadway is occupied by another one-story commercial building.

The study area topography is slightly rolling along Broadway and slopes down from Broadway to Riverside Drive. The street pattern is a typical rectilinear Manhattan street grid pattern with avenues running north–south and streets running east–west, except for Riverside Drive, which curves at a slight angle to the street grid. Street furniture in the area includes light poles, mail boxes, trees, trash cans, and parking meters. The Broadway Malls run the length of Broadway and include trees, landscaping, and seating.

The study area surrounding the Relocation Site 1 is residential, with a mix of low-rise brownstone, walk-up buildings along the streets and taller residential buildings that front Broadway and Riverside Drive. On the streets between Broadway and Riverside Drive are four- to five-story residential buildings, while Broadway includes taller, seven- to 10-story residential buildings with ground-floor retail. A 6-story and a 10-story residential building occupy the western end of the Relocation Site 1 block, and two 6-story residential buildings with ground floor retail are directly across Broadway. All of the buildings on the western blackface of Broadway between West 148th and West 149th Streets are seven-story residential buildings with ground-floor retail.

Views in the study area include views west from Broadway across the Hudson River to New Jersey, while views south and north along Broadway take in the buildings along the avenue and the Broadway Mall. Most views east do not extend beyond the immediately surrounding streets.

The proposed residential building at Relocation Site 1 would replace the existing one-story commercial building with an approximately 12-story residential building, with retail located on the first floor and a church located on the first and second floors. The proposed residential building's bulk and use would be similar to what exists in the study area, but the building would be taller than the other buildings in the study area, which are generally six- and seven-story apartment buildings as well as some lower buildings. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high, similar to the height of the other surrounding buildings. The new building would be similar in height to, although slightly taller than, two other buildings: the apartment building at the northwest corner of West 146th Street and Broadway, and the apartment building on West 148th Street at Riverside Drive, just west of the project site. Overall, the new building would be consistent in use and general bulk with the surrounding area and would not be expected to result in significant adverse impacts on urban design or visual resources.

RELOCATION SITE 2

Relocation Site 2 is occupied by a one-story commercial building with a laundromat and a shoe store. The building occupies the corner lot on the northeast corner of Old Broadway and West 125th Street. The portion of the existing building along Old Broadway has few architectural adornments except for a service entrance, which includes a retractable metal gate. An awning advertising the laundromat is set on the western portion of the building fronting on West 125th Street and a small portion on Old Broadway. A metal sign advertising the shoe store is set on the eastern portion of the building fronting on West 125th Street.

The study area topography is flat. The street pattern differs from the typical rectilinear gird, with Broadway, West 125th Street, and West 126th Street all running at an angle. Old Broadway

bisects the Relocation Site 2 block and connects West 125th Street to West 126th Street. Street furniture in the area includes light poles, mail boxes, trees, trash cans, and parking meters.

The study area surrounding Relocation Site 2 is primarily residential and institutional with commercial shops and institutional uses. The high-rise NYCHA Manhattanville and Grant Houses are located north and south of the site, respectively. The remaining buildings on the Relocation Site 2 block are low-rise institutional and commercial uses, typically two stories in height. Most are clad in stone or brick. Two five-story buildings with ground-floor retail directly abut the site on the north and east. The Old Broadway Synagogue is located north of the site on Old Broadway. The historic two-story brick synagogue has two stained-glass windows on the ground floor and three on the second floor, including a large window situated in the center of the floor. St. Mary's Episcopal Church is located on West 126th Street. The church is built of brown brick and has a large stained-glass window on the side fronting West 126th Street. The block directly west of the relocation site, across Old Broadway, is fully developed with six-story walk-up apartment buildings.

The proposed residential building at Relocation Site 2 would replace the existing one-story commercial building with an approximately seven-story residential building with retail space on the first floor. Many of the buildings in the study area are residential buildings with ground-floor retail space, particularly along West 125th Street. In terms of bulk, the new building would be slightly taller than the other residential buildings near Old Broadway, but as a building built to the building line with a consistent streetwall, would be similar in bulk to those buildings and unlike the large, "tower in the park" form of the Manhattanville and Grant Houses. The new building would be consistent in bulk and massing with other new buildings anticipated along West 125th Street as a result of DCP's proposed 125th Street Corridor Rezoning. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a maximum height of 80 feet. Overall, the addition of the new residential building to the study area would not adversely affect the urban design or visual resources in the study area.

RELOCATION SITE 3

Relocation Site 3 comprises five vacant lots. Four of the lots front on St. Nicholas Avenue and one lot fronts on West 126th Street. The buildings across St. Nicholas Avenue and West 126th Street are mid-rise residential buildings, generally five and six stories tall, some of which have ground-floor retail spaces. Much of the project block and the block to the north consist of vacant blocks and vacant buildings. The buildings along West 125th in the study area are between two and six stories tall and are entirely commercial (retail) or residential with ground-floor retail uses.

The study area topography is relatively flat, with an incline between St. Nicholas Avenue and St. Nicholas Terrace. The street pattern largely follows the typical Manhattan rectilinear grid, with avenues running north–south and streets running east–west. The pattern changes at the northern portion of the study area, where St. Nicholas Avenue begins to run at a slight angle. Street furniture in the study area includes light poles, mail boxes, trees, trash cans, and parking meters.

West 125th Street through the study area is a busy four-lane roadway, lined on both sides with retail stores. The wide sidewalk also includes many street retailers. While the majority of commercial uses in the study area are concentrated along West 125th Street, additional shops are located in the ground floors of residential buildings along both sides of Frederick Douglass

Boulevard. Most of the residential buildings in the study area are located west of St. Nicholas Avenue, including P.S. 157, a former school converted to residential use.

