

CITY OF CHICAGO, ILLINOIS



COMMUNITY DEVELOPMENT BLOCK GRANT DISASTER RECOVERY (CDBG-DR) ACTION PLAN FOURTH SUBSTANTIAL AMENDMENT

**Proposed Uses of the Allocation of CDBG-DR Funds Under the Disaster Relief
Appropriations Act, 2013 (Public Law 113-2) through the
U.S. Department of Housing and Urban Development (HUD)**

Approved by HUD November 29, 2016

City of Chicago, Office of Budget and Management

Proposed changes included in the Community Development Block Grant – Disaster Recovery Action Plan Fourth Substantial Amendment:

General:

- Combines the previous Action Plan and amendments into one document for clarity and accessibility.

Housing

- Updated needs assessment based on new beneficiary data.
- Adjusts budget based on updated needs assessment.

Administration

- Adjusts budget based on new internal plan.

Infrastructure

- Updated needs assessment associated with the National Disaster Resilience Competition that identifies new strategies to meet unmet need.
- Reallocates excess funding from previous housing and administration budgets to newly identified resiliency projects.

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EXECUTIVE SUMMARY

(A) Overview

In recent years, Chicago has witnessed numerous intense rainfall events that have caused citywide flooding of basements and required the opening of the locks at Lake Michigan. The recent storms on April 17th and 18th in 2013 brought extensive damage to certain areas of the city, which are highly vulnerable to flooding. The storm system that swept through Chicago and surrounding suburbs produced approximately 5.5 inches of rain, or the equivalent of a “10-year storm”¹. Under dry conditions Chicago’s combined stormwater conveyance system is large enough to easily handle the city and suburban generated wastewater. The heavy rains experienced during the 2013 flood resulted in sewer overflows, basement floods, and backflow of water from the Chicago River into Lake Michigan.

The excessive rainfall that entered the sewer system could not flow fast enough to a wastewater treatment plant or a combined sewer outfall. By early morning of April 18, before the largest rainfall, the Tunnel and Reservoir Plan (TARP) tunnels, also known as the “deep tunnels”, were filled, which resulted in combined sewer overflows at 132 separate outfall locations. To prevent overland flooding, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) and the Army Corp of Engineers opened the Chicago River controlling locks for nearly 23 hours, leading to a discharge of over 10.7 billion gallons into Lake Michigan. However, the April storms produced such heavy rains that the combined sewers overflowed and released untreated waste and stormwater. As sewer water rose above drain openings that were below street grade, water backed up into homes and other buildings. Basement flooding occurred citywide, with the City receiving over 2,500 “water in basement” calls from residents in 49 of the 50 wards.

On April 18, 2013, Illinois Governor Pat Quinn declared a state of emergency, and 38 counties, including Cook County, were declared state disaster areas. By May 10, 2013, the U.S. Department of Homeland Security’s Federal Emergency Management Association (FEMA) issued a Presidential Disaster Area declaration. As a result, HUD initially allocated CDBG-DR funding in the amount of \$4.3 million to the City of Chicago to help in recovery efforts of community areas that were most impacted by the storms. The City’s original Action Plan committed \$4.3 million towards infrastructure restoration, specifically to the water, sewer and drainage system in Chicago’s community areas impacted by the April floods. The Action Plan was approved by HUD on August 25, 2014.

On June 3, 2014, HUD announced a second allocation of \$47.7 million for recovery efforts. With this allocation, the City committed \$35 million toward public infrastructure projects and \$10.3

¹ The term “10 year storm” means that a storm of this magnitude (i.e., amount of rainfall within a limited period of time) is expected to occur once every ten years based on historical storm frequency tables of expected rainfall published by the Illinois State Climatologist.

million to housing rehabilitation and mitigation for homeowners and renters. The City devoted \$2.4 million to administrative costs, to include oversight, planning, and monitoring. The Substantial Amendment was approved by HUD on January 14, 2015.

On January 8, 2015, HUD announced a third allocation of \$11.075 million to further address disaster relief, long-term recovery, restoration of infrastructure and housing, and economic revitalization in the most impacted and distressed areas. The City dedicated these resources to infrastructure improvements that will bring the City's low to moderate income community areas most impacted by the April 2013 flood event closer to resilience, specifically addressing infrastructure limitations and underlying conditions that can contribute to the flooding of residences. The Second Substantial Amendment was approved by HUD on June 22, 2015.

On November 16, 2015, the City submitted a Third Substantial Amendment to HUD which removed the 125th Street project originally identified in the first Action Plan and reallocated this funding to infrastructure projects already proposed in previous plans. The City is completing the 125th Street project utilizing other funds; CDBG-DR funding will not be used for this project. The amendment also reallocated a portion of funding from the WPA Streets project, identified in the Second Substantial Amendment, to the Albany Park Tunnel project, identified in the First Substantial Amendment. After completing design and engineering, the City received construction bids for the tunnel higher than originally anticipated, therefore requiring additional funding. WPA street projects remained part of the City's CDBG-DR plan; however, there is less CDBG-DR funding contributing to these projects. The Albany Park Tunnel now has a total of \$15.6 million CDBG-DR funding, which categorizes it as a major infrastructure project, defined as any infrastructure project that has a total cost of \$50 million or more, including at least \$10 million of CDBG-DR funds. The Third Substantial Amendment was approved by HUD on January 22, 2016.

HUD requires an action plan to guide the distribution of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds toward necessary expenses related to disaster relief, long term recovery, and restoration of infrastructure, housing, and economic revitalization. The City's CDBG-DR Action Plan commits \$63.075 million towards a long term strategy of infrastructure restoration, specifically to the water, sewer and drainage systems in Chicago's community areas most distressed by the April floods; housing rehabilitation for homeowners and renters with remaining unmet needs related to the 2013 storms; community resiliency and the planning and administration of these projects. The use of CDBG-DR funds will be consistent with HUD requirements to satisfy "unmet needs" that have not been satisfied by other public or private funding sources like FEMA Individual Assistance funds, Small Business Administration (SBA) disaster loans or private insurance. In addition, per HUD requirements, the plan also ensures that CDBG-DR funds are spent fully on the City areas most impacted by the April 2013 storms and

only on community areas located within the city's jurisdiction. These requirements are published in the Federal Register/Volume 78, No. 241, Docket No. FR-5696-N-07.

This amendment includes an updated housing and infrastructure needs assessment, which includes new data from impacted communities, collected through the Residential Flooding Assistance Program (RFAP). Through outreach to potential beneficiaries, the City has determined that there is currently less need than the original needs assessment predicted. Of the almost 400 impacted citizens that were outreached to, only 16.2% still had a remaining unmet need, were income eligible, and were responsive/interested in participating. The City also estimates spending less in funds originally allocated in administration, which allows the City to reprogram administrative funds for remaining remediation and resiliency projects to continue to meet the needs of communities impacted by the flood. Additional projects in this amendment stem from the City's National Disaster Resilience Competition application, which focused on resilient recovery activities through addressing future risk and hazards, including extreme weather and climate change, while improving the life for existing residents. These activities apply science-based and forward-looking risk analysis to address recovery, resilience and revitalization needs.

(B) Administering Agency

The government of the City of Chicago is divided into executive and legislative branches. The Mayor of Chicago is the chief executive, elected by general election for a term of four years. The Mayor appoints officials who oversee the various departments. The City Council is the legislative branch and is made up of 50 aldermen, one elected from each ward in the city.

The Office of Budget and Management (OBM) has been charged with the responsibility of overseeing the administration of these funds and the Department of Water Management, the Department of Planning and Development, and the Department of Transportation will carry out the activities as identified in the plan.

The mission of the Department of Water Management (DWM) is to protect the public health in the most environmentally and fiscally responsible manner by delivering a sufficient supply of exceptional quality water and efficiently managing waste and storm-water. In an effort to reduce the detrimental impacts of flooding from storms and protect the local environment, DWM initiated the Green Stormwater Infrastructure Strategy, which provides a framework and initial implementation plan to meet the goals of using green stormwater infrastructure² to enhance stormwater management and protect water quality. DWM is responsible for the implementation of both the Sewer and Works Progress Administration (WPA) Replacement projects.

As the principal planning agency for the City, the Department of Planning and Development (DPD) promotes the comprehensive growth and well-being of the City and its neighborhoods. DPD administers the City's housing programs, ensuring a diverse and stable housing stock throughout the City. DPD will oversee the CDBG-DR Residential Flood Assistance Program (RFAP), providing recovery and resiliency assistance to homeowners through five subrecipients, selected through a competitive application process. DPD will also oversee the newly identified Resiliency Revitalization Projects.

The Chicago Department of Transportation (CDOT) maintains and rehabilitates more than 4,000 miles of streets, 300 bridges and viaducts, 200 miles of in-street bikeways, and 2,900 signalized intersections citywide. CDOT designs, builds and maintains the structures that are a critical part of the city's transportation network through its capital improvement programs. CDOT is responsible for the project oversight of the Albany Park Tunnel Project.

² "Green stormwater infrastructure" is a term used to refer to strategies for handling storm precipitation where it falls rather than after it has run off into a sewer system. The goal is to keep water out of overtaxed sewer systems and better mimic conditions that existed before the occurrence of urban development.

(C) Proposed Activities

INFRASTRUCTURE PROJECTS

Investment in infrastructure will reduce flooding during future storms and protect the environment. The City has conducted a review of unmet needs in response to the 2013 flood and has identified four major areas of infrastructure need to mitigate future flooding: sewer restoration and upgrades, a new deep diversion tunnel in Albany Park, Works Progress Administration (WPA) street program, and Resiliency Revitalization projects. The sewer and WPA replacement projects, as well as the Resiliency Revitalization projects are predominantly in areas of low- and moderate-income, while the Albany Park tunnel is an urgent need to address damage and risk of flooding in the area.

The Department of Water Management (DWM) has identified potential sewer projects in some of the areas of the City most affected by the 2013 floods. These sewer projects are replacing old, undersized sewer pipes that were damaged by the inundation that occurred during the April 2013 storms. The inundated sewers caused water to overflow to the surface and flood the surrounding streets, sidewalks, and residential homes. If these sewers are not replaced, these areas will likely witness renewed flooding in the event of a similar storm.

To address the recurring flooding problem in the Albany Park community area, the City's departments of Water Management (DWM) and Transportation (CDOT) are working on engineering a diversion tunnel that will help alleviate the flooding of the portions of the North Branch Chicago River that are near Albany Park that led to the 2013 flooding as well as previous floods. The diversion tunnel (separate from the Metropolitan Water Reclamation District of Greater Chicago's current network of deep tunnels) will divert overflow from the North Branch of the Chicago River in Albany Park to the North Shore Channel.

Chicago still has streets built as part of the Works Progress Administration (WPA) public works program in the 1930s and 1940s. WPA streets currently exist without curbs and gutters, and with minimal drainage facilities. These streets often contain sewer pipes for sanitary flow from the adjacent buildings, but they typically do not have catch basins or a separate storm sewer pipe to capture and convey storm water. When Chicago receives intermediate to large storms, these streets typically flood. This excess storm water can flood homes or overflow to the sewer pipes in adjacent streets, which then can lead to basement flooding backups if those adjacent sewer pipes do not have the capacity to convey all of this storm water. These public way infrastructure improvements will bring the City's low to moderate income community areas most impacted by the April 2013 flood event closer to resilience, specifically addressing infrastructure limitations and underlying conditions that can contribute to the flooding of residences.

Resiliency Revitalization projects will incorporate green infrastructure strategies such as bioswales, rain gardens, trees, permeable pavement, and dry creek beds that will accept stormwater from surrounding streets and alleys. These projects will divert stormwater from the

City's combined sewer system and provide multiple community benefits to qualifying low-income neighborhoods with high concentrations of residents that experienced basement and street flooding during the April 2013 flood event. The landscapes may also include neighborhood revitalization that will result in the development of community gardens, orchards, public plazas and play lots to be selected by the neighborhood that will be funded with other sources.

HOUSING PROJECTS

In Chicago, certain north, west and south side community areas were hit hardest by the storms. The City received over 2,500 calls of basements flooding, 36 percent of the calls were from North side residents and 35 percent from South side residents. In the five main zip codes representing the West side (Austin, Humboldt Park, East Garfield Park, West Garfield Park, North Lawndale, and South Lawndale), 2,900 residents received over \$6.3 million in FEMA Household Assistance as of October 2013. Immediately after the April storm, City departments in partnership with Federal, State, County, and other local partners removed debris, addressed health and safety issues, and restored essential infrastructure, including roads, viaducts, and utilities. Residents impacted by the storm were assisted by FEMA, in collaboration with multiple Federal, State, County, and local government agencies and other partners. The emergency response provided individual assistance for relocation, home repair, debris removal, and mold remediation.

After additional consultation and review of the unmet housing needs in the City of Chicago with respect to the flood of April 2013, the City of Chicago allocated CDBG-DR funds to housing for homeowners and renters of single- and multi-unit buildings in a manner responsive to the unmet housing needs. Specifically, the City is supporting a homeowner assistance program to provide recovery and mitigation measures that will both address damage from the 2013 flood and reduce risk of future flooding. Chicago's Residential Flood Assistance Program (RFAP) housing recovery and assistance programs will also incorporate sustainability and resiliency measures by focusing on modern building standards, green building technology and energy efficiency into the reconstruction process, where feasible. The City is prioritizing the needs of low and moderate income households in its homeowner and renter programs. The City affirmatively promotes fair housing through its housing programs, following all applicable federal and state statutes and regulations, and vigorously enforcing fair housing laws. The City will continue to ensure that housing assistance is prioritized and allocated based on financial hardship and disaster-related need, without regard to race or ethnicity.

PROPOSED ACTIVITY SUMMARY

These projects are being proposed to address the damage caused by the 2013 flood and proactively reduce the probability of future flooding. DWM estimates that the sewer projects will be completed in 2015 and 2016 at a total cost of approximately \$50.13 million. The Albany Park

tunnel project will cost approximately \$70.6 million, 35% of which will be paid by the Metropolitan Water Reclamation District (MWRD). The total unmet need for WPA streets equals \$29.6 million. The total unmet need for Resiliency Revitalization is \$11.4 million. Therefore, the City has identified approximately \$161.73 million in infrastructure unmet need. The City has also identified housing need surrounding remaining damage from the flood and the need for mitigation to reduce the risk of future flooding.