The proposed residential building at Relocation Site 3 would replace the existing vacant lots with an approximately 12-story building with community facility space on the first floor. The new building would likely be different in design than the other, older buildings in the study area and would be taller than the existing buildings. Nonetheless, it would be compatible in use and would not be substantially different in bulk or form than the other buildings in the study area. As a Quality Housing building, the new building would be contextual in terms of bulk and massing with other surrounding residential buildings. The building would provide a consistent streetwall, with a setback at 60 to 85 feet high, similar in height to the many six-story buildings in the study area. It would not block important views or view corridors in the study area. Therefore, the proposed residential building at Relocation Site 3 would not result in significant adverse impacts on urban design or visual resources.

NEIGHBORHOOD CHARACTER

As defined in the *CEQR Technical Manual*, a neighborhood's character is established by numerous factors, including land use patterns, the scale of development, building design, presence of historic resources, and a variety of other features.

The proposed residential buildings would locate approximately 106 units of affordable housing at three separate locations. Replacement Site 1 would include approximately 42 units at 3581 Broadway; Replacement Site 2 would include approximately 22 units at 555 West 125th Street; and Replacement Site 3 would include approximately 42 units at 322-328 St. Nicholas Avenue and 313 West 126th Street. As described above under "Land Use, Zoning, and Public Policy," each proposed residential building would be compatible with the existing land use mixture of residential and commercial uses in the surrounding area, and would not have any adverse land use, zoning, or public policy impacts. No adverse impacts to urban design or historic resources would occur. The proposed residential buildings would not alter existing street patterns and would not obstruct views to any visual resources or view corridors in the study area. In addition, as discussed in further detail below, they would not result in significant adverse traffic or noise impacts. Therefore, the proposed residential buildings would not result in significant adverse impacts on neighborhood character, and further analysis is not warranted.

NATURAL RESOURCES

A natural resources assessment is conducted when a natural resource is present on or near the project site and when an action involves the disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetland resources, including freshwater and tidal wetlands; upland resources, including beaches, dunes, and bluffs, thickets, grasslands, meadows and old fields, woodlands and forests, and gardens and other ornamental landscaping; and built resources, including piers and other waterfront structures.

The Replacement Sites are located in fully developed areas of Manhattan. Replacement Site 1 is currently occupied by a one-story commercial building; Replacement Site 2 is occupied by a one-story commercial building; and Replacement Site 3 is currently vacant and overgrown with invasive species. Since each replacement site is located within a developed portion of the City and no significant natural resources are present on any of the sites, there is no potential for significant adverse impacts, and no further analysis is required.

HAZARDOUS MATERIALS

The goal of a hazardous materials analysis is to determine whether a proposed action could lead to increased exposure of people or the environment to hazardous materials and whether the increased exposure would result in significant public health impacts or environmental damage. The *CEQR Technical Manual* states that the potential for significant adverse impacts related to hazardous materials can occur when: elevated levels of hazardous materials exist on a site; an action would increase pathways to their exposure, either human or environmental; or an action would introduce new activities or processes using hazardous materials and the risk of human or environmental exposure is increased.

RELOCATION SITE 1

AKRF, Inc. performed a Phase I Environmental Site Assessment on Relocation Site 1 in August 2007 and Fleming Lee Shue performed a limited Phase II assessment in September 2007.

Subsurface Conditions

Relocation Site 1 lies at an elevation of 100 feet above mean sea level. The surface topography of the area slopes steeply down to the west along West 147th and West 148th Streets towards the Hudson River. Groundwater most likely flows in a westerly direction towards the Hudson River, located 1,200 feet to the west-northwest of the site. However, groundwater flow at the site can be affected by many factors, including current and past pumping of groundwater, past filling activities, underground utilities and other subsurface openings or obstructions such as cellars, subway lines or underground parking garages, bedrock geology, and other factors beyond the scope of this study. Groundwater in Manhattan is not used as a source of potable water. The bedrock at the site is expected to be located just below grade.

Phase I Study

The Phase I study reviewed a variety of information sources including: environmental regulatory agency databases identifying state and/or federally listed sites; Sanborn™ Fire Insurance Maps; published geological and groundwater information; and city databases and records (Department of Buildings and Fire Department) to assist in identifying prior uses. In addition, the Phase I study included reconnaissance of the sites and surrounding property.

Historical city directories of 1970, 1980, and 1982 indicated that a dry-cleaning shop occupied 3589A Broadway. Records on file with the New York City Building Department building information system (BIS) website cited a boiler violation for 3591 Broadway in 1992. According to the violation documentation, the tenant was a professional dry-cleaner. This indicates that dry-cleaning activities were present on-site for over 20 years. Subsurface contamination may have resulted from leaks or spills associated with historical dry-cleaning operations.

Regulatory databases identified no spills for the subject property, but 282 spills were reported within a ½-mile radius of the project site. Some of the reported spills are in an upgradient or upgradient-crossgradient direction in relation to groundwater flow or proximal to the site, and thus may have impacted soils or groundwater below the subject property. The New York City Department of Buildings' electronic files listed oil burner application filings for 1934, 1947, 1957, and 1963. According to the property owner, the site buildings were formerly served by a fuel oil storage tank that was removed and replaced with natural gas-fired packaged roof top units. In addition, suspect lead-based paint, suspect asbestos containing materials, and suspect

polychlorinated biphenyl (PCB) and mercury containing fluorescent light fixtures were observed in all accessible areas of the site.

A Phase II study was recommended in order to further evaluate the impact of the dry-cleaning business on the project site.

Phase II Study

Fleming-Lee Shue, Inc. (FLS) completed a focused soil gas investigation concentrated solely on the accessible basement area which occupied 3589A-3599 Broadway. The dry-cleaning business operated in building 3589A. Field measurements of soil gas samples collected in September of 2007 indicated no VOC levels above 0 parts per million (ppm). No indications of soil staining or odors were observed during soil boring activities.

RELOCATION SITE 2

A Phase I Environmental Site Assessment was conducted on the property by AKRF, Inc. in May 2007.

Subsurface Conditions

Relocation Site 2 lies at an elevation of approximately 30 feet above mean sea level. The surface topography slopes down to the northwest along West 125th Street. The approximate depth to bedrock is 120 feet below the surface and the depth to groundwater is expected to be approximately 30 feet. Groundwater most likely flows in a westerly direction towards the Hudson River, which is approximately 1,500 feet to the west. However, actual groundwater flow at the site can be affected by many factors including past filling activities, underground utilities and other subsurface openings or obstructions such as basements, underground parking garages and subway lines, bedrock geology, tidal fluctuations, and other factors beyond the scope of this study. Groundwater in Manhattan is not used as a source of potable water.

Phase I Study

The Phase I study reviewed a variety of information sources including: environmental regulatory agency databases identifying state and/or federally listed sites; Sanborn™ Fire Insurance Maps; published geological and groundwater information; and city databases and records (Department of Buildings and Fire Department) to assist in identifying prior uses. In addition, the Phase I study included reconnaissance of the sites and surrounding property.

Historical insurance maps and Sanborn™ Fire Insurance Maps indicated that in 1951, several auto-related businesses with buried tanks were located on subject block and surrounding blocks in a presumed upgradient groundwater flow direction from the site. In particular, a garage with buried gasoline tanks was located east of the site in close proximity since 1951.

Regulatory databases listed two closed status spills on the subject block in an anticipated upgradient groundwater flow direction from the site. However, the closed status indicates that the spills have been cleaned up to the satisfaction of the New York State Department of Environmental Conservation (DEC). The State Petroleum Bulk Storage database listed four properties with aboveground fuel oil storage tanks that contact soil and two properties with underground fuel oil or gasoline storage tanks on the subject block in a presumed upgradient location. Two properties with aboveground fuel oil storage tanks were listed northwest-adjacent to the site across Old Broadway. In addition, suspect lead-based paint, suspect asbestos containing materials, and suspect PCB- and mercury containing fluorescent light fixtures were

observed at the site. Soap, detergents, and fabric softener used in the laundromat were neatly stored in a metal vending machine.

RELOCATION SITE 3

A Phase I Environmental Site Assessment was conducted on the property by AKRF, Inc., in April 2007.

Subsurface Conditions

The surface topography slopes down to the south-southeast. The property lies at an elevation of approximately 35 feet above mean sea level. The approximate depth to bedrock is 60 feet below the surface. Groundwater most likely flows to the south-southeast, towards a former pond and stream that flowed southeast from 122nd Street and Frederick Douglass Boulevard to the East River at 108th Street. However, actual groundwater flow at the site can be affected by many factors including past filling activities, underground utilities and other subsurface openings or obstructions such as basements, underground parking garages and subway lines, bedrock geology, and other factors beyond the scope of this study. Groundwater in Manhattan is not used as a source of potable water.

Phase I Study

The Phase I study reviewed a variety of information sources including: environmental regulatory agency databases identifying state and/or federally listed sites; Sanborn™ Fire Insurance Maps; published geological and groundwater information; and city databases and records (Department of Buildings and Fire Department) to assist in identifying prior uses. In addition, the Phase I study included reconnaissance of the site and surrounding property.

Regulatory databases identified no spills for the subject property, but 171 spills were reported within a ½-mile radius of the project site. Sixteen of these spills, including three active status spills and thirteen closed status spills, were located within a ⅛-mile radius of the site. Based on the information in the database and the presumed groundwater flow direction, these spills are not likely to have affected environmental conditions at the site.

One Resource Conservation and Recovery Act (RCRA) CORRACTS facility was located within one mile of the site. Ashland Chemical Corp, located at 609 West 131st Street, approximately 2,900 feet northwest of the site, was listed as a Large Quantity Generator (LQG) and also as a Treatment, Storage and Disposal (TSD) facility. A RCRA Facility Assessment (RFA) was completed in 1985 and again in 1992, and a determination was given that the site did not require a RCRA Facility Investigation (RFI). Due to the distance of this facility from the site, it is not likely to have affected on-site environmental conditions. No RCRA TSD facilities were identified within a ½-mile radius of the site. Thirteen RCRA Generators/Transporters were reported within a ⅛-mile radius of the site. Based on the information in the database and the anticipated groundwater flow direction, potential discharges from the RCRA hazardous waste generators are not likely to have affected environmental conditions at the site.

POTENTIAL IMPACTS

All three relocation sites would be developed with new residential buildings that are expected to have one sub-grade basement level; some excavation would therefore be required during construction at each site. Demolition of the existing buildings on the sites (for Relocation Sites 1 and 2 only) and excavation for construction of the new residential buildings would potentially

involve disturbance of hazardous materials in the building structures and the existing on-site soil.