The charts below indicate the changes being requested in this substantial amendment. Table 1 shows budgeted funds prior to this amendment, and Table 2 shows the requested budget changes. As detailed in Table 2, the City plans to allocate a total of \$4,146,873.09 million of the first CDBG-DR allocation, \$44,900,000.91 million of the second allocation, and \$8,975,000 million of the third allocation for a total of \$58,021,874 million of CDBG-DR funding, to address stormwater infrastructure and community mitigation needs across the City. Another \$4.3 million will be spent on housing and \$553,126 on administration.

Table 1 – Previously Approved Budget

FIRST AWARD: \$4.3* SECOND AWARD: \$47.7* THIRD AWARD: \$11.075* TOTAL AWARD: \$63.075* <i>*expressed in millions</i>							
	CDBG-DR						
	1 st Award	2 nd Award	3 rd Award	Match	Total Cost	Notes	
ADMINISTRATIVE COST							
Project: Planning and Administration	\$153,126	\$300,000	\$1,946,874	\$0	\$2,400,000	City oversight, planning and monitoring	
PUBLIC INFRASTRUCTURE							
Project: Infrastructure Projects	\$3,483,122.55	\$29,963,751.45	\$1,328,126	\$4,310,000	\$39,085,000	Infrastructure projects to address damage from inundation and mitigation	
Project: Albany Park Tunnel Mitigation	\$663,750.54	\$14,936,249.46	\$0	\$55,090,000	\$70,690,000	Infrastructure improvements to mitigate future flooding	
HOUSING PROJECTS							
Project: Residential Flooding Assistance Program (RFAP)	\$0	\$2,500,000	\$7,800,000	\$0	\$10,300,000	Rehabilitation and mitigation program for single and multifamily housing	
Total	\$4,3000,000	\$47,700,000	\$11,075,000	\$59,400,000	\$122,475,000		

Table 2 –Revised Budget

FIRST AWARD: \$4.3* SECOND AWARD: \$47.7* THIRD AWARD: \$11.075* TOTAL AWARD: \$63.075* <i>*expressed in millions</i>							
CDBG-DR							
	1 st Award	2 nd Award	3 rd Award	Match	Total Cost	Notes	
ADMINISTRATIVE COST							
Project: Planning and Administration	\$153,126	\$300,000	\$300,000	\$0	\$753,126	City oversight, planning and monitoring	
PUBLIC INFRASTRUCTURE							
Project: Infrastructure Projects	\$3,483,122.55	\$29,963,751.45	\$1,328,126	\$4,310,000	\$39,085,000	Infrastructure projects to address damage from inundation and mitigation	
Project: Albany Park Tunnel Mitigation	\$663,750.54	\$14,936,249.46	\$0	\$55,090,000	\$70,690,000	Infrastructure improvements to mitigate future flooding	
Project: Community Resiliency Projects	\$0	\$0	\$7,646,874	\$3,000,000	\$10,646,874	Community improvements to increase resiliency to mitigate future flooding	
HOUSING PROJECTS							
Project: Residential Flooding Assistance Program (RFAP)	\$0	\$2,500,000	\$1,800,000	\$0	\$4,300,000	Rehabilitation and mitigation program for single and multifamily housing	
Total	\$4,300,000	\$47,700,000	\$11,075,000	\$62,400,000	\$125,475,000		

SECTION I: PLAN NARRATIVE

(A) Needs Assessment

The City’s Office of Emergency Management & Communications (OEMC) manages incidents, coordinates events, operates communications systems, and provides technology, among other forms of support during a disaster. Following the flood, OEMC received 2,500 calls regarding flooded basements, 571 calls for water in the streets, and 32 calls for flooded viaducts as a result of the April floods. Commonwealth Edison estimated that approximately 24,000 residents lost power due to the flooding.

The 311 data on impacted individuals was referred to FEMA for applications for Individual Assistance (IA). Following the initial administration and evaluation of IA, FEMA referred the individuals with unmet needs to the Community Organizations Active in Disaster of Northeast Illinois (COAD), a humanitarian association composed of voluntary and community organizations that foster coordination of service delivery to people affected by disaster. COAD formed a Long Term Recovery Committee (LTRC) to identify unmet needs and find resources to address those needs. OEMC consulted with and analyzed data developed by City departments

and local, state and federal agencies working in disaster management to identify and evaluate the needs of the citizens affected by the flood. Participants included the City Departments of Transportation, Public Health, Planning and Development, Fleet and Facilities Management, Chicago Police, and DWM as well as the Chicago Housing Authority (CHA), the regional American Red Cross and Catholic Charities, SBA, and FEA.

This section provides an impact and unmet needs assessment in the areas of housing, economic development, and infrastructure.

1. Housing

Initial Needs Assessment

A breakdown of City of Chicago FEMA IA application information as of May 10, 2013 is provided below. (The full report is attached as *Appendix 1*.) These tables identify the types of housing impacted by the flood and the number of seniors, individuals with mobility impairments and individuals with developmental or intellectual disabilities or behavior health needs that were affected by the floods. Of the 40,000 plus individuals who applied for assistance from FEMA.

- 22,901 had an income of less than \$30,000;
- 8,554 were over the age of 62;
- 1,571 individuals had a hearing, visual, mental, or other disability;
- 38,445 of the applicants had no flood insurance; and
- 18,248 lacked homeowner's insurance.

In addition, the following table identifies the various forms of assistance available to affected community and individuals. As of September 26, 2013, 1,143 had FEMA verified losses (FVL) between \$5,000 and \$10,000 and 159 had FVLs over \$10,000. Demographic information of impacted community areas is available by census tract in *Appendix 2*.

Table 3- FEMA Applicants– Ownership and Insurance Status

Residence Type	Total-Res	Owners	Renters	Flood Insurance	No Flood Insurance	Home Owners Insurance	No Home Owners Insurance
Apartment	5824	141	5666	10	5814	122	5702
Assisted Living	4	0	4	0	4	0	4
Condo	255	216	35	11	244	185	70
Correctional Facility	8	1	7	0	8	1	7
House/Duplex	31991	22466	9388	749	31242	20315	11676
Mobile Home	2	1	1	0	2	1	1
Other	26	6	11	0	26	7	19
Townhouse	1134	425	704	19	1115	365	769
TOTAL	39244	23256	15816	789	38455	20996	18248

Table 4- FEMA Applicants– Income and Age Breakdown

Residence Type	Income less than \$30K	Income between \$30K-\$50K	Age less than 18	Age 18-21	Age 22-61	Age 62-74	Age 75+
Apartment	4894	443	14	156	5335	267	52
Assisted Living	2	1	0	0	4	0	0
Condo	92	65	0	1	214	30	10
Correctional Facility	6	0	0	0	7	1	0
House/Duplex	17221	6741	88	192	23699	5404	2608
Mobile Home	2	0	0	0	2	0	0
Other	12	3	0	0	22	3	1
Townhouse	672	259	2	5	949	136	42
TOTAL	22901	7512	104	354	30232	5841	2713

Table 5 - FEMA Applicants – Disability and SBA Breakdown

Residence Type	Disabled					Small Business Administration (SBA)				
	Hearing	Visual	Mental	Mobility	Other	FIT	DECFA	DECFDA	DECS	REV
Apartment	14	57	42	127	101	4038	279	1	208	9
Assisted Living	0	0	0	0	0	0	1	0	0	0
Condo	1	4	2	4	2	63	19	0	14	0
Correctional Facility	0	0	0	0	0	5	0	0	0	0
House/Duplex	52	183	135	521	272	14303	1681	182	1084	63
Mobile Home	0	0	0	1	0	2	0	0	0	0
Other	0	0	0	0	0	9	1	0	2	0
Townhouse	2	6	7	20	18	580	87	3	51	3
TOTAL	69	250	186	673	393	19000	2068	186	1359	75

Table 6 - FEMA Applicants – FEMA Verified Losses, Unmet Needs, and Grant Requests

Residence Type	FVL 10K	FVL* 5K-10K	Unmet > 10K	Unmet 5K - 10K	Max Grants	Grants > 10K	Grant 5K - 10K	Owners Received Rental
Apartment	16	154	0	9	0	76	375	106
Assisted Living	0	0	0	0	0	0	0	0
Condo	11	11	1	1	0	10	18	129
Correctional Facility	0	0	0	0	0	0	0	0
House/Duplex	127	956	3	34	0	291	1519	18080
Mobile Home	1	0	0	0	0	1	0	1
Other	0	0	0	0	0	0	0	2
Townhouse	4	22	1	3	0	9	33	324
TOTAL	159	1143	5	47	0	387	1945	18642

City of Chicago residents received a total of \$56.7 million in IA from FEMA and residents in Cook County (including Chicago) received a total of \$120.1 million. The LTRC's Disaster Case Management Program received \$660,000 from FEMA to identify individuals with unmet needs and create case files on each of these individuals to track their progress toward recovery. The LTRC coordinated recovery efforts of the flood, including the provision of additional long term assistance to individuals who did not have adequate personal resources for basic needs as a result of the flood. The LTRC created a case management group to contact each of the Individual Assistance (IA) applicants in Cook County who fall within a vulnerable population and had unmet needs following the receipt of FEMA assistance. By October 2013, the LTRC served 757 clients in Chicago utilizing the Coordinated Assistance Network.

As of November 11, 2013, the LTRC found the following unmet needs of those individuals or households in Chicago who applied for IA from FEMA:

- 75 households that require repair and rebuild assistance
- 71 households that require mold remediation assistance
- 62 households that require appliance repair or replacement
- 23 households that require assistance with utilities.

A grant from the national parent of Catholic Charities in Chicago funded the long-term management of these cases listed above, which ended in March of 2015; however, at the conclusion of the program, there were still households with additional unmet needs, and many of the households served did not receive enough assistance to make them whole again.

2014 Updated Needs Assessment

After the submission of the first Action Plan, the City of Chicago continued to reach out to FEMA and received for additional homeowner data regarding homeowner and renter damage claims related to the 2013 flood that were unaddressed and unmet. Below are two tables identifying the unmet needs of homeowners and renters in response to the flooding. According to the tables below, there was still a sizable amount of unmet housing need. The assistance provided to owners and renters did not meet the FEMA verified loss (FVL). In both instances there was a \$2.5 million gap in the amount of damage assessed and the amount awarded.

Table 7 – Homeowner Unmet Need, 2014 Update

OWNER		City of Chicago		
		# of Apps	Total \$ FVL	IHP RP Paid
Minor-Low	< \$3,000	20,564	\$20,208,887.57	\$18,525,690.36
Minor-High	\$3,000 - \$7,999	1,745	\$7,796,064.07	\$7,175,484.38
Major-Low	\$8,000 - \$14,999	151	\$1,552,467.32	\$1,394,904.85
Major-High	\$15,000 - \$28,800	12	\$226,918.58	\$232,414.02
Severe	> \$28,800	0	\$0.00	\$0.00
TOTALS:		22,472	\$29,784,337.54	\$27,328,493.61

Source: FEMA (Chicago, April 2013 Severe Storms and Flooding, IL-DR-4116 (as of August 7, 2014))

Table 8 – Renter Unmet Need, 2014 Update

RENTER		City of Chicago		
		# of Apps	Total \$ FVL	IHP PP Paid
Minor-Low	< \$1,000	5,463	\$2,763,883.70	\$2,037,561.38
Minor-High	\$1,000 - \$1,999	1,842	\$2,540,986.86	\$1,908,632.22
Major-Low	\$2,000 - \$3,499	785	\$2,044,110.65	\$1,535,357.85
Major-High	\$3,500 - \$7,499	455	\$2,218,907.02	\$1,766,016.20
Severe	> \$7,500	60	\$540,696.10	\$414,752.80
TOTALS:		8,605	\$10,108,584.33	\$7,662,320.45

Source: FEMA (Chicago, April 2013 Severe Storms and Flooding, IL-DR-4116 (as of August 7, 2014))

In addition, the City once again reached out to COAD, a humanitarian association composed of voluntary and community organizations that foster coordination of service delivery to people affected by disaster, and its LTRC tasked with assisting with recovery efforts. The LTRC provided additional details on homes in need of repairs and assistance ranging from the following issues:

- extensive mold damage to basements and home (overwhelming issue);
- structural damage to building foundation and underneath house floor;
- cracks, holes, and buckling of ceiling or roof;
- electrical problems from flooded outlets;
- damaged or destroyed furniture and appliance;
- repair of flooring, drywall, and baseboards;
- plumbing and electrical issues;
- home condemned;
- broken plumbing broken (e.g., sewage comes up);
- tuck pointing to prevent flooding; and
- replacing sump pump.

All the homes were inspected by individuals working in connection with the LTRC to determine the validity of the homeowner's claim as well as the extent of the damage. The homes inspected are located in some of Chicago's neediest areas: more than 80% of the households have incomes below poverty level; almost 30% of the households have a disabled household member; and almost 25% of the individuals are elderly. Thus, these are individuals and households in immediate need of financial assistance to ensure that their homes are safe and healthy environments. The households identified by LTRC were in the following community areas: Ashburn, Auburn Gresham, Austin, Avalon Park, Calumet Heights, Chatham, Chicago Lawn, East Garfield Park, Humboldt Park, Morgan Park, Pullman, Roseland, South Deering, South Shore, Washington Heights, West Elsdon, West Englewood, West Garfield Park, West Lawn, and West Pullman. The homes were located in the following census tracts: 231500, 251100, 252100, 252300, 261000, 271500, 271700, 381800, 400400, 431200, 431400, 440200, 440900, 450200, 480500, 490300, 490500, 490900, 500100, 510200, 530200, 530300, 530500, 620100, 650200, 660800, 661000, 661100, 671100, 671500, 671600, 671800, 672000, 700200, 700500, 710200, 711100, 711400, 720200, 720700, 730200, 730300, 730400, and 750600.

Demographics of Community Areas (Housing Need), 2014

The flood had an overwhelming impact on community areas with high unemployment and large populations of low- to moderate income persons and the elderly. Of the 20 community areas with housing needs identified by the LTRC, 17 of 20 have median incomes below the citywide median income of \$47,780, including four community areas where the median income is below \$30,000 and 8 community areas where the median income is below \$40,000. Additionally, in 14 community areas, 30% of the households have incomes below \$25,000. The unemployment rate in 18 of these communities exceeded the Chicago city average of 12.9% with 12 of them exceeding 20%. The impacted areas had a high percentage of elderly population living in their communities. 12 community areas had populations where 12% or greater was older than 65 years old; the City average was 11%. In terms of race, the majority of the individuals living in these communities are Black though Hispanics make up a sizeable portion of the population as well. Thus, aside from being some of the most affected by the storm, these are communities where the need for assistance to repair and update homes is the greatest. For additional demographic information by community area see the charts below.