The presence of hazardous materials threatens human health or the environment only when exposure to those materials occurs and, even then, a health risk requires both a complete exposure pathway to the contaminants and a sufficient dose to produce adverse health effects. To prevent such exposure pathways and doses, Restrictive Declarations would be recorded against the properties at the time Columbia acquires the properties. As such, any hazardous material contamination on each site will have to be mitigated in accordance with the Restrictive Declaration before receiving New York City Department of Environmental Protection (DEP) approval for the proposed residential development. The Restrictive Declaration would ensure that the proposed residential development includes appropriate health and safety and investigative/remedial measures (conducted in compliance with all applicable laws and regulations and conforming to appropriate engineering practices) that would precede or govern both demolition and soil disturbance activities. These measures would include: procedures for pre-demolition removal of asbestos and appropriate management of lead-based paint and of PCB- and mercury-containing equipment; additional subsurface investigation, both to study sites not yet investigated and to better characterize soil to be removed for project excavation; and development of a Construction Health and Safety Plan (CHASP).

To address the remediation of known or potential environmental conditions on the Relocation Sites that may be encountered during proposed construction and development activities, based on the results of the subsurface testing, a Remedial Action Plan (RAP) will be prepared prior to construction. The purpose of this RAP is to present measures for managing contaminated on-site soil and groundwater and removing any potential unknown underground petroleum storage tanks in accordance with applicable federal, state and local regulations. Contaminated soil management includes guidelines for temporary on-site stockpiling and off-site transportation and disposal. The RAP will be submitted to the DEP for review and approval. The Restrictive Declaration will ensure implementation of these measures.

Potential impacts during construction and development activities would be avoided by implementing a CHASP. The CHASP would ensure that there would be no significant adverse impacts on public health, workers' safety, or the environment as a result of potential hazardous materials exposed by or encountered during construction. The CHASP would specify dust control, air monitoring and other appropriate testing and/or monitoring, and detail appropriate measures to be implemented (including notification of regulatory agencies) if underground storage tanks, contaminated soil or groundwater, or other unforeseen environmental conditions are encountered.

Soil excavated as part of site development activities is regulated and will be managed in accordance with all applicable regulations. Soil intended for off-site disposal will be tested in accordance with the requirements of the intended receiving facility. Transportation of material leaving the sites for off-site disposal will be in accordance with federal, state and local requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.

If dewatering is required for construction, testing will be performed to ensure compliance with DEP sewer discharge requirements. If necessary, pre-treatment would be conducted prior to the water discharge to the City's sewer system, as required by DEP permit/approval requirements.

With implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to occur as a result of the demolition and construction activities for

development of the three new residential buildings. Following demolition and construction, there would be no further potential for adverse impacts.

WATERFRONT REVITALIZATION PROGRAM

Actions that are located within the designated boundaries of New York City's Coastal Zone are subject to an assessment for consistency with the City's Local Waterfront Revitalization Program (WRP). The WRP includes several policy objectives that prioritize the development of water-dependent and water-enhancing uses on Coastal Zone properties, mandate public access to the waterfront, offer construction guidelines for flood zones, and address the maintenance of water quality. The relocation sites are not located within the Coastal Zone; therefore, no further analysis is necessary.

INFRASTRUCTURE

For CEQR purposes, "infrastructure" is concerned with water supply, sewage treatment, and stormwater management. As stated in the *CEQR Technical Manual*, the City is committed both to maintaining adequate water supply and pressure for all users and to adequately treating all wastewater generated in the City. An assessment of a project's effects on the City's water supply is necessary only for projects that would create an exceptionally large demand for water, such as power plants, very large cooling systems, or other large developments that would use more than 1 million gallons of water per day (mgd). An assessment of a project's effects on the City's sanitary sewage system is necessary only for unusual projects with very large flows.

WATER SUPPLY

In total, approximately 106 residential units would be developed at three separate locations. Assuming the average household size of 2.33 residents per household, these buildings would house a total population of 247 new residents as well as new retail space (Relocation Sites 1 and 2), space for a relocated church (Relocation Site 1), and space for a new community facility use (Relocation Site 3). Using the rates presented in the *CEQR Technical Manual*, which are the same rates used to calculate water demand for the Proposed Actions (112 gallons per day [gpd] per resident and 0.17 gpd per square foot for the retail and community facility uses), the proposed buildings would consume an estimated 31,200 gpd of water. This small addition to the total water consumption predicted for the Proposed Actions (see Chapter 14, "Infrastructure") would not change the conclusions of that chapter. The Proposed Actions would not result in significant adverse impact on the City's water supply or water delivery system.

SEWAGE

Wastewater and sewage generated by the proposed residential buildings would be treated by the North River Water Pollution Control Plant (WPCP). This plant has a permitted capacity of 170 million gallons per day (mgd). For the 12-month period ending in August 2007, the plant processed an average dry-weather flow of 127 mgd, which is well below its permitted limit. Conservatively assuming that sewage generation is the same as water usage, the proposed residential buildings would generate an estimated 31,200 gpd of sanitary sewage. This amount would result in a negligible increase in the Proposed Actions' sewage generation, and the WPCP's overall capacity would be maintained below its permitted limit. Therefore, no significant adverse impacts on sewage treatment are expected, and further analysis is not warranted.

SOLID WASTE AND SANITATION SERVICES

In the City of New York, residential refuse is handled by the New York City Department of Sanitation (DSNY). Residential waste was formerly disposed of at the Fresh Kills Landfill, which stopped receiving solid waste as of March 22, 2001. DSNY now collects solid waste, delivers it to transfer stations, and from there private carters take it to facilities generally located in Virginia, Ohio, and Pennsylvania. The municipal waste system handles approximately 13,000 tons per day, and the private carters handle approximately 13,000 tons per day.

Using the same solid waste generation rates for the Relocation Sites as for the Proposed Actions, presented in Chapter 15, "Solid Waste" (41 pounds per week per household and 79 pounds per week per employee, and assuming one worker per 300 sf of retail, church, or community facility space, for a total of 70 employees at the three sites), the residential and worker population of the new buildings would generate approximately 9,800 pounds per week of solid waste. This level of solid waste represents a minimal increase in the solid waste generated by the Proposed Actions and in the New York City's overall waste stream. Thus, the proposed residential buildings are not expected to result in significant adverse impacts on the collection or disposal of solid waste, and no further analysis is necessary.

ENERGY

According to the *CEQR Technical Manual*, detailed assessments of energy impacts should be limited to actions that significantly affect the transmission or generation of energy, or that generate substantial indirect consumption of energy. An energy analysis focuses on an action's consumption of energy, and where relevant, any effects on the transmission of energy that could result from the action.

The three proposed relocation sites are served by Con Edison, which delivers electricity to all of New York City (except the Rockaway area in Queens) and almost all of Westchester County. The electricity is generated by a number of independent power companies as well as Con Edison. In 2006 (the latest year for which data are available), annual electric sales totaled about 57.0 billion kilowatt-hours (KWH) in Con Edison's delivery area. This is equivalent to about 195.8 trillion British Thermal Units (BTUs). In addition, Con Edison supplied about 107.5 trillion BTUs of natural gas and 23.25 billion pounds of steam, which is equivalent to 22.5 trillion BTUs. Overall, about 325.8 trillion BTUs of energy are consumed within Con Edison's New York City and Westchester County service area.

Energy use as a result of the three proposed residential buildings is estimated to be 18,130 million BTUs per year for all heating, cooling, and electric power (see Table B.2-3). This amount of energy represents a small increase to the amount of energy usage predicted for the Proposed Actions and a minimal percentage of the overall energy used in New York City and within Con Edison's service area. Furthermore, all new structures requiring heating and cooling are subject to the New York State Energy Conservation Code, which reflects state and City energy policy. Therefore, those actions that would result in new construction or substantial renovation of buildings would not create adverse energy impacts, and would not require a detailed energy assessment. As such, the proposed residential buildings would not have significant impacts on energy, and no further analysis is necessary.

Table B.2-3
Estimated Annual Energy Consumption

Site Address	Size (Square Feet)	Rate (BTUs/Sq Ft/Year)	Consumption (Million BTUs/Year)
Site 1: 3581 Broadway			
Residential	40,846	145,500	5,943
Church	2,918	65,300	163
Retail	8,753	55,800	572
Site 1 Total	52,517	NA	6,678
Site 2: 555 West 125th Street			
Residential	23,252	145,500	3,383
Retail	4,512	55,800	252
Site 2 Total	27,764	NA	3,635
Site 3: 322-328 St. Nicholas Avenue & 319 West 126th Street			
Residential	51,765	145,500	7,532
Community Facility	4,372	65,300	285
Site 3 Total	56,137	NA	7,817
Totals	136,418	NA	18,130

Note: Square footages estimated. Square footage for Site 1 assumes retail space occupies half of ground floor and church occupies other half of ground floor and full second floor.
Source: Rates from 2001 *CEQR Technical Manual*.

TRAFFIC AND PARKING

Peak-hour person and vehicle trips were estimated for the new affordable housing to be developed at the three separate relocation sites, using the same methodology described for the Proposed Actions in Chapter 17, "Traffic and Parking," to determine whether these trips would have the potential for significant transportation-related impacts and alter the conclusions made in this FEIS related to the traffic impacts of the Proposed Actions. Overall, the 106 dwelling units, together with the church space, community facility space, and retail space, would generate fewer than 100 total person-trips and fewer than 15 vehicle trips during any peak hour. Because the sites would not be located in close proximity to each other, most of the projected vehicle trips would be dispersed to different area intersections and generally imperceptible. Furthermore, since most of these trips—those associated with the replacement housing units—are already in the area and were conservatively retained in the detailed impact analyses described in Chapter 17, the only actual new vehicle-trip increments would result from the net new dwelling units. These new increments would amount to fewer than 5 peak hour vehicle trips during any peak hour, which is within the amount included as background growth in the analyses conducted in Chapter 17 of this FEIS. Hence, the minimal vehicle-trip increments associated with the housing development at the three relocation sites would not result in new significant adverse traffic impacts or conclusions different from those made for the Proposed Actions in Chapter 17.

TRANSIT AND PEDESTRIANS

The trip generation analysis described above yielded during peak hours up to 50 subway trips, fewer than 15 bus trips, and fewer than 100 total person trips for the three new development sites, which is within the amount included as background growth in the analyses conducted in Chapter 18 of this FEIS. Spread among three subway stations, several area bus routes, and numerous pedestrian elements, these additional peak hour trips, many of which are already made

within the existing transportation network, would not be perceptible, result in new transit and pedestrian impacts, or result in conclusions different from those made for the Proposed Actions.

AIR QUALITY

This section discusses the direct and indirect air quality impacts associated with the three residential buildings. Direct impacts stem from emissions generated by stationary sources at the project site, such as emissions from fuel burned on site for heating, ventilation and air conditioning (HVAC) systems. Indirect impacts are caused by potential emissions from nearby stationary sources and the potential for emissions due to motor vehicles generated by the proposed relocation sites. Mobile source air quality impacts associated with the residential buildings are anticipated to be insignificant. A quantified trip generation analysis was not necessary since the proposed residential buildings would not exceed the *City Environmental Quality Review (CEQR) Technical Manual* screening thresholds for warranting such an analysis. Given that there are no predicted significant adverse traffic impacts, no analysis of mobile source emissions is required. Potential effects of stationary source emissions from existing nearby industrial facilities on the proposed residential buildings were also assessed.