Table 9 – Demographics, by Income, 2014

Community Area	Total Households	Median Income	Income < \$25,000	Percent	Unemployed
Ashburn	12,780	\$ 67,964	2,120	16.6%	11.7%
Auburn Gresham	17,173	\$ 30,900	7,161	41.7%	28.3%
Austin	32,428	\$ 31,885	13,263	40.9%	22.6%
Avalon Park	3,857	\$ 45,465	1,150	29.8%	21.1%
Calumet Heights	5,586	\$ 55,617	1,096	19.6%	20.0%
Chatham	14,112	\$ 30,572	5,993	42.5%	24.0%
Chicago Lawn	15,416	\$ 34,480	5,542	35.9%	17.0%
East Garfield Park	6,895	\$ 25,108	3,437	38.5%	19.5%
Humboldt Park	16,778	\$ 29,778	7,263	43.3%	17.3%
Morgan Park	8,019	\$ 61,351	1,649	20.6%	15.0%
Pullman	2,984	\$ 42,939	969	32.5%	22.8%
Roseland	15,524	\$ 37,967	5,254	33.8%	20.2%
South Deering	5,332	\$ 32,278	2,207	41.4%	16.3%
South Shore	23,020	\$ 30,421	10,022	43.5%	19.8%
Washington Heights	9,308	\$ 41,348	2,651	28.5%	20.8%
West Elsdon	5,032	\$ 46,535	1,030	20.5%	16.7%
West Englewood	10,364	\$ 26,451	4,944	47.7%	35.9%
West Garfield Park	5,715	\$ 24,502	2,901	50.8%	25.8%
West Lawn	9,111	\$ 47,702	2,022	22.2%	9.6%
West Pullman	9,366	\$ 39,878	3,217	34.3%	19.2%

Source: Community Data Snapshots, Chicago Metropolitan Agency for Planning (CMAP) (updated March, 2014)

Table 10 – Demographics by Race, 2014

Community Area	Population	Black	Hispanic	Asian	White	Age 65+
Ashburn	42,788	51.8%	30.9%	0.3%	16.8%	9.8%
Auburn Gresham	49,634	98.1%	1.0%	0.2%	0.3%	14.9%
Austin	98,162	85.6%	8.9%	0.4%	4.6%	11.0%
Avalon Park	9,589	96.7%	0.3%	0.4%	1.7%	19.4%
Calumet Heights	14,382	93.8%	4.2%	0.1%	1.4%	23.1%
Chatham	33,272	97.5%	0.5%	0.1%	0.5%	15.4%
Chicago Lawn	54,807	53.7%	41.9%	0.8%	3.5%	6.5%
East Garfield Park	21,308	94.2%	1.7%	0.4%	3.1%	8.3%
Humboldt Park	54,351	41.7%	51.2%	0.3%	5.5%	7.8%
Morgan Park	22,701	63.9%	2.3%	0.5%	31.7%	16.4%
Pullman	7,262	84.4%	7.6%	0.5%	7.2%	15.1%
Roseland	45,285	96.2%	0.8%	0.5%	1.1%	17.0%
South Deering	16,445	60.9%	31.6%	0.3%	5.4%	12.3%
South Shore	50,138	94.2%	1.7%	0.2%	1.5%	12.4%
Washington Heights	26,021	97.6%	0.7%	0.0%	1.0%	20.8%
West Elsdon	19,006	2.1%	78.2%	1.7%	17.8%	9.1%
West Englewood	35,294	95.8%	2.6%	0.1%	1.2%	12.3%
West Garfield Park	19,385	96.0%	1.2%	0.1%	1.4%	8.7%
West Lawn	32,950	3.2%	79.6%	0.3%	16.8%	8.4%
West Pullman	30,771	93.5%	4.5%	0.0%	1.3%	13.0%

Source: Community Data Snapshots, Chicago Metropolitan Agency for Planning (CMAP) (updated March, 2014)

2016 Updated Needs Assessment

FEMA identified more than 300 potential beneficiaries in areas that were hardest hit by the flood, with remaining unmet needs. However, through the assistance provided by the RFAP program, only 16.2% beneficiaries still had remaining unmet needs, were eligible for the program, and were responsive and interested in participating. The chart below shows the reasons beneficiaries did not participate in RFAP.

Table 11 – RFAP Potential Beneficiaries

Reason for Not Participating	Number of Beneficiaries	Percent of Total Beneficiaries
No remaining unmet need	6	2.0%
No response	181	36.3%
Moved	52	16.0%
Not interested in participating	59	18.2%
Not income eligible	45	15.2%
Foreclosure	9	2.8%
Other	36	11%
Total	388	83.8%

The beneficiaries noted above that indicated “No remaining unmet need”, are participants that were responsive and otherwise eligible for the program, but did not have documented remaining unmet need, based on a site visit and/or duplication of benefits review.

The program policies and procedures require each beneficiary to receive outreach at least four times before considering the need “cancelled”. Beneficiaries that were contacted a minimum of four times with no response are counted under “No response”. If subrecipients made contact with the beneficiary, but the beneficiary expressed no interest in moving forward, it is counted as “Not interested in participating”. A portion of beneficiaries had moved, which is documented through returned letters or visits to the eligible address. Beneficiaries not meeting program requirements, like inability to demonstrate damage related to the 2013 disaster, inadequate proof of documentation, or unwillingness to participate (for renter occupied units), were identified under “Other”.

As a result of the timing of the allocation and implementation of the program, most of the potential beneficiary’s lack of interest, need, eligibility or residency was high. The current awarded eligible beneficiaries have an average repair and mitigation cost of \$39,126, and it is estimated that approximately 63 total awards will be granted. This brings the total estimated current unmet need to \$2,464,938.

2. Economic Development

The flood caused commercial property damage and resulted in short- and long-term profit losses. Based on data provided by SBA, business owners in the South Side of Chicago received the largest monetary claims for damage to their businesses’ real and personal property. In total, SBA approved \$744,900 in damage claims as of April 1, 2014. The areas of the City that received the largest award of monetary damage claims from SBA were located in the far south side of the City in zip codes 60628, which had \$453,281 in approved claims, and 60617, with \$205,232 in approved claims. Following is a breakdown of businesses in areas most affected by the floods that were approved for SBA loans and the funding amount. In addition, a breakdown by individual award amounts is located in *Appendix 3*. The City has continued to engage businesses in the community areas most affected by the April floods to determine if any additional unmet or unreported damage occurred to local businesses or to economic development projects in the affected community areas.

Table 12 – SBA Disaster Loan Statistics

SBA DISASTER LOAN STATISTICS (Business Only)	
Zip Code	Dollars Approved
60617	\$205,232
60623	\$19,725
60628	\$453,281
60644	\$66,662
TOTAL	\$744,900

3. Infrastructure

Initial Needs Assessment

The storms extensively impacted Chicago's utility services, roads, and water, sewer, and drainage. In response to the storms, the Chicago Department of Transportation (CDOT) and DWM had to deploy multiple resources to immediately respond to the aftermath.

CDOT oversees and ensures the proper working conditions and environmental suitability of the City's surface transportation network and public way. CDOT maintains and rehabilitates more than 4,000 miles of streets, 300 bridges and viaducts, 200 miles of in-street bikeways, and 2,900 signalized intersections citywide. Each year, CDOT invests millions of dollars in the City's infrastructure.

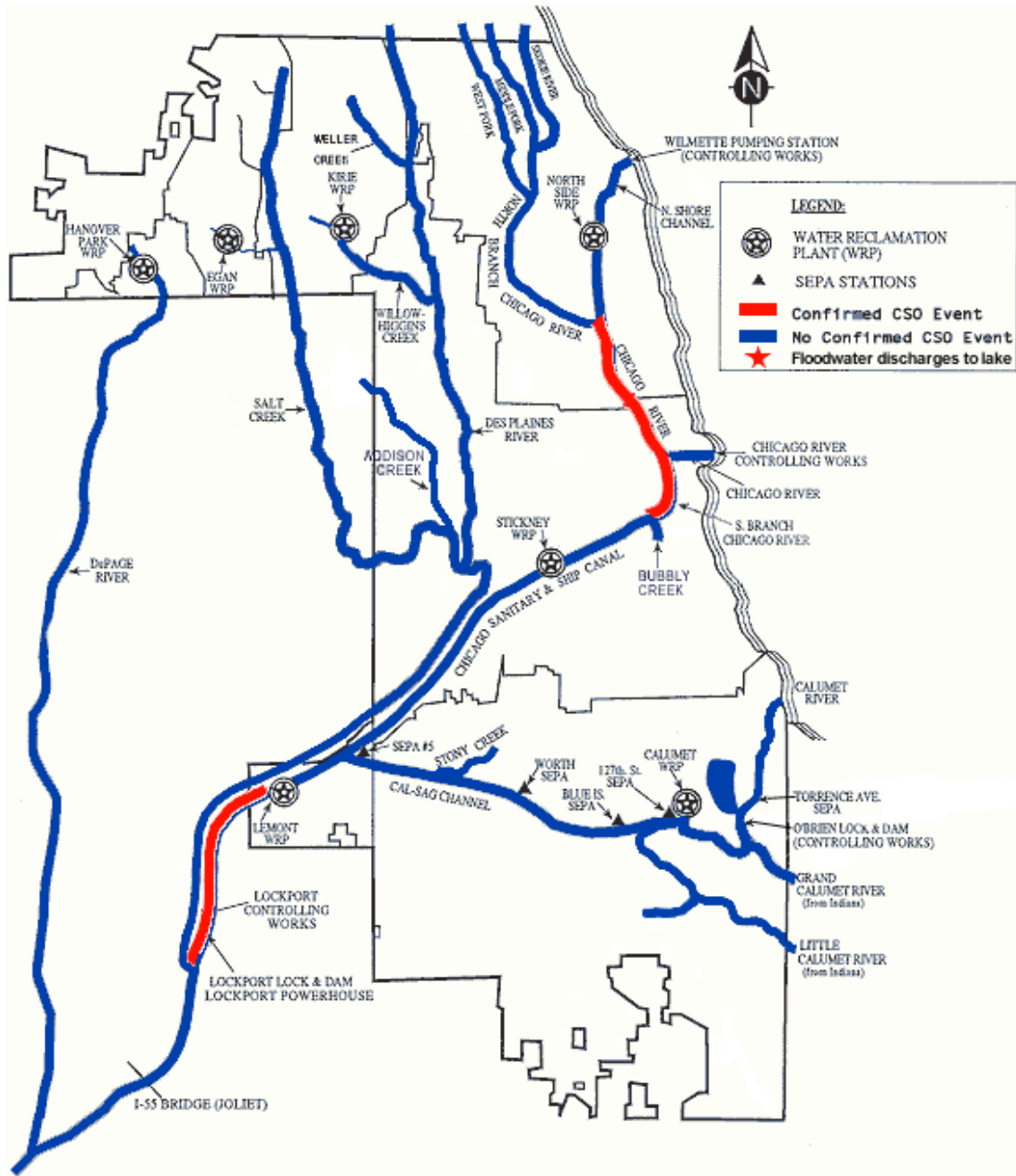
The April floods significantly impacted Chicago's infrastructure and resulted in the City receiving 571 calls of flooded streets and 32 calls of flooded viaducts. The Department of Streets and Sanitation relocated 105 vehicles to remove them from flooded areas. The rain and related flooding caused major road closures, including the following interstate highways and major city thoroughfares:

- I-94 northbound at the Kennedy Junction
- I-94 southbound at Dempster Avenue
- I-94 northbound between Foster and Touhy
- I-94 northbound at 130th Street
- Bishop Ford Expressway experienced major backups with lanes closures
- 96th and Dorchester due to a sinkhole
- Midway Plaisance eastbound
- Belmont Avenue ramp to northbound Lake Shore Drive
- Viaducts on Stoney Island, 95th Street and Cottage Grove Avenue

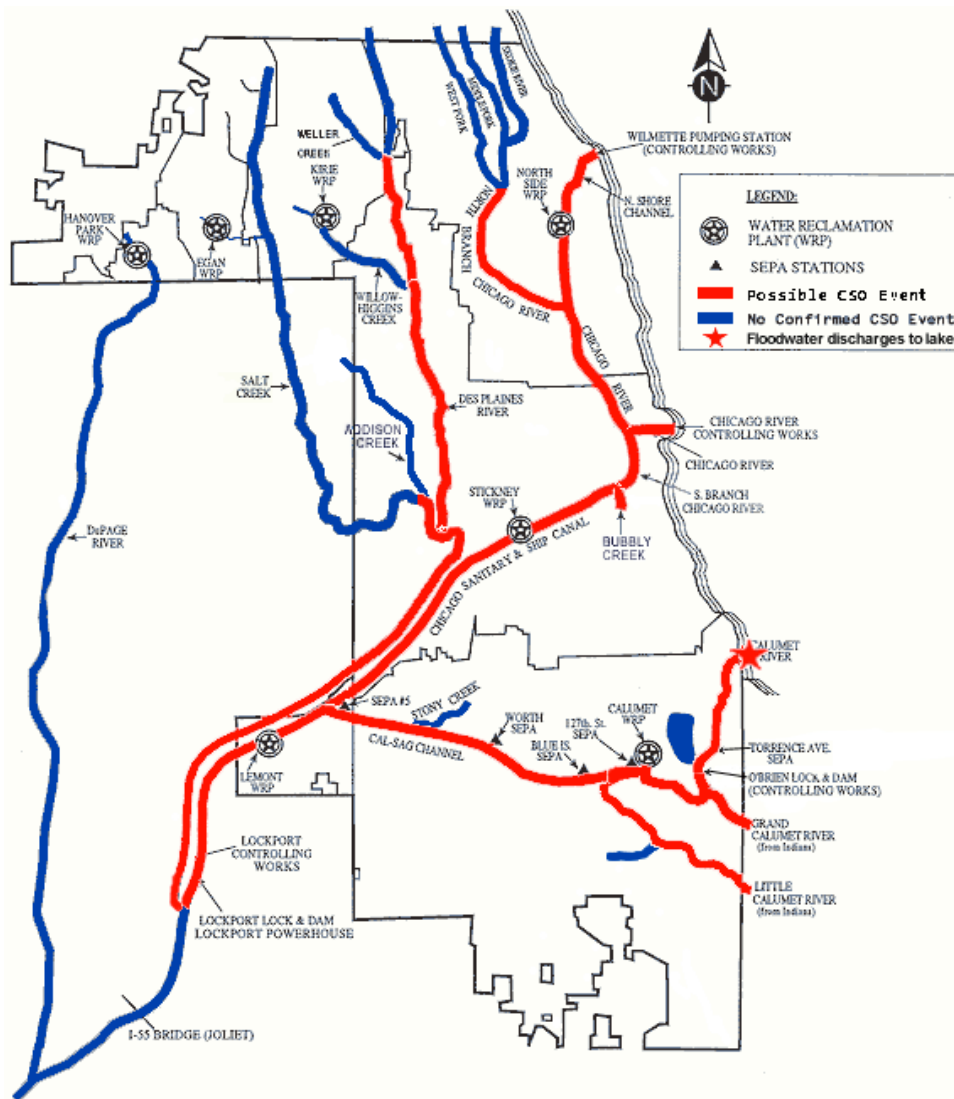
Overseen by DWM, Chicago's current sewer and drainage infrastructure is made up of an extensive network of approximately 5,000 miles of sewers, over 4,500 miles maintained by DWM and over 500 miles maintained by MWRD. This network is one of the city's most significant assets. Approximately 99.5 percent of the city's sewers collect stormwater and sanitary sewage in the same pipes and then direct the combined flow to one of MWRD's water reclamation plants for treatment before discharge. The April 2013 storm was so severe that the city's deep tunnel flood control system was filled to capacity with 2.3 billion gallons of water, forcing officials to open flood gates, sending storm water into Lake Michigan.

The maps below and on the following pages depict the City's combined overflow the day before and day of the flood.

COMBINED SEWER OVERFLOW APRIL 17, 2013



COMBINED SEWER OVERFLOW APRIL 18, 2013



DWM has an aggressive sewer capital construction program to address areas of the southeast region of the City that are prone to flooding. In addition to the Albany Park community, this region was one of the hardest hit during the April 2013 flood. The City had already begun replacing sewer mains in certain areas affected by the flood. The new sewer mains are replacing old, undersized sewer mains that were damaged by the 2013 flood and will decrease the risk of basements flooding in the areas where they are being installed.

DWM identified additional potential sewer projects throughout the City of Chicago in some of the areas most affected by the 2013 floods. These sewer projects are replacing old, undersized sewer pipes that were damaged by the inundation that occurred during the April 2013 storms. The inundated sewers caused water to overflow to the surface and flood the surrounding streets,

sidewalks, and residential homes. If these sewers are not replaced, these areas will likely witness renewed flooding in the event of a similar storm. These projects are being proposed to address the damage caused by the 2013 flood and proactively reduce the probability of future flooding. DWM estimates that these sewer projects will cost approximately \$50.13 million.

Chicago still has streets built as part of the WPA public works program in the 1930s and 1940s. The streets were originally built without curbs and gutters, and with minimal drainage facilities. These streets often contain sewer pipes for sanitary flow from the adjacent buildings, but they typically do not have catch basins or a separate storm sewer pipe to capture and convey storm water. When Chicago receives intermediate to large storms, these streets typically flood. This excess storm water can flood homes or overflow to the sewer pipes in adjacent streets, which then can lead to basement flooding backups if those adjacent sewer pipes do not have the capacity to convey all of this storm water.

Ensuring that the homes damaged by the April 2013 flooding are resilient requires strategies to mitigate risk at the block and community level. Repairing and instituting flood mitigation strategies at the individual residence level, while helpful for the individual household, only addresses a symptom of a larger problem: existing infrastructure is inadequate to accommodate storm water from even moderate storms. Efforts at the individual residence level leave neighboring houses vulnerable to the risk of flooding; mitigating the risk of flooding for these communities requires a comprehensive resiliency strategy at the block and community level. WPA streets that lack the necessary infrastructure to accommodate storm water represent a significant risk, making houses in the communities where they exist more prone to flooding.

Over 10 miles of WPA streets are located in the low- and moderate-income community areas of Auburn Gresham, Avalon Park, Burnside, Calumet Heights, Chatham, Greater Grand Crossing, Pullman, Roseland, South Chicago, South Shore, Washington Heights, West Englewood, and West Pullman (*Appendix 4*). Following is a chart that demonstrates the need to replace WPA streets in communities most impacted by the April 2013 flood. The FEMA case files in these community areas represent nearly half of the 324 case files opened citywide and as shown in *Appendix 5*, are representative of the 24,411 FEMA-approved claims for individual aid.

Table 13 – Community Area Flooding in April 2013 and WPA Streets

Community Areas	Length of WPA Streets (miles)	Number of 311 calls during April 17-18, 2013	Number of FEMA case files
Auburn Gresham	1.36	116	25
Avalon Park	0.29	23	7
Burnside	1.22	49	3
Calumet Heights	0.12	166	8
Chatham	0.79	207	11
Greater Grand Crossing	0.78	37	12
Pullman	0.62	48	5
Roseland	0.85	170	36
South Chicago	0.45	64	4
South Shore	0.48	31	5
Washington Heights	0.60	144	15
West Englewood	1.05	57	15
West Pullman	1.53	87	28
TOTAL	10.14	1199	174

Source: FEMA Individual Assistance data, 311 City data, DWM infrastructure data

Based on the City’s cost estimates, rebuilding all 10.14 miles of WPA streets would cost approximately \$30 million. The City is currently conducting additional engineering analysis to determine the exact location and length of each WPA street project to undertake in these community areas. Additional engineering analysis is necessary to provide a precise calculation for each project since each street will need to be designed and built to address the conditions of that street and neighborhood. The design and location of bioswales and infiltration will be determined by a series of factors, including soil type and the location of potential obstacles such as utilities, driveways, and existing trees. Any WPA streets not rebuilt through this allocation will remain a priority for future funding as it becomes available.

Following the April 2013 storms and flooding, a team of City officials from the Department of Buildings assessed the damage to the Albany Park area. Based on this investigation, they found approximately 70 buildings were damaged. Although the City has no insurance claims for damages related to flood (as many homeowners are unwilling to risk long-term depreciation from filing such a claim), the City calculates that based on the nature and extent of the flooding, the value of homes in the area, and standard damage caused by flooding in the Chicago land area the total damage was approximately \$3,500,000. Albany Park also suffered damage from flooding to a very similar level from a storm on September 14, 2008. See Appendix 6 for images from the 2008 Flood. This was less than 5 years before the April 18, 2013 storm. See *Appendix 7* for a map that shows calls to the City’s 311 system during the April 2013 storms overlaid with the FEMA-designated floodplains in Albany Park.

Under the planning assumptions that underpin the rainfall frequency projections and flooding maps, it is expected that the type of storms that occurred on September 14, 2008 and April 18, 2013 would be expected to occur once every ten years (a “10 year storm” event). However, Chicago is regularly receiving storms that exceed the expected rainfall frequencies, as evidenced by the occurrence of these two storms less than five years apart. Furthermore, since 2008, Chicago has experienced two “10-year storm”, one “25-year storm” (July 23-24, 2010), and one “100-year storm” (July 22-23, 2011)³, primarily due to climate change. Therefore, it is reasonable to expect another storm similar to the one that took place on April 18, 2013 to occur in the near future.

In the Albany Park area that would benefit from this tunnel project, there are areas that are mapped by FEMA in the 1% (or a 1% likelihood of occurring in a given year) and .02% floodplains. 72 buildings are mapped in the 1% floodplain and 440 are mapped in the .02% floodplain. The vast majority of the homes located in the 1% floodplain were damaged from the storm on April 18, 2013. If a 0.2% chance storm occurred, which is possible given the increased frequency of storms over the past five years, the impact would be much greater, 440 buildings as opposed to 72 buildings, and the damage would be significantly higher, potentially exceeding \$20 million.

2016 Updated Needs Assessment

In 2015, the City formed a Chicago Resiliency Team (CRT) consisting of internal departments and external agencies that analyzed impacted and distressed communities from the 2013 storms to identify a target demonstration area for resilience projects. The analysis was completed by the City and consultants, while preparing an application for the Department of Housing and Urban Development (HUD) National Disaster Resilience Competition. Based on FEMA assistance and economic hardship data, the CRT identified a demonstration area comprised of six West Side communities, Austin, Humboldt Park, East Garfield, West Garfield, North Lawndale and South Lawndale, referred to as the West Side Demonstration Area (WSDA).

The WSDA is home to approximately 300,000 residents, 88% of the census blocks are low-to-moderate income and the local unemployment rate is almost three times the city average. The April 2013 storms caused damage to over 6,000 homes in the WSDA; over 43,000 individuals within Chicago requested FEMA Individual Assistance, with at least 26,783 households receiving assistance from FEMA for verified loss on account of the storms. Of these, 6,308 households were in the WSDA (*Appendix 8*). Geographically, the WSDA is a microcosm of Chicago’s landscape with largely flat land divided into a variety of land use types. The WSDA can serve as a template for approaches that could be deployed throughout Chicago in the future. Through one-on-one meetings, 10 community engagement sessions and two public hearings

during 2015, the CRT engaged residents, community organizations and small business owners in the WSDA to better understand impacts from the April 2013 storms and ongoing community challenges, as

This program would initiate a pilot in the WSDA by constructing stormwater landscapes on non-pervious vacant land in areas that are primarily residential and were highly impacted by the 2013 storms. This will transform entire corridors, capturing stormwater to reduce the risk of future flooding in areas most impacted in 2013, while also creating new gathering places, promoting pedestrian traffic, reducing urban heat island, and creating economic opportunity through construction and maintenance.

The City proposes to begin with three corridors in the WSDA community area. The corridors will be chosen using the following criteria; (1) areas substantially impacted by the April 2013 storms, as evidenced by high concentrations of 311 calls and FEMA case files (see Table below), (2) community areas that are primarily residential with adjacent impervious property that is vacant and city-owned, and (3) committed neighborhood organizations that will assist in the maintenance of the new landscapes.

Table 14 – WSDA 2013 Flooding and Available Land

<i>Community Area</i>	<i>Acres of City Owned Vacant Land Adjacent to Primarily Residential Areas</i>	<i>Number of 311 Calls</i>	<i>Number of FEMA Applicants</i>
Humboldt Park	8.28	66	940
North Lawndale	23.55	27	916
Austin	9.73	193	3572
East Garfield	15.07	11	198
West Garfield	6.25	24	580
South Lawndale	1.01	18	102
Total	63.89	339	6308

Infrastructure Needs Summary

The total unmet need for WPA streets per the chart listed on page 23 equals \$30 million. The Albany Park tunnel project will cost approximately \$70 million. The CRT estimates that transforming 10-12 acres of land to mitigate future damage that will benefit residential areas most impacted by the 2013 storms, will cost \$11.4 million. Additionally, there is more than \$50.13 million in sewer repair projects to meet the need of the community. Therefore, the City has identified approximately \$161.73 million in infrastructure unmet need.

(B) Allocation of Funds

Infrastructure Projects

Sewer Projects

Outdated and undersized sewer mains, originally installed in the early 1900s, are inadequate to contain the volume of rainfall experienced during the flood and contributed to the overall flood damage. The City has launched one of the largest water infrastructure investment programs of any city in America. Over the next decade, the City will replace 900 miles of water main, replace or reline 760 miles of sewer pipes, line 160,000 catch basins and renew 12 pumping stations and 2 purification plants. These efforts include updating water infrastructure, conserving water, greening water operations, and sustainably managing stormwater. Through these investments, including CDBG-DR, the City will create a platform for economic growth, reduce flooding risk, strengthen neighborhoods, and expand opportunities for residents to live healthier.

The City will allocate CDBG-DR funds to address the stormwater infrastructure needs on the City's south side through sewer main improvement and restoration projects. The sewer infrastructure activities proposed in this CDBG-DR Action Plan will be carried out by DWM.

DWM, in consultation with MWRD, is targeting sewer replacement and improvement projects to address areas of the City that are prone to flooding due to outdated infrastructure. In planning such projects, DWM and MWRD share computer modeling data on their respective sewer collection and conveyance systems to ensure operational consistency throughout Chicago.

The City used three different types of data and analysis to select the potential sewer replacement projects. This included the use of the City's hydraulic citywide trunk sewer computer model, analysis of reported instances of flooding to the City's 311 system, and evaluation of applications by private homeowners to FEMA for individual assistance.

The City has used a hydraulic citywide trunk sewer computer model for the last five years to evaluate existing flood risk and determine the most effective infrastructure replacement projects. The model contains three basic components. The first is the existing sewer pipe network in the City of Chicago. The second component included in the model is the land use factors that determine runoff. This includes the amount and location of impervious or paved surfaces, the features that restrict flows (like flow restrictors in sewer catch basins), and the number of building downspouts that are disconnected from the sewer system. The third component of the model is the amount of rainfall that is expected from different types of storms. The model creates outputs such as runoff volumes, water levels in the sewers, and flow metrics such as total volume, peak flow, or amount of combined sewer overflows (CSOs). The City can evaluate how changes to the inputs of the model, such as an increase in rainfall, reduction in impervious surfaces, or the size of sewer pipes, result in different model outputs such as flood risk reduction, CSO frequency reduction, and reduced inflows to treatment plants.

The City used its computer sewer model to analyze areas of flood risk following the April 2013 storms. The City identified areas that have insufficient sewer capacity and were inundated during these rain storms. When sewers are inundated, the stormwater runoff backs up out of the sewers and flows back into basements and streets. Each of the potential projects is located in an area that has insufficient sewer capacity and contains a flood risk that was exceeded by the volume of rainfall received during the April 2013 storms.

The second analysis performed by the City was to examine calls received to the City's 311 system. The City's 311 system is a phone- and web-based portal where citizens can log non-emergency complaints or requests for assistance. The City tracks two types of calls to 311 related to flooding: water-in-basement and water-in-street. The City believes this is a good proxy for the location of actual flooding since 311 calls represent known occurrences of flooding by citizens. However, the City also believes that 311 calls often underrepresent flooding occurrences for a variety of reasons. Some citizens may not call 311 because they don't know about the system and/or they choose to handle their flooding situation on their own. The City evaluated 311 calls during the events of April 17-18, 2013 to understand which areas experienced flooding. Each of the identified sewer projects selected for possible CDBG-DR funding are located adjacent to areas that had reported flooding to the City's 311 system. See *Appendix 9* for a map of the sewer projects overlaid with 311 calls for flooding.

The City's third analysis was an evaluation of the areas of Chicago that received a high volume of applications for FEMA Individual Assistance in connection with federal declaration 4116-DR_IL. Since these applications were made for funding in response to flood damage, the City believes that this data set is another good proxy for actual flooding occurrences. Specifically, the City evaluated those zip codes that received higher rates of applications and compared those to the level of basement flooding risk from the city's hydraulic computer sewer model and the occurrence of 311 calls during the April 2013 storms. Each of the sewer projects selected for possible CDBG-DR funding are located within zip codes that had high levels of applications for FEMA Individual Assistance. See *Appendix 10* for a map of the sewer projects overlaid with the City's zip codes.