HVAC SCREENING ANALYSIS

The primary stationary source of air pollutants associated with the proposed residential buildings would be emissions from the combustion of fossil fuel by the HVAC equipment. An HVAC screening analysis was performed for each of the three sites utilizing the procedures found in the *CEQR Technical Manual* (see Chapter 19, "Air Quality" for a description of the methodology). This screening analysis involved using Figure 3Q-5 in the *CEQR Technical Manual*, which identifies threshold sizes for new developments (in square feet), above which a project might have an adverse effect on nearby uses. The maximum development floor area of each building to be heated was used as input for the screening analysis. It was assumed that the proposed residential buildings would use No. 4 oil in the HVAC systems and the stack was assumed to be located three feet above the roof height (as per the *CEQR Technical Manual*).

The screening methodology in the *CEQR Technical Manual* was utilized for the analysis, with the size of the proposed development in sf and the use of No. 4 oil as fuel. The primary pollutant of concern when burning No. 4 oil is sulfur dioxide (SO_2). Using Figure 3Q-5 of the CEQR Technical Manual, the buildings' square footage, and the distance to the nearest residential development of similar or greater height[1], Table 3Q-5 indicates that the new buildings would not have the potential to result in significant adverse air quality impacts on nearby receptors. Therefore, it was determined that none of the proposed residential buildings would result in any significant stationary source air quality impacts from the combustion of No. 4 fuel oil, since the project development sizes would be below the maximum threshold size derived from Figure 3Q-5 of the *CEQR Technical Manual*.

[1] For Relocation Sites 1 and 3, the nearest building of similar or greater height would be more than 400 feet away, the maximum distance provided in Figure 3Q-5 in the *CEQR Technical Manual* screen, indicating that these buildings would not result in the potential for significant adverse impacts from HVAC systems. For Relocation Site 2, the nearest building of similar or taller height would be approximately 200 feet away and the proposed building would be approximately 27,800 zsf (equivalent to approximately 29,500 gsf), far below the screening threshold provided in the *Manual*.

INDUSTRIAL SOURCE SCREENING ANALYSIS

No permitted industrial facilities were found within 400 feet of Relocation Sites 1 and 2. Therefore, no significant adverse impacts on these proposed residential buildings are anticipated from industrial source emissions. Only one business was identified within 400 feet of Relocation Site 3 which was determined to have potential air pollutant emissions. Table B.2-4 shows the air contaminant, estimated emissions, calculated concentrations, and the recommended short-tem and annual guideline concentrations. The concentrations shown represent the maximum predicted impact on the proposed site.

Table B.2-4
Maximum Predicted Impacts from Industrial Sources

Pollutant	CAS No.	1-Hour (ug/m3)	Annual (ug/m3)	SGC	AGC
Tetrachloroethylene	00127-18-4	140.64	0.34	1,000	1.0

The conservative screening procedure used to estimate maximum potential impact from this business showed that its operation would not result in any predicted violations of the NAAQS or any exceedances of the recommended SGC or AGC. Therefore, based on the data available on the surrounding industrial uses, the proposed relocation site would not experience any significant adverse air quality impacts.

NOISE

The new affordable housing developed at three separate relocation sites, for a total of approximately 106 units, would not generate sufficient traffic to have the potential to cause a significant noise impact (i.e., they would not result in a doubling of passenger car equivalents [PCEs], which would be necessary to cause a 3 dBA increase in noise levels). However, ambient noise levels adjacent to the project site must be considered in order to address CEQR noise abatement requirements for the building. This potential is assessed below.

NOISE STANDARDS AND CRITERIA

New York CEQR Noise Standards

The New York City *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see Table B.2-5). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower, and are determined based on exterior $L_{10(1)}$ noise levels.

Table B.2-5
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Acceptable	Marginally Unacceptable		Clearly Unacceptable		
Noise Level With Proposed Action	$65 < L_{10} \leq 70$	$70 < L_{10} \leq 75$	$75 < L_{10} \leq 80$	$80 < L_{10} \leq 85$	$85 < L_{10} \leq 90$	$90 < L_{10} \leq 95$
Attenuation*	25 dB(A)	(I) 30 dB(A)	(II) 35 dB(A)	(I) 40 dB(A)	(II) 45 dB(A)	(III) 50 dB(A)

Note: * The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
Source: New York City Department of Environmental Protection

RELOCATION SITE 1

Existing Noise Levels

Existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (8:00–9:00 AM), midday ([MD] 12:00–2:00 PM), and PM (5:00–6:00 PM) peak periods on November 6 and 8, 2007 at two receptor sites adjacent to the sites. Site 1 is located on West 148th Street between Broadway and Riverside Drive. Site 2 is located on Broadway between West 148th Street and West 147th Street. Site 3 is located on West 147th Street between Broadway and Riverside Drive

The instrumentation used for the 20-minute noise measurements was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær Model 2260 Type 1 (according to ANSI Standard S1.4-1983) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least 6 feet away from any large sound-reflecting surface to avoid major interference with sound propagation. The meter was calibrated before and after readings with a Brüel & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. All measurement procedures conformed to the requirements of ANSI Standard S1.13-1971 (R1976).

The results of the measurements of existing noise levels are summarized in Table B-2.6.

Table B.2-6
Existing Noise Levels at Relocation Site 1
(in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	West 148th Street between Broadway and Riverside Drive	AM	71.6	80.2	75.2	68.7	60.1
		MD	61.2	69.5	64.5	58.7	56.4
		PM	61.9	71.6	64.0	59.6	56.5
2	Broadway between West 148th Street and West 147th Street	AM	62.6	70.4	65.6	60.7	56.6
		MD	68.4	78.0	71.1	66.2	61.3
		PM	68.4	82.8	78.6	73.3	69.0
3	West 147th Street between Broadway and Riverside Drive	AM	64.9	73.6	66.3	61.2	57.0
		MD	63.7	71.1	65.0	60.5	57.0
		PM	63.9	73.8	65.5	61.2	58.7
Note: Field measurements were performed by AKRF, Inc. on November 6 and 8, 2007.							

At all monitoring sites, traffic noise was the dominant noise source. Measured noise levels are moderate to relatively high and reflect the level of vehicular activity on the adjacent streets. In terms of the CEQR criteria, the existing noise levels at all sites would be in the "marginally unacceptable" category.

Noise Attenuation Measures

As shown in Table B.2-5, the New York City *CEQR Technical Manual* has set noise attenuation quantities for buildings, based on exterior $L_{10(1)}$ noise levels, and in order to maintain interior noise levels of 45 dBA or lower. A Restrictive Declaration for the property would ensure that the

building design includes the use of well sealed double-glazed windows and air conditioning (i.e., an alternate means of ventilation). With these measures, the window/wall attenuation would provide at least 35 dBA for all facades of the building. Based upon the $L_{10(1)}$ values measured at Relocation Site 1, these design measures would provide sufficient attenuation to achieve the CEQR requirements.

RELOCATION SITE 2

Existing Noise Levels

Existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (8:00–9:00 AM), midday ([MD] 12:00–2:00 PM), and PM (5:00–6:00 PM) peak periods on November 6 and 8, 2007 at two receptor sites adjacent to the project site. Site 1 is located on West 125th Street between Old Broadway and Amsterdam Avenue. Site 2 is located on Old Broadway between West 126th Street and West 125th Street.

The instrumentation used for the 20-minute noise measurements was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær Model 2260 Type 1 (according to ANSI Standard S1.4-1983) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least 6 feet away from any large sound-reflecting surface to avoid major interference with sound propagation. The meter was calibrated before and after readings with a Brüel & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. All measurement procedures conformed to the requirements of ANSI Standard S1.13-1971 (R1976).

The results of the measurements of existing noise levels are summarized in Table B-2.7.

Table B.2-7
Existing Noise Levels at Relocation Site 2
(in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	West 125th Street between Old Broadway and Amsterdam Avenue	AM	77.4	86.2	81.9	72.5	65.5
		MD	71.9	80.8	75.2	69.6	64.9
		PM	70.4	79.3	73.7	68.3	62.1
2	Old Broadway between West 126th Street and West 125th Street	AM	68.8	76.4	72.6	66.7	61.2
		MD	64.4	73.4	67.1	62.2	57.8
		PM	64.4	72.9	68.0	61.4	57.6
Note: Field measurements were performed by AKRF, Inc. on November 6 and 8, 2007.							

At both monitoring sites, traffic noise was the dominant noise source. Measured noise levels are moderate to relatively high and reflect the level of vehicular activity on the adjacent streets. In terms of the CEQR criteria, the existing noise levels at all sites would be in the "marginally unacceptable" category.

Noise Attenuation Measures

As shown in Table B.2-5, the New York City *CEQR Technical Manual* has set noise attenuation quantities for buildings, based on exterior $L_{10(1)}$ noise levels, and in order to maintain interior noise levels of 45 dBA or lower. A Restrictive Declaration for the property would ensure that the building design includes the use of well sealed double-glazed windows and air conditioning (i.e., an alternate means of ventilation). With these measures, the window/wall attenuation would provide at least 35 dBA for all facades of the building.

The Restrictive Declaration would also specify that 40 dBA of building attenuation would be provided on the south façade of the building. To achieve this level of building attenuation, special design features that go beyond the normal double-glazed window and central air conditioning would be necessary that may include using specially designed windows (i.e., windows with small sizes, windows with air gaps, windows with thicker glazing, etc.), and additional building insulation.

Based upon the $L_{10(1)}$ values measured at Relocation Site 2, these design measures would provide sufficient attenuation to achieve the CEQR requirements.

RELOCATION SITE 3

Existing Noise Levels

Existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (8:00–9:00 AM), midday ([MD] 12:00–2:00 PM), and PM (5:00–6:00 PM) peak periods on November 6 and 8, 2007 at two receptor sites adjacent to the project site. Site 1 is located on West 126th Street between St. Nicholas Avenue and Frederick Douglass Boulevard. Site 2 is located on St. Nicholas Avenue between West 127th Street and West 126th Street.

The instrumentation used for the 20-minute noise measurements was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær Model 2260 Type 1 (according to ANSI Standard S1.4-1983) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least 6 feet away from any large sound-reflecting surface to avoid major interference with sound propagation. The meter was calibrated before and after readings with a Brüel & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. All measurement procedures conformed to the requirements of ANSI Standard S1.13-1971 (R1976).

The results of the measurements of existing noise levels are summarized in Table B-2.8.