The sewer main improvement projects to be funded by this grant will reduce the chances of future basement flooding by increasing the size of the sewer mains. The current sewer mains have a risk of basement flooding from a 6 month to 2 year storm event⁴. The proposed projects will increase the capacity of the sewer system to handle a 5 year storm event, thereby reducing the chance of basement flooding from future storms. Green restoration elements may incorporate the use of permeable pavement following the construction of the new sewer mains to promote sustainability, direct stormwater from the sewer, and further minimizing flooding. Permeable

⁴ A "storm event" means that a storm of this magnitude (i.e., amount of rainfall within a limited period of time) is expected to occur once every period of time denoted (e.g., 2 year storm event means that a storm event will occur once every two years).

pavement will allow stormwater from the City of Chicago right-of-way to infiltrate into the ground instead of going into the sewer system. With less water going into the sewer system, there is less chance of the sewer backing up into a homeowner’s basements. Additionally, stormwater absorbed by the ground is not conveyed to the MWRD for treatment which reduces costs and greenhouse gases produced during the treatment of the effluent.

The City estimates that the completed projects will total almost 5 miles of new sewers and will benefit more than 3,714 homes and an area of more than 585.5 acres at risk from flooding. Of those projects, 10 will primarily benefit residents of low- and moderate-incomes, and all but one is located on the City’s south side. The City will potentially be repairing sewers in the following community areas: Calumet Heights, Greater Grand Crossing, Humboldt Park, Roseland, South Deering, Washington Heights, and West Elsdon. These were some of the most affected areas during the April 2013 storm, and these neighborhoods routinely deal with flooding from severe rainstorms.

As the charts below illustrate, a majority of these communities have median incomes below or well below the Chicago average. In addition, at least 20% of the households in each community have a combined income of less than \$25,000 with three community areas having 40% of households that earn less than \$25,000. Also, unemployment at the time of this analysis exceeded 16% in all of the communities and there were three with rates exceeding 20%. Blacks and Hispanics make up the largest segment of the population in most of these communities; four of the neighborhoods are over 80% Black while Hispanics comprise 50% of the population in two neighborhoods. Therefore, these sewer projects will help alleviate and reduce flooding in communities where the financial need is greatest and will benefit overwhelmingly minority communities.

Table 15 – Demographics of Community Areas Identified for Potential Sewer Projects, by Income

Community Area	Total Households	Median Income	Income < \$25,000	Percent	Unemployed
Calumet Heights	5,586	\$ 55,617	1,096	19.6%	20.0%
Greater Grand Crossing	12,605	\$ 29,254	5,580	44.3%	23.0%
Hegewisch	3,703	\$ 45,178	987	26.6%	9.6%
Humboldt Park	16,778	\$ 29,778	7,263	43.3%	17.3%
Roseland	15,524	\$ 37,967	5,254	33.8%	20.2%
South Deering	5,332	\$ 32,278	2,207	41.4%	16.3%
South Shore	23,020	\$ 30,421	10,022	43.5%	19.8%
Washington Heights	9,308	\$ 41,348	2,651	28.5%	20.8%
West Elsdon	5,032	\$ 46,535	1,030	20.5%	16.7%
West Lawn	9,111	\$ 47,702	2,022	22.2%	9.6%
West Pullman	9,366	\$ 39,878	3,217	34.3%	19.2%
Woodlawn	8,982	\$ 25,796	4,412	49.1%	24.2%

Source: Community Data Snapshots, Chicago Metropolitan Agency for Planning (CMAA) (updated March, 2014)

Table 16 – Demographics of Community Areas Identified for Potential Sewer Projects, by Race

Community Area	Population	Black	Hispanic	Asian	White	Age 65+
Calumet Heights	14,382	93.8%	4.2%	0.1%	1.4%	23.1%
Greater Grand Crossing	32,873	96.3%	1.4%	0.1%	1.0%	13.1%
Hegewisch	10,202	9.1%	50.9%	0.2%	39.1%	14.0%
Humboldt Park	54,351	41.7%	51.2%	0.3%	5.5%	7.8%
Roseland	45,285	96.2%	0.8%	0.5%	1.1%	17.0%
South Deering	16,445	60.9%	31.6%	0.3%	5.4%	12.3%
South Shore	50,138	94.2%	1.7%	0.2%	1.5%	12.4%
Washington Heights	26,021	97.6%	0.7%	0.0%	1.0%	20.8%
West Elsdon	19,006	2.1%	78.2%	1.7%	17.8%	9.1%
West Lawn	32,950	3.2%	79.6%	0.3%	16.8%	8.4%
West Pullman	30,771	93.5%	4.5%	0.0%	1.3%	13.0%
Woodlawn	21,833	87.8%	1.8%	240.0%	7.6%	11.2%

Source: Community Data Snapshots, Chicago Metropolitan Agency for Planning (CMAP) (updated March, 2014)

Flooding has a devastating effect on families and their homes, and green stormwater infrastructure serves as a key piece of reducing risk to Chicago homeowners. As the City repairs and rebuilds streets and sewers in the neighborhoods that are flood prone, one storm water management technology being used will incorporate permeable pavement to absorb water that would otherwise wind up in the sewer system, and ultimately in the river. This type of storm water management strategy is closely engineered as it will only work in sandy soil areas.

Albany Park Tunnel Project

To address the recurring flooding problem in the Albany Park community area, the City’s departments of Water Management (DWM) and Transportation (CDOT) are engineering a diversion tunnel that will help alleviate the flooding of the portions of the North Branch Chicago River that are near Albany Park and led to the 2013 flooding as well as previous floods. The tunnel is 18 feet in diameter, 120 feet underground, and carved into rock. The diversion tunnel would run under Foster Avenue from its intersection with Avers Avenue until its discharge into the North Shore Channel as displayed in *Appendix 11*. The City of Chicago is planning to construct this tunnel because it would reduce flooding without buyouts, relocations, or construction of a wall through the neighborhood.

In the spring of 2013, CDOT and MWRD commissioned a feasibility study to evaluate the feasibility of the stormwater diversion tunnel and to determine any risks. The study concluded that a tunnel is feasible and that the lower cost option would be a deeper tunnel constructed into rock layer, versus a shallower tunnel constructed in the earthen overburden layer closer to the

surface. CDOT also compiled a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR). Given that most of the work on this project happens underground, the greatest risk to the project's success comes from unknown/quantified subsurface conditions. The GBR and the GDR are reports which compiled as much subsurface data as possible to alert the contractors of the anticipated strata of rock and soil. Additionally, during construction, CDOT will continually monitor subsurface conditions as the tunnel boring machine advances, to ensure that fissures, cracks and wedges are identified and mitigated. See *Appendix 12* for the complete Major Infrastructure Project Criteria for the Albany Park Tunnel Project.

The anticipated construction cost is \$70.6 million. The City is working with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) to construct the tunnel. MWRD has pledged to pay approximately 35% of the total cost. The City will commit \$21.6 million towards this project, \$15.6 million via CDBG-DR funds and the remaining \$6 million from TIF funding and funds from the State of Illinois. After construction, the City would operate and maintain the tunnel.

Table 17 – Anticipated Albany Park Tunnel Funding

Funding Stream	Amount
MWRD GOB	\$24,750,403
CDBG-DR	\$15,600,000
IDNR State Grant	\$11,000,000
TIF Lawrence/Kedzie (T88)	\$4,600,000
TIF Lawrence/Pulaski (T116)	\$1,400,000
DWM Funding	\$13,344,442
Total	\$70,694,845

Works Progress Administration (WPA) Street Program

The City is allocating CDBG-DR funding to rebuild WPA streets to a resilient standard in areas that both had flooding during the April 2013 storms and are at higher risk for flooding due to future storms as demonstrated by the City’s hydraulic computer model, 311 calls during the April 2013 storm, and FEMA Individual Assistance claims. The City will focus these investments in key community areas in the south side of Chicago.

The WPA street projects will predominantly benefit residents of low- and moderate-incomes on the City’s south side. The City has identified potential WPA streets for this project in the following community areas: Auburn Gresham, Avalon Park, Burnside, Calumet Heights, Chatham, Greater Grand Crossing, Pullman, Roseland, South Chicago, South Shore, Washington Heights, West Englewood, and West Pullman. These were some of the most affected areas during the April 2013 storm, and these neighborhoods routinely deal with flooding from severe rainstorms. See *Appendix 13* for a map showing these Community Areas with 311 calls from April 17-18, 2013 and see *Appendix 5* for FEMA Individual Assistance applications for FEMA-4116-DR-IL as of August 2013.

The City will rebuild WPA streets in these community areas to improve storm water management and reduce flooding. Since these WPA streets are typically not connected to the City's sewer system, runoff can overflow onto private properties and/or overtax the sewer pipes of adjacent blocks. To improve storm water management, the City will construct green storm water infrastructure features on WPA streets to provide a location to store water, thus reducing flooding in the neighborhood. Based on the configuration of each street, the City will build an infiltration trench and/or a bioswale that will capture storm water. Infiltration trenches are located in the parking lane of the road and are designed to include permeable pavement that directs water into a gravel bed below the road surface. Bioswales are located in the parkway between the road and the sidewalk and use plants, trees, and a drainage bed of soil and gravel to capture and filter storm water runoff from the street. The City will also repave these streets so that the pitch of the road surface directs storm water runoff into the infiltration trench and bioswale.

The City has rebuilt WPA streets in recent years, and DWM worked with a leading national engineering firm to develop standard cost estimates for rebuilding WPA streets to a resilient standard. The City calculates that the cost to rebuild one mile of WPA streets is approximately \$2.9 million. This includes building curbs, gutter, ADA-compliant sidewalks, a repaved road surface, and green storm water infrastructure. The estimated cost to repair all WPA streets in the affected community areas is \$30 million.

Over 10 miles of WPA streets are located in the low- and moderate-income community areas of Auburn Gresham, Avalon Park, Burnside, Calumet Heights, Chatham, Greater Grand Crossing, Pullman, Roseland, South Chicago, South Shore, Washington Heights, West Englewood, and West Pullman (*Appendix 14*). Below is a chart that demonstrates the need to replace WPA streets in communities most impacted by the April 2013 flood. The FEMA case files in these community areas represent nearly half of the 324 case files opened citywide and as shown in *Appendix 5*, are representative of the 24,411 FEMA-approved claims for individual aid.

Table 18 – Community Area Flooding in April 2013 and WPA streets

Community Areas	Length of WPA Streets (miles)	Number of 311 calls during April 17-18, 2013	Number of FEMA case files
Auburn Gresham	1.36	116	25
Avalon Park	0.29	23	7
Burnside	1.22	49	3
Calumet Heights	0.12	166	8
Chatham	0.79	207	11
Greater Grand Crossing	0.78	37	12
Pullman	0.62	48	5
Roseland	0.85	170	36
South Chicago	0.45	64	4
South Shore	0.48	31	5
Washington Heights	0.60	144	15
West Englewood	1.05	57	15
West Pullman	1.53	87	28
TOTAL	10.14	1199	174

Source: FEMA Individual Assistance data, 311 City data, DWM infrastructure data

Based on the City’s cost estimates, approximately 1.89 miles of WPA streets will be rebuilt using CBDG-DR funding. The City is currently conducting additional engineering analysis to determine the exact location and length of each WPA street project to undertake in these community areas. Additional engineering analysis is necessary to provide a precise calculation for each project since each street will need to be designed and built to address the conditions of that street and neighborhood. The design and location of bioswales and infiltration will be determined by a series of factors, including soil type and the location of potential obstacles such as utilities, driveways, and existing trees. Any WPA streets not rebuilt through this allocation will remain a priority for future funding as it becomes available.

Resiliency Revitalization Program

To address the damage created by the April 2013 storms in the West Side Demonstration Area (WSDA), a series of concentrated stormwater landscapes will be constructed along selected corridors. These new landscapes will divert stormwater from the City’s combined sewer system and provide multiple community benefits to residents that are vulnerable to basement and street flooding. It is estimated that potentially up to 2,500 residents will be at a reduced risk of future flooding after the implementation of these projects, of which an estimated 81.5% are low or moderate income. DPD is working with the consultant to more closely identify the benefitting areas and model the impact on the communities and will have a more accurate number by the time the project is contracted. At least three corridors located in the WSDA will be selected as pilot areas for the program. The WSDA area program design was developed through an analysis

completed by the City while preparing an application for the Department of Housing and Urban Development (HUD) National Disaster Resilience Competition. The analysis included (1) modeling of the amount of stormwater that could be diverted by these activities, (2) a benefit cost analysis and (3) an extensive community input process.

The stormwater landscapes will incorporate green infrastructure strategies such as bioswales, rain gardens, trees, permeable pavement, and dry creek beds that will accept stormwater from surrounding streets and alleys. The landscapes may also include neighborhood amenities such as community gardens, orchards, public plazas and play lots to be selected by the neighborhood, which will be funded by other sources, such as TIF. The specific design will be based on the location with a focus on the most impactful strategy to reduce the risk of future flooding to residents most impacted by the 2013 storms.

Housing Assistance Programs

To support the recovery of homeowners, the City will use funds from the second allocation of the CDBG-DR award to establish the Residential Flooding Assistance Program (RFAP) for single- and multi-unit buildings. The City is allocating \$4.3million from the second and third allocations to RFAP. The program will be administered by the City's Department of Planning and Development (DPD) in partnership with qualified sub-recipients.

RFAP will provide grant awards to eligible homeowners for activities necessary to repair storm-damaged single- and multi-unit housing. In addition, the program will provide assistance to renters that were displaced or adversely affected by flooding. RFAP will rehabilitate a variety of rentals from "1 to 4 unit" buildings to large multi-family housing developments. The types of eligible improvements may include, but are not limited to, rehabilitation, mold remediation, electrical and appliance repair or replacement, basement and roof repair, and mitigation measures. In addition, the program will provide grants to individual renters who suffered losses, including but not limited to damage to personal property, or any necessary repairs or fixes made to the rental unit in connection with flood that were required to make the unit habitable.

In addition, the program will provide grants for proactive mitigation measures that homeowners and property owners can take to reduce or minimize the likelihood of future flooding. Along with replacing and increasing the size of sewer mains, there are a number of modifications and alterations that homeowners or property owners can make to their residence that will help reduce the burden on sewers that lead to overwhelming the sewer system. For example, the City of Chicago was the first major metropolitan area in the country to successfully implement an inlet control system to relieve basement flooding. The system works by installing restrictors, known as Rainblockers, to slow the flow of stormwater into the sewer system. Stormwater is detained on city streets for brief periods before flowing back into the sewer system. This measure helps relieve the burden on the sewer system and reduce the frequency of basement flooding and combined sewer overflows into our waterways. The effectiveness of the inlet control system depends not only on the installation of Rainblockers but also on downspout disconnection. The

City will use CDBG-DR funding to pay for downspout disconnection in instances where the individual is unable to perform the task alone. Under this mitigation program, individuals could also get funding for downspout rain barrels (or cisterns)⁵, permeable paving⁶, or green roofs⁷ if the individuals live in flood plains or flood prone areas with a history of repeated flooding. In addition, the City will continue to encourage residents throughout the City to engage in programs and practices that will reduce overwhelming the City's sewer system and basement flooding. For additional information on the efforts taken by the City to educate residents on how to minimize and manage stormwater damage, please go to:

http://www.cityofchicago.org/content/dam/city/depts/water/supp_info/ManagingStormwaterAtHomeBrochure.pdf.

RFAP will allow for reimbursement of eligible expenses including reimbursing residents for eligible pre-award costs to the extent permitted by HUD. The City will adhere to the guidance provided in HUD Notice CPD-13-05 (July 30, 2013), which discusses reimbursing pre-award costs for eligible expenses incurred by homeowners, businesses and other qualifying entities.

Eligibility of homeowners and renters will be determined after further consultation with key partners. However, the City will prioritize LMI households and homeowners whose homes were substantially damaged, as long as the need exists. In addition, the criteria will include but not be limited to:

- Homeowner and/or renter must have been registered with FEMA
- Home must have been in one of the most-impacted areas; a FEMA designated flood plain; or historically flood-prone area.
- Renters must have occupied the unit at time of April 2013 flood
- Only primary residences qualify for assistance; second homes will not be eligible

Eligible applicants may receive up to \$50,000 of grant assistance for approved household or rental improvements. The improvements are anticipated to be completed within 30 to 120 days of the grant application. RFAP will be in compliance with all Fair Housing Act requirements to ensure that special needs populations are served.

⁵ Rain barrels can effectively capture and store the runoff from small to moderate storms. The stored water then can be used to irrigate lawns and landscaped areas in between storm events. The effectiveness of rain barrels (or cisterns) is a function of their storage volume in comparison to the size of the roof. For example, a 1,200 square foot roof could utilize 55-gallon barrels to store runoff from downspouts at the four corners of the house. The resultant storage is equivalent to about 0.3 inches of runoff.

⁶ Permeable paving has openings that allow water to pass through the surface and soak into the ground. Replace your driveway, walkway and patio cement with bricks or other pavers with spaces between them, permeable concrete or asphalt, or a combination of grass and gravel.

⁷ A green roof is a layer of landscaping installed on the top of a building. The plants retain and filter rainwater, reduce heating and cooling costs, extend the life of the roof, and improve air quality.

(C) Planning and Coordination

As part of the development of this CDBG-DR Action Plan, OBM has worked with multiple partners to gather information regarding unmet needs, including but not limited to OEMC, Department of Family and Support Services (DFSS), Department of Planning and Development (DPD), the City's Continuum of Care, CHA, Cook County, the State of Illinois Office of Emergency Management and Communications, FEMA, and SBA.

Moving forward, the City's OEMC will continue to have an active role in the coordination efforts of COAD's LTRC and the City will continue to promote sound, sustainable long-term recovery planning and ensure consistency. OBM, DPD and DWM will provide regular progress reports and continue to collaborate with OEMC and other key Federal, State, County and local partners throughout this process.

The community areas affected by the April 2013 floods were not related to issues surrounding flood plain management or possible sea level rise. Therefore, this issue is not applicable.

(D) Leveraging Funds

As the City rebuilds streets in neighborhoods that are most likely to flood, we will leverage millions from the Sewer Capital Improvement Program (CIP) budget. The CDBG-DR funds will be used to leverage \$4.31 million in City funds to support the sewer projects identified in this CDBG-DR Action Plan. The City has also committed \$17.17 million to sewer projects that directly address the 2013 flooding but began prior to receiving approval for CDBG-DR funding. The City is leveraging approximately \$55 million to complete the Albany Park tunnel project. (Total CDBG-DR project cost will be recorded in HUD's Disaster Recovery Grant Reporting (DRGR) System as appropriate.) The City will continue to work with Federal, State, County, and local partners to leverage funds to support other unmet needs and prevent duplication of benefits. With continued investment and sustainable stewardship, Chicago is poised to strengthen its competitive advantage as a leader in water quality, management, and access. The City is making major strides to improve the long-term sustainability of the water system and water ways, which include renewing water infrastructure, conserving water, greening water operations, and sustainably managing stormwater.

(E) Protection of People and Property

Managing stormwater in a large city like Chicago is a monumental task. One inch of rain citywide generates approximately 4 billion gallons of stormwater. Some of the stormwater that falls in our neighborhoods soaks into the ground, while most flows into the city's sewer system. Stormwater runoff from developed land in Chicago causes a number of problems when it is not effectively managed. During heavy rains, stormwater can overwhelm the sewer system. Two of the main effects of excess stormwater can be combined sewer overflows and basement flooding.

On a dry day, Chicago's wastewater treatment plants have enough capacity to handle the City's sewage. But during larger storms, the combined flow is often more than the wastewater treatment plants and TARP can accommodate and treat. The combined sewer system was designed to divert excess flow to local waterways instead of flooding the treatment plants or sending a mix of sewage and stormwater back up into streets and buildings. This mixture of sewage and stormwater is discharged, untreated, through outfalls into the river and canal system. This is commonly referred to as a combined sewer overflow (CSO). CSOs result in the discharge of coliform bacteria, organic matter, floatables, and other hazardous substances from runoff, industrial processes, or cleaning and household products. In Chicago, a rain event of as little as 0.67 inches in a 24-hour period can trigger a CSO in the Chicago River.

Basement flooding can be caused by many different issues, including storms that exceed sewer system capacity, clogged drains, failed sump pumps, cracked foundations, damaged private sewer service lines, improper protections on below grade fixtures, or localized blockages from grease, tree roots, or other debris that restrict flow in the system. It affects thousands of properties throughout Chicago during severe rain storms. Basement flooding can lead to the growth of mold and other harmful substances, impacting the indoor environment in affected homes and businesses. This flooding arises from the inability of underground sewer infrastructure to manage stormwater runoff from the aboveground city surfaces.

By increasing the sewer capacity and investing in sustainable infrastructure in this area, the risks associated with overflowing sewers as a result of a severe storm will be reduced. This will not only mitigate hazard risks but will also improve the indoor environment in affected communities. Further the City will use sustainable storm water management techniques as part of this capital investment such as permeable pavement that will allow stormwater from the road to infiltrate into the ground instead of going in the sewer system. Additionally as part of DWM's green infrastructure program, the project area impacted by flooding will have catch basin cleaning and catch basin restrictor replacements along with community education concerning down spout disconnection.

All rehabilitation will adhere to the Chicago Building Code, the City of Chicago's Green Permitting Program⁸, the City of Chicago's Sustainable Development Policy⁹, HUD CPD Green Building Retrofit Checklist¹⁰, and take into consideration the need or availability of mitigation measures. Furthermore, RFAP will promote sustainable communities and help to protect the environment by requiring the incorporation of green building technology and energy efficient development.

⁸ See http://www.cityofchicago.org/city/en/depts/bldgs/supp_info/overview_of_the_greenpermitprogram.html

⁹ See http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Sustainable_Development_Policy_Matrix.pdf

¹⁰ See <https://www.hudexchange.info/resource/3684/guidance-on-the-cpd-green-building-checklist/>.

(F) Impact on Public Housing, HUD-Assisted Housing, and Housing for the Homeless

In developing its Action Plan, OBM consulted the Chicago Housing Authority (CHA) to determine if public housing residences were impacted by the storm. CHA reported that housing units within Altgeld Gardens, located at 976 E. 132nd Place on the city's south side, experienced basement flooding. Electrical services were impacted after electrical and security camera equipment was damaged. CHA estimated that approximately 150 households were affected and confirms that insurance claims were filed for reimbursement for this damage. According to data provided by CHA, this is the only public housing unit in the Chicago area that was affected by the storms on April 17th and 18th.

In addition, the City will identify existing assisted multi-family housing developments, including HUD-assisted developments, low-income housing tax credit (LIHTC) financed developments, and other subsidized and tax credit-assisted affordable housing in the community areas most impacted by the storm and conduct outreach to the families through RFAP to identify any unmet needs.

The Chicago Alliance to End Homelessness, the administrator for Chicago's Continuum of Care, and DFSS has not identified unmet need for emergency shelter or related services as a result of the floods.

(G) Construction and Rehabilitation Standards

All the housing assistance programs will follow environmental regulations and current city building codes in relation to issues of the flood plain and to the Chicago Building Code. See http://www.cityofchicago.org/city/en/depts/bldgs/provdrs/inspect/svcs/chicago_buildingcodeonline.html. This Substantial Amendment dedicates funding to assist affordable housing units as well as market rate housing units. This assistance will also be distributed to individual homes and affordable, multi-family rental units. These activities will promote affordable housing dispersed throughout the community which will include areas that are low poverty and non-minority areas. The City's permitting process monitored by DOB ensures developers and builders comply with the building code. An example of DOBs review process is found at:

http://www.cityofchicago.org/city/en/depts/bldgs/supp_info/overview_of_the_developerservices_program0.html

(H) Disaster Resistant Housing and Displacement

If any of the funded projects require displacement or relocation of residents, relocations will be funded in accordance with the regulations and limitations set out under the Uniform Relocation Act (URA) and encourage provision of disaster resistant housing and with City's internal policies.

(I) Management of Program Income

The activities proposed in this Substantial Amendment will not result in program income. Should future proposed activities result in program income, the City will comply with HUD requirements found in 24 CFR 570.489.

(J) Monitoring Standards and Procedures

1. Project Oversight

DWM and CDOT will oversee the proposed infrastructure projects in accordance with the standard operating procedures detailed in the following paragraphs.

DWM

Sewer projects are planned, designed, and constructed by the Bureau of Engineering Services, Sewer Section, under the supervision of the Assistant Chief Engineer of Sewers. Once a project is selected, a preliminary planning checklist is created to identify possible major conflicts that would affect the project, and an estimated construction year is assigned to the project, and the project is moved to the design group.

The proposed project is then given to the coordinating engineer who is in charge of the sewer design group. Each project is assigned to a project manager, who begins the design process. A preliminary profile of the sewer is done and utility information is requested. The preliminary profile, utility information, and other data are then given to a DWM consulting firm to complete the detailed design of the project. As part of the detailed design, construction plans are created along with specifications and an engineer's estimate of cost. Once the design is complete, the project is advertised for competitive bids.

Once a bidder has been selected and awarded the contract, the supervision of the construction is done by the coordinating engineer who manages the sewer construction group. A resident engineer (RE) is selected from a consultant firm that will be responsible for the day-to-day activities of the contractor. The RE will be assisted by inspectors depending on the size of the project. The inspectors track all work on the project to ensure that it is done per DWM specifications. All work is measured and a pay estimate for completed work is prepared from the inspector's daily shift reports. The pay estimate is reviewed by a civil engineer in the construction management group before being given to the contracts administrator for processing. The contracts administrator oversees the contract management group which handles payments to vendors.

A civil engineer reviews the estimate and processes further. Any changes to the contract are first generated by the RE and processed through the sewer section and to the Department of Procurement Services for final approval. Once a project is complete, a final inspection is held. Any deficiencies are noted and issued to the contractor to correct. A final as-built drawing is

created of the project by the RE and given to the managing engineer. The managing engineer records the as-built drawing into the permanent records that are maintained by DWM.

CDOT

CDOT follows Department of Procurement Services protocols for open bidding. Advertisements for open bids are posted in the legal section of the Chicago Sun Times. In addition, calls for bids are posted on the City of Chicago Website. CDOT ensures that the construction manager performs the work according to the contract by requiring the construction manager to submit daily and weekly update reports, weekly construction update meetings, weekly site visits (or more frequent if necessary). Additionally, the CDOT PM and the construction manager discuss project issues on a daily basis or more frequent as conditions dictate. During construction, duties of the construction manager include:

- Review Shop Drawings/Submittals for completeness, accuracy and compliance with the requirements of the Project Documents
- Verify completeness and accuracy of the Architect/Engineer's Approval of Contractor's Structural submittals prior to the return of such submittals to the Contractor
- Reproduce Drawings or Other Media as required
- Make such entries in the Daily Log and Diary as required by the terms of the Agreement, the Project Documents and standard industry practice
- Monitor/Update Material Certifications
- Inspect Incorporated Materials for compliance with the requirements of the Project Documents
- Inspect the Work performed by the Contractor for compliance with the Project Documents
- Verify Contractor's Layout for compliance with the Drawings and Specifications
- Perform General Safety Reviews of Site to ascertain Contractor's compliance with Contractor's Safety Plan and the Project Documents
- Chair Construction Review Meetings to establish Contractor's compliance with the Project Schedule and the Project Documents
- Review and Log Certified Payrolls
- Promptly resolve Design/Coordination Issues with Contractor and the Architect/Engineer, all in a manner consistent with the Project Documents
- Compare Quality Control and Quality Assurance Tests for Concrete, Asphalt and Aggregates for compliance with the Project Documents

Department of Planning and Development

The RFAP Program will be administered by the City's Department of Planning and Development (DPD). DPD issued a Request-for-Proposal (RFP) to select subrecipient(s) to implement the program activities and five subrecipients have been selected. The selected subrecipients have previous experience managing programs with a similar scope and the capacity to oversee the program, including but not limited to, marketing and outreach, assessing the need of applicants, investigating and approving claims and applications, and performing inspections to ensure that all rehabilitation complies with local and federal requirements. DPD staff will provide monitoring oversight of the subrecipient(s) to ensure all contractual performance deliverables are met.

The program will allow for reimbursement of eligible expenses including reimbursing subrecipients for eligible pre-award costs to the extent permitted by HUD. The City will adhere to the guidance provided in HUD Notice CPD-13-05 (July 30, 2013), which discusses reimbursing pre-award costs for eligible expenses incurred by homeowners, businesses and other qualifying entities.

In addition, the City will adhere to its internal process in selecting any and all sub-recipients to administer and execute the grant programs discussed in this Substantial Amendment. For new housing development and housing rehab projects funded with CDBG-DR funds, the City will follow the construction monitoring and compliance procedures administered by DPD for its existing housing programs funded by other federal sources, including HOME and CDBG. These procedures also incorporate tenant and resident income verification checks to ensure that the projects will benefit the targeted low-income populations. See *Appendix 15*.