At both monitoring sites, traffic noise was the dominant noise source. Measured noise levels are moderate to relatively high and reflect the level of vehicular activity on the adjacent streets. In terms of the CEQR criteria, the existing noise levels at all sites would be in the "marginally unacceptable" category.

Table B.2-8
Existing Noise Levels at Relocation Site 3
(in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	West 126th Street between St. Nicholas Avenue and Frederick Douglass Boulevard	AM	67.5	75.9	71.2	64.4	59.4
		MD	66.2	75.8	69.2	63.9	59.7
		PM	66.7	75.7	69.1	63.8	59.7
2	St. Nicholas Avenue between West 127th Street and West 126th Street	AM	68.6	78.8	71.3	65.5	60.3
		MD	66.0	74.2	69.4	63.9	59.5
		PM	66.5	74.6	68.9	64.6	60.4
Note: Field measurements were performed by AKRF, Inc. on November 6 and 8, 2007.							

Noise Attenuation Measures

As shown in Table B.2-5, the New York City *CEQR Technical Manual* has set noise attenuation quantities for buildings, based on exterior $L_{10(1)}$ noise levels, and in order to maintain interior noise levels of 45 dBA or lower. A Restrictive Declaration for the property would ensure that the building design includes the use of well sealed double-glazed windows and air conditioning (i.e., an alternate means of ventilation). With these measures, the window/wall attenuation would provide at least 30 dBA for all facades of the building. Based upon the $L_{10(1)}$ values measured at Relocation Site 3, these design measures would provide sufficient attenuation to achieve the CEQR requirements.

CONSTRUCTION IMPACTS

New affordable housing would be developed at three separate relocation sites for a total of approximately 106 units. Construction would involve demolishing the existing structures at each site. Following demolition, a new 12-story building would be constructed at Relocation Site 1 at 3581 Broadway; a new 7-story building would be constructed at Relocation Site 2 at 555 West 125th Street; and a new 12-story building would be constructed at Relocation Site 3 at 322-328 St. Nicholas Avenue and 319 West 126th Street. Like all construction projects, work at each site would result in temporary disruptions to the surrounding community, such as temporary closures of sidewalks and curb lanes bordering the site, and occasional noise and dust. These effects would be temporary and are not considered significant.

The proposed construction would be required to comply with applicable control measures for construction noise. Construction noise is regulated by the New York City Noise Control Code and by the Environmental Protection Agency noise emission standards for construction equipment. These federal and local requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emissions standards. Except under exceptional circumstances, construction activities must be limited to weekdays between the hours of 7:00 AM and 6:00 PM. Construction materials would be handled and transported in such a manner as to not create any unnecessary noise. Compliance with those noise control measures would be ensured by including them in the contract documents as materials specification and by directives to the construction contractors. No significant adverse impacts are expected to occur as a result of construction.

PUBLIC HEALTH

According to the *CEQR Technical Manual*, public health involves the activities that society undertakes to create and promote a community's wellness. Public health may be jeopardized by poor air quality resulting from vehicular traffic or emissions from stationary sources, increased exposure to heavy metals and other contaminants in soil or dust, hazardous materials in groundwater used for drinking water, significant adverse impacts related to noise or odors, solid waste management practices that attract vermin and pest populations, and actions that result in exceedances in City, State, or federal standards.

As described above, the proposed residential buildings would not result in significant adverse impacts on air quality or noise. No exceedances of City, State, or federal standards would occur. The proposed residential would not involve solid waste management practices that would attract vermin or pest populations. Therefore, no significant adverse impacts on public health would occur, and no further analysis is necessary. ✷

APPENDIX B.3

RESIDENTIAL RELOCATION SITES: ENVIRONMENTAL ANALYSIS CORRESPONDENCE

THE CITY OF NEW YORK LANDMARKS PRESERVATION COMMISSION
1 Centre Street, 9N, New York, NY 10007 (212) 669-7700 www.nyc.gov/landmarks

ENVIRONMENTAL REVIEW

DCP/06DCP032M 10/17/2007

Project number **Date received**

Project: MANHATTANVILLE / W. HARLEM REZONE

Properties with no ~~Architectural~~ or archaeological significance:

BBL	Address
1019530020	322 ST NICHOLAS AVENUE
1019530045	328 ST NICHOLAS AVENUE
1019530046	ST NICHOLAS AVENUE
1019530047	ST NICHOLAS AVENUE
1019530123	WEST 126 STREET
1019820001	1 OLD BROADWAY
1020940029	3581 BROADWAY

The following properties possess architectural or archaeological significance:

Comments:

24070_FSO_DNP_10292007.doc

10/29/2007

SIGNATURE DATE

THE CITY OF NEW YORK LANDMARKS PRESERVATION COMMISSION
1 Centre Street, 9N, New York, NY 10007 (212) 669-7700 www.nyc.gov/landmarks

ENVIRONMENTAL REVIEW

DCP/06DCP032M — 11/13/2007

Project number — **Date received**

Project: MANHATTANVILLE/W. HARLEM REZONING

Comments: The LPC is in receipt of the revised relocation analysis dated 11/12/07. The text appears acceptable for historic resources and archaeology.

The project sites are not significant. In Figure B.2-11: Potential Riverside Dr. /W. 146-148 Sts. HD, LPC and S/NR eligible. Upper Broadway HD, defer to SHPO. Hamilton Theater, LPC and S/NR listed. Riverside Park and Riverside Dr. Scenic Landmark, LPC and S/NR eligible. Bunny Theater, S/NR eligble.

cc: SHPO

11/13/2007

SIGNATURE — DATE

24070_FSO_GS_11132007.doc