The implementation of the Resiliency Revitalization Program will also be delivered through DPD. DPD will design and manage the construction process, through the utilization of procured contractors. These projects have a large community engagement component that will allow these landscapes to become a part of the City's inventory of community open space. The landscapes and community amenities will be maintained and managed by the neighborhood organizations that have committed to the program and will continue to be engaged through the leadership of DPD. The City will also be seeking partners, such as UI Labs and the University of Chicago to deploy an integrated network of in-ground and above-ground sensors that will deliver detailed data on performance from a local environment perspective. This will include the measurement of the number of gallons of stormwater diverted from the combined sewer system through the construction and ongoing utilization of these specific projects.

2. City's Fiscal and Programmatic Monitoring

Overall resource management for the City is the responsibility of OBM. OBM oversees the administration of all grant funds received by the City. Annually, the Mayor presents, and the City Council approves, the allocation of these resources to departments and programs. Once resources

are appropriated for a specific purpose, the designated department is responsible for approving the disbursement of funds and for project monitoring. OBM provides continuing assistance and guidance to City departments in various aspects of grants management and program compliance.

Each department allocates grant resources received in accordance with the approved uses of the funds. Within each department, designated staff is responsible for monitoring compliance with applicable Federal, State, and City regulations. Lead departments are responsible for programmatic reports and must file a copy of these reports in the City's grants library. Department monitoring activities include but are not limited to the following tasks: 1) review of a recipient's capacity to complete the activities identified; 2) loan underwriting to determine eligible and reasonable costs; 3) preconstruction conferences with developers and contractors; 4) on-site construction inspections; 5) verification and certification of initial occupancy (income, assets, rent levels); 6) ongoing review of services provided; 7) financial management; 8) environmental review; 9) compliance with the Davis Bacon Act, Section 3 (review of certified payrolls and on-site visits), and the City's Minority Business Enterprises (MBE) and Women Business Enterprises (WBE) ordinance; 10) auditing and monitoring of subrecipients and 11) ensuring projects and activities are accessible for all residents.

In the event of contracting with sub-recipient or delegate agencies, contracts, agreements, and loan documents with program participants incorporate the services and activities to be completed, the compliance requirements, and the specific conditions under which funds may be released.

The Department of Finance (Finance) is the City's fiscal agent. Finance's Grant and Project Accounting Division (GPAD) provides fiscal and other technical services necessary to support Federal and State grant programs. GPAD prepares all financial reports (i.e., financial statements, fiscal reports, final and close-out reports) and whenever possible and practical, departments will be given an opportunity to review these reports before they are submitted to the grantor. GPAD prepares fiscal reports based on the fiscal data recorded in the City's financial system. GPAD accountants run reports that detail program expenditures and program revenues for the time period covered by the subject report. GPAD will give lead departments sufficient notice of any required information and documentation. It will track all requests, review them, and follow-up as necessary with the department to assure timely and complete support.

3. City's Audit Procedures

Finance's Internal Audit division has developed and implemented a system of preventive and detective internal controls to assist in ensuring that sub-recipients, or delegate agencies, of City funding are in compliance with Federal regulations and contract terms and to assist City departments in determining whether the delegate agencies are fiscally sound. Internal Audit assists operating or funding departments by performing monitoring of delegate agencies in several ways: A-122 voucher audits; A-133 Single Audit Report reviews; and training.

To monitor the delegate agency voucher process, Internal Audit conducts A-122 voucher audits. For selected delegate agency vouchers, Internal Audit requests complete supporting documentation, including invoices, canceled checks (front and back), payroll records, leases, etc. This documentation is audited for compliance with applicable federal, state and city regulations and for compliance with the budget and terms of the delegate agency contract with the City. Should any noncompliant expenditures be found, the agency is required to reimburse the City for these costs. If the delegate agency does not respond to the City's requests, as a last resort, a hold is placed on the future reimbursements of the delegate agency from the City.

As part of the City's subrecipient monitoring policy, Internal Audit reviews all delegate agency OMB Circular A-133 reports pursuant to the requirements of the Circular. If any problems are noted with the audit report, Internal Audit will request the agency have its audit firm correct the problems. Internal Audit may request management decisions from the departments regarding findings identified in the A-133 reports. In addition, if any problems or concerns are noted as a result of performing agreed-upon procedures, Internal Audit requests of the delegate agency a plan for resolving the issues.

In addition to the Finance, OBM, and departments' project oversight, the following citywide monitoring standards and procedures will apply to the projects proposed by the City.

4. Other City Monitoring Practices

Minority Business Enterprise and Women Business Enterprise

The City of Chicago assures compliance through the inclusion and enforcement of Section 2-92-420 through 2-92-570 of the Municipal Code, which authorizes a minority-owned procurement program. To be certified, a potential applicant will undergo a thorough review of operations, financial documentation, and work references. Certification is for one year and must be renewed annually through a re-certification application. Quarterly, the City publishes a directory of certified contractors or vendors that have applied for and been determined to be legitimate Minority Business Enterprises (MBE) or Women Business Enterprises (WBE). The certified directory enables prospective grantees to contact, request bids, and contract with certified MBEs and WBEs.

MBE/WBE participation is sought, as well as encouraged, on all projects financed with City and Federal funds. Each project is measured for the percentages of MBE/WBE participation with each phase being accountable - reconstruction activities, construction, and post construction activities. Based on past experiences, the largest percentage of MBE/WBE participation occurs during construction, as this phase generates a greater dollar value and a greater number of skilled jobs. Construction monitoring meetings are held with all developers and general contractors. City staff discusses all compliance requirements during these meetings, including the requirement of participation by certified MBE and certified WBE firms.

The City (with the Department of Procurement Services as lead agency) regularly reviews the MBE/WBE certification processes and the impact of this program. City staff uses the directory of certified contracts and/or vendors to determine the MBE/WBE project participation percentages. Additionally, the City monitors participation of minority and women contractors and submits this information to HUD via a semi-annual report.

Section 3

Section 3 of the Housing and Urban Development Act of 1968 requires that employment, training, and contracting opportunities generated by financial assistance from HUD shall, to the greatest extent feasible, be given to low- and very low-income persons and businesses that provide economic opportunity for these persons. There are both hiring and contracting goals for recipients, contractors, and subcontractors that when met, satisfactorily demonstrate efforts to comply with Section 3.

The City requires that each affected department submit an annual Section 3 Compliance Plan that includes the identification of departmental Section 3 covered programs and departmental monitoring and compliance strategies. The City encourages all recipients of City funds, their contractors and subcontractors, to surpass the minimum requirements described above, and to undertake additional efforts to provide low- and very low-income persons with economic opportunities. The City also facilitates the referral process for Section 3 to assist both the entities that do business with the City in their compliance and the individuals and businesses that Section 3 seeks to benefit.

The City distributes the Section 3 Compliance Plan Booklet to developers and contractors at applicable preconstruction and monitoring meetings. The Booklet explains the intent of Section 3 and provides forms on which the developers and contractors can document their efforts. These forms are then used by the City to maintain its records and provide reports as necessary.

(K) Procedures to Detect and Prevent Fraud, Abuse, and Mismanagement

The City's monitoring standards and procedures described above ensure that the proposed activities will be conducted in compliance with the applicable rules and regulations. Further oversight is provided by the City's Board of Ethics (Ethics) and Office of the Inspector General (OIG). These bodies separately and independently monitor the activities of City employees and departments to ensure that employees act in accordance with established and codified ethical standards and do not engage in corruption, fraud, or misconduct.

Ethics administers and enforces the Governmental Ethics Ordinance (Chapters 2-156 of the Municipal Code of Chicago; a copy can be found on the city's website [at https://www.cityofchicago.org/city/en/depts/ethics/supp_info/governmental_ethicsordinance.htm](https://www.cityofchicago.org/city/en/depts/ethics/supp_info/governmental_ethicsordinance.htm)). This Ordinance provides guidance and regulates the conduct of city employees, elected and appointed officials, and all those who interact with City agencies and personnel, including

vendors and lobbyists. The Ordinance includes requirements of financial disclosure and campaign financing limitations. City of Chicago staff must undergo an annual training on the Ethics Ordinance and are required to report any suspected fraud, waste, or abuse to OIG.

OIG is an independent, nonpartisan oversight agency whose mission is to promote economy, efficiency, effectiveness, and integrity in the administration of programs and operations of City government. OIG conducts administrative and criminal investigations; audits of City programs and operations; and reviews of City programs, operations, and policies. From these activities, OIG issues reports of findings and recommendations that ensure City officials, employees, and vendors are held accountable for the provision of efficient, cost effective, government operations. OIG further seeks to prevent, detect, identify, expose, and eliminate waste, inefficiency, misconduct, fraud, corruption, and abuse of public authority and resources.

(L) Prevention of Duplication of Benefits

As provided by the Stafford Act, duplication of benefits is prohibited in accordance with HUD Federal Register 5696-N-01/5696-N-07. OBM and implementing departments will continuously monitor to ensure compliance with this requirement. FEMA, National Flood Insurance Program, private insurers, the Army Corp of Engineers, SBA, and other agencies will be contacted and data sharing agreements put into place when necessary to ensure that there is no duplication of benefits occurring with the various programs.

(M) Capacity

The City receives over \$1.4 billion in Federal, State, and private grant funds and has been substantially in compliance with its funding, expenditure, project completion, and reporting obligations. OBM has been charged with the responsibility of overseeing the administration of these funds and City departments will carry out the activities as identified in the plan. OBM currently administers other HUD entitlement funds awarded to the City and oversees, in partnership with OEMC, the Urban Areas Security Initiative (UASI). UASI program funds address the unique planning, organization, equipment, training, and exercise needs of high-threat, high-density urban areas, and assists them in building an enhanced and sustainable capacity to prevent, protect against, mitigate, respond to, and recover from acts of terrorism.

SECTION II: LOCATION, MITIGATION MEASURES, AND USE OF URGENT NEED

(A) Presidentially-declared County

All activities will be located in the city of Chicago, including the portions of Cook and DuPage counties located within this jurisdiction. On May 10, 2013, Cook County, which includes the City of Chicago, was one of eleven Illinois counties declared a disaster area by President Barack Obama.

(B) Mitigation Measures

To best manage large volumes of rain, the City realizes the importance of integrating mitigating green measures into local infrastructure designs and overall stormwater management. One inch of rain citywide generates approximately 4 billion gallons of stormwater. Some of the stormwater that falls in neighborhoods soaks into the ground, while most flows into the city's sewer system. Today, approximately 60% of Chicago's land area is either paved or covered with buildings. These surfaces do not allow rainwater to infiltrate into the ground as most are designed to drain stormwater away as fast as possible. Using a green stormwater infrastructure approach means designing the built environment to capture rainfall and storing it for use or letting it filter back into the ground, replenishing vegetation and groundwater supplies. The goal is to keep water out of Chicago's overtaxed sewer system.

Green stormwater infrastructure strategies provide benefits beyond just managing rainfall and runoff. These benefits include environmental, economic, and social improvements, such as cooling and cleansing the air, reducing asthma and heat-related illnesses, decreasing water loss in the region, lowering heating and cooling energy costs, and creating jobs. Conventional grey stormwater infrastructure, such as sewers, wastewater treatment plants, and underground storage systems, addresses the symptoms of stormwater runoff. Instead, green stormwater infrastructure focuses on the root problem, which is the imperviousness caused by land development. This approach views stormwater as a resource in that it is better to prevent pollution than to treat it.

Green Infrastructure

As part of Mayor Emanuel's *Building a New Chicago* infrastructure renewal program, the City of Chicago has made a significant commitment to invest in green stormwater infrastructure. As part of the City's Green Stormwater Infrastructure Strategy, the City will invest \$50 million over 5 years to incorporate natural features into capital projects to capture stormwater before it runs off into the City's overtaxed sewer system. Through this investment program, the City is currently undertaking a series of projects, including converting asphalt schoolyards into green playgrounds and incorporating bioswales into street reconstruction projects.

For the infrastructure projects included in this substantial amendment, the City will incorporate green infrastructure where appropriate. There are two primary ways that the City will integrate green infrastructure into the sewer projects. The first strategy will be to utilize porous asphalt pavement during the restoration of sewer projects where feasible. In a typical sewer restoration project, once the new sewer is buried in the street, construction crews will place fill over the new sewer pipe and then pave the street using typical hot mix asphalt. An alternative green infrastructure strategy that is feasible when the soils below the new sewer pipe are sufficiently sandy is to place a special stone aggregate layer above the sewer pipe and then pave the street using porous asphalt. Porous asphalt is different than typical hot mix asphalt due to the presence of reduced sand or fines that leave stable air pockets and void spaces that allow stormwater to infiltrate through the asphalt and aggregate and into the sandy soil, thus mimicking natural

processes. The City has used porous asphalt for several street and alley projects in the past, including a recent sewer reconstruction project on the South Side of Chicago. The sewer projects will all be evaluated to determine if this paving method is suitable. Suitability will be determined based on whether there is a sand soil substrate, if traffic volumes are sufficiently low, and whether there are conflicts with other underground utilities such as water mains.

The second green infrastructure strategy that the City will use will be to plant trees in connection with the sewer improvement projects. Trees are an effective green infrastructure strategy since they capture stormwater with both their leaf canopies and pits. Many of the areas of Chicago that are at risk of basement flooding have excess stormwater runoff caused by high levels of impervious surfaces and a lower number of street trees. In addition, many of Chicago's street trees are under threat from the Emerald Ash Borer invasive species. Therefore, there is a great need to increase Chicago's tree canopy through new tree plantings and many of the parkways (the area between the sidewalk and the curb) are not fully stocked with trees. When and where feasible, the City will plant new trees in the parkways adjacent to the streets that are being reconstructed due to sewer improvement projects.

Resilience Performance Standards

The City certifies that it will apply the resilience performance standards required in section V(2)(e) of the June 3, 2014 Federal Register. During the planning and design phases for the infrastructure projects proposed through this substantial amendment, the City will develop and implement requirements and standards for how these projects can be more resilient under a changing climate and other stresses.

The City has already begun a process to consider how future infrastructure projects can be designed in a more resilient manner. In the City's *Green Stormwater Infrastructure Strategy*, the City committed to work with the Illinois State Climatologist and other scientific experts to analyze changing rainfall patterns and update the rainfall frequency standards used during project design and engineering. Having updated rainfall frequency standards will allow the City to better consider future climate conditions in the design of future stormwater infrastructure projects. In addition, Mayor Emanuel's *Sustainable Chicago 2015* includes initiatives to implement resilience strategies such as incorporating green standard practices in all City operations and utilize recycled materials in construction projects where feasible.

All of the proposed sewer improvement projects would be built larger than the existing sewers that they are replacing in order to account for increased rainfall patterns and to ensure that these neighborhoods are more resilient to future storms. The City will continue to develop and implement resilience performance standards for the proposed infrastructure projects in this substantial amendment. The Department of Water Management will work with other City agencies and outside experts to create standards that will ensure that the City's stormwater

infrastructure is better able to withstand and respond to climate change and other risks in the future.

To further address the resilient building guidelines established by the Rebuilding Strategy, the City will incorporate the following components into its long-term recovery strategy:

Providing jobs to local workforce. DPD monitors certain HUD-funded construction projects to ensure the City is compliant with Section 3 of the Housing and Urban Development Act of 1968. For the construction projects proposed to be funded with CDBG-DR funds, DPD will certify that jobs generated by these activities are directed to very-low and low-income individuals. In addition, the Department of Procurement administers a Small Business Initiative (SBI) Construction Program which is designed to encourage local small businesses to have increased opportunities to participate in City-funded construction projects. Initiatives such as this will help inform the local business community of available competitive processes, including those related to CDBG-DR construction and housing rehabilitation activities.

Mitigating future risk. The proposed sewer replacement projects will help mitigate future risk of flooding by increasing the capacity of the sewers to handle heavy rainfall and prevent the inundation sustained during the April 2013 rainstorm. Also, the proposed Albany Park tunnel project will alleviate future flooding by diverting water overflow underground. Further, the City will apply appropriate construction standards on the proposed infrastructure and housing rehabilitation activities to mitigate risk. These may include, as appropriate, raising utilities or other mechanical devices above expected flood level and using water resistant paints or other materials. Additionally, the proposed approaches align with the commitment expressed in the President's Climate Action Plan to "identify and evaluate additional approaches to improve our natural defenses against extreme weather, protect biodiversity, and conserve natural resources in the face of a changing climate" in several ways. The first is the City's commitment to protecting, conserving and managing our water wisely. The City's Stormwater Management Ordinance provides for specific practices to ensure that stormwater is managed responsibly. The ordinance includes strict controls on stormwater release rates and retention. The ordinance is updated as environmental conditions change, and with the changing climate. The Albany Park Tunnel project will adhere to this ordinance. In addition, the project will provide a mitigation plan and continued monitoring for impacts to waterways and to the local fish population. This will include construction of habitat installations, consisting of woody debris installations, and/or cobble/boulder structures that will ensure that species of fish that exist now within the watershed system continue to thrive.

Leveraging funds and evidence-based strategies. The City has identified \$59.4 million of local public sources as leveraged funds for the proposed CDBG-DR activities and will pursue other available public and private sources and evidence-based strategies, including social impact bonds, as appropriate.

Project labor agreements. This will not apply as there are no proposed construction projects where the total cost to the Federal Government is \$25 million or more.

Small business assistance and energy infrastructure. Limited data was available regarding the impact of the 2013 rainstorm on economic development and small business recovery was not identified as a priority need in the City's needs assessment. Therefore, small business assistance will not be a component at this time in the long-term recovery strategy. Similarly, as the City's energy infrastructure was not impacted by the rainstorm, and the proposed sewer and tunnel infrastructure projects do not rely upon it, energy infrastructure resilience will not be a component in the long-term recovery strategy.

(C) Use of Urgent Need

The City will be using the Urgent Need national objective in carrying some of the proposed activities. While the majority of proposed activities will target low- and moderate-income beneficiaries and areas, it is estimated that two sewer projects as well as the Albany Park Tunnel project will be categorized as Urgent Need. The City will still be dedicating approximately \$40.25 million (63.81%) of the total CDBG-DR funding serving low- and moderate- income beneficiaries and areas, well above the 51% required threshold. The projects identified as meeting an Urgent Need, have documented impact from the disaster of 2013, as well as documented urgency.

SECTION III: CITIZEN PARTICIPATION, ACCESSIBILITY, AND AMENDMENTS

(A) Public Comment

Per HUD regulations, this draft Substantial Amendment was posted from October 11, 2016 to November 14, 2016 to allow for the public to comment on the proposed use of funds on OBM's City webpage at https://www.cityofchicago.org/city/en/depts/obm/provdrs/cdbg_dr.html.

In addition, a public hearing was held on October 19, 2016 at 78 E. Washington. No written comments were received during the 30-day comment period and no comments were made at the public hearing. OBM will continue to solicit feedback from key stakeholders regarding the Substantial Amendment.

CDOT also conducted additional public input processes for the Albany Park Tunnel project. These workshops and meetings are described below:

- May 29, 2013 - Albany Park Neighborhood Flood Workshop. This event was an open-house format meeting hosted by the Alderman (Ward 39) and attended by representatives from Department of Water Management, IEMA, FEMA, IDNR and State Representative D'Amico's office. CDOT presented the upcoming project (then in conceptual phase). 100 people attended.

- December 3, 2013 - North Branch of the Chicago River Watershed Council. Presented the overall concept of the tunnel to Watershed Council members. 20 people attended.
- April 1, 2014 - North River Commission Meeting. Presented the overall concept of the tunnel project with attendees. More than 250 people attended.
- April 2, 2015 - Open Public meetings in the community to present the developed design of the project and solicit input from the community, in advance of design completion and project bidding. At least 60 people attended.

Residents and stakeholders can email comments to Budget604@cityofchicago.org and send written correspondences to the attention of LaToya Vaughn at the Office of Budget and Management, City Hall, 121 N. LaSalle Street, Room 604, Chicago, IL 60602. Residents will have ongoing access to OBM's website to review amendments to this Substantial Amendment, if applicable, and other information regarding the City's CDBG-DR grant, and to provide citizen comments.

(B) Accessibility

The City provided resources to individuals with disabilities and non-English speaking persons to access the CDBG-DR Action Plan. The Talking Book Center of the Harold Washington Library Center provides free library services to Chicago residents of all ages who cannot read standard print comfortably due to visual or physical limitations. Private computer workstations with special equipment and software designed for low or no vision are available to use the Internet, read printed material and more. Also, each Chicago Public Library location has two ADA computer workstations and adaptive technologies including JAWS screen readers, magnifiers and videophone to meet the needs of individuals requiring special assistance. Similar adaptive technologies are available at the Mayor's Office of People with Disabilities (MOPD) and the Chicago Senior Centers. Requests for special assistance for non-English speaking persons are directed to the attention of Alessandra Budnik at 312-744-6670 in OBM's office.

All these resources are and will continue to be made available to assist residents any substantial amendments or revisions, if needed, to the CDBG-DR Action Plan in the future.

(C) Substantial Amendment

Amendments to the CDBG-DR Action Plan will be required if proposed activities are added or deleted from the original CDBG-DR Action Plan, if there is a change to the targeted beneficiary, if funding allocations between project categories increase 20% or more, or if HUD determines that a change is significant and requires public comment. All substantial amendments will be posted for public review and comment in accordance with the timeline referenced above.

SECTION IV: DEADLINES AND PROJECT TRACKING

Each project is scheduled to start in 2015-2017, and all funds will be expended within two years of obligation, as required by HUD. The City will expend 100 % of funds in areas most impacted and distressed by the 2013 storms.

The City will follow provisions of 24 CFR 570.489(b) that permits the City to reimburse itself for otherwise allowable costs incurred by itself or its recipients, sub-grantees, or sub-recipients (including public housing authorities) on or after the incident date of the covered disaster. Section 24 CFR 570.200 (h)(2)(i) will not apply to the extent that it requires pre-agreement activities to be included in a consolidated plan. All the pre-agreement costs such as engineering, planning, administration, and program delivery are exempt from the environmental process in accordance with 24 CFR 58.34.

The City will track project activity using the DRGR System. The DRGR system was developed by HUD and is used as a reporting tool to review activities of CDBG-DR recipients. As required by HUD, the City will create activities for each proposed project to monitor the timeliness of the activities and to ensure that performance outcomes and expenditures are consistent with those reported in the CDBG-DR Action Plan.

As the City continues its needs assessment and disaster recovery efforts progress, the City will request further obligation of funds or changes to proposed activities through substantial amendment(s) to this CDBG-DR Action Plan, per HUD requirements.

APPENDICES

Appendix 1. FEMA Preliminary Damage Assessment Report

II. Preliminary Damage Assessment Report

Illinois - Severe Storms, Straight-line Winds, and Flooding FEMA-4116-DR

Declared May 10, 2013

On May 8, 2013, Governor Pat Quinn requested a major disaster declaration due to severe storms, straight-line winds, and flooding during the period of April 16 to May 5, 2013. The Governor requested a declaration for Individual Assistance for 11 counties and Hazard Mitigation statewide. Beginning on April 29, 2013, and continuing, joint federal, state, and local government Preliminary Damage Assessments (PDAs) were conducted in the requested counties and are summarized below. PDAs estimate damages immediately after an event and are considered, along with several other factors, in determining whether a disaster is of such severity and magnitude that effective response is beyond the capabilities of the state and the affected local governments, and that Federal assistance is necessary.¹

On May 10, 2013, President Obama declared that a major disaster exists in the State of Illinois. This declaration made Individual Assistance requested by the Governor available to affected individuals and households in Cook, DeKalb, DuPage, Fulton, Grundy, Kane, Kendall, Lake, LaSalle, McHenry, and Will Counties. This declaration also made Hazard Mitigation Grant Program assistance requested by the Governor available for hazard mitigation measures statewide.²

Summary of Damage Assessment Information Used in Determining Whether to Declare a Major Disaster

Individual Assistance

- Total Number of Residences Impacted:³ 3,517
 - Destroyed - 41
 - Major Damage - 761
 - Minor Damage - 1,528
 - Affected - 1,187

- Percentage of insured residences:⁴ 29%
- Percentage of low income households:⁵ 10.7%
- Percentage of elderly households:⁶ 12.7%
- Total Individual Assistance cost estimate: \$23,756,760

Public Assistance - (Not requested)

- Primary Impact: -

- Total Public Assistance cost estimate: -
- Statewide per capita impact:⁷ -
- Statewide per capita impact indicator:⁸ \$1.37
- Countywide per capita impact: -
- Countywide per capita impact indicator:⁹ \$3.45

¹ The Preliminary Damage Assessment (PDA) process is a mechanism used to determine the impact and magnitude of damage and resulting needs of individuals, businesses, public sector, and community as a whole. Information collected is used by the State as a basis for the Governor's request for a major disaster or emergency declaration, and by the President in determining a response to the Governor's request (44 CFR § 206.33).

² When a Governor's request for major disaster assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (Stafford Act) is under review, a number of primary factors are considered to determine whether assistance is warranted. These factors are outlined in FEMA's regulations (44 CFR § 206.48). The President has ultimate discretion and decision making authority to declare major disasters and emergencies under the Stafford Act (42 U.S.C. § 5170 and § 5191).

³ Degree of damage to impacted residences:

- Destroyed – total loss of structure, structure is not economically feasible to repair, or complete failure to major structural components (e.g., collapse of basement walls/foundation, walls or roof);
- Major Damage – substantial failure to structural elements of residence (e.g., walls, floors, foundation), or damage that will take more than 30 days to repair;
- Minor Damage – home is damaged and uninhabitable, but may be made habitable in short period of time with repairs; and
- Affected – some damage to the structure and contents, but still habitable.

⁴ By law, Federal disaster assistance cannot duplicate insurance coverage (44 CFR § 206.48(b)(5)).

⁵ Special populations, such as low-income, the elderly, or the unemployed may indicate a greater need for assistance (44 CFR § 206.48(b)(3)).

⁶ Ibid (44 CFR § 206.48(b)(3)).

⁷ Based on State population in the 2010 Census.

⁸ Statewide Per Capita Impact Indicator for FY13, *Federal Register*, October 1, 2012.

⁹ Countywide Per Capita Impact Indicator for FY13, *Federal Register*, October 1, 2012.

Appendix 2. Demographic Information of Affected Community Areas

Appendix 2: Demographic Information of Affected Community Areas (by Census Tract)

Source: Chicago Metropolitan Agency for Planning (CMAP)

Census Tract: 490900									
Community Areas	Total Population	Average Income	Black	Hispanic	Asian	White	Age 65+	Labor Force	Employed
Riverdale	6,820	\$14,000	97.9%	2.0%	0.0%	0.0%	7.5%	53.9%	65.4%
Pullman	7,262	\$42,000	84.4%	7.6%	0.5%	7.2%	15.1%	64.7%	77.2%
Roseland	45,285	\$41,000	96.2%	0.8%	0.5%	1.1%	17.0%	49.8%	79.6%
West Pullman	30,771	\$39,000	93.5%	4.5%	0.0%	1.3%	13.0%	54.0%	80.8%
Total	90,138	\$34,000							

Census Tract: 510100									
Community Areas	Total Population	Average Income	Black	Hispanic	Asian	White	Age 65+	Labor Force	Employed
Hegewisch	10,202	\$49,000	9.1%	50.9%	0.2%	39.1%	14.0%	57.5%	90.4%
South Deering	16,445	\$36,000	60.9%	31.6%	0.3%	5.4%	12.3%	54.8%	83.7%
East Side	23,483	\$42,000	2.7%	79.1%	0.4%	17.4%	10.6%	61.1%	87.8%
South Chicago	29,458	\$28,000	72.0%	23.6%	0.3%	3.1%	13.0%	54.2%	80.1%
Calumet Heights	14,382	\$55,000	93.8%	4.2%	0.1%	1.4%	23.1%	54.9%	80.0%
Pullman	7,262	\$42,000	84.4%	7.6%	0.5%	7.2%	15.1%	64.7%	77.2%
Total	74,585	\$42,000							

Appendix 2 (cont'd): Demographic Information of Affected Community Areas (by Census Tract)

Source: Chicago Metropolitan Agency for Planning (CMAP)

Census Tract: 530500									
Community Areas	Total Population	Average Income	Black	Hispanic	Asian	White	Age 65+	Labor Force	Employed
West Pullman	30,771	\$39,000	93.5%	4.5%	0.0%	1.3%	13.0%	54.0%	80.8%
Morgan Park	22,701	\$59,000	63.9%	2.3%	0.5%	31.7%	16.4%	62.5%	84.9%
Beverly	21,226	\$90,000	34.7%	5.1%	0.3%	58.2%	13.1%	68.0%	92.0%
Washington Heights	26,021	\$43,000	97.6%	0.7%	0.0%	1.0%	20.8%	55.9%	79.2%
Roseland	45,285	\$41,000	96.2%	0.8%	0.5%	1.1%	17.0%	49.8%	79.6%
Total	115,233	\$54,400							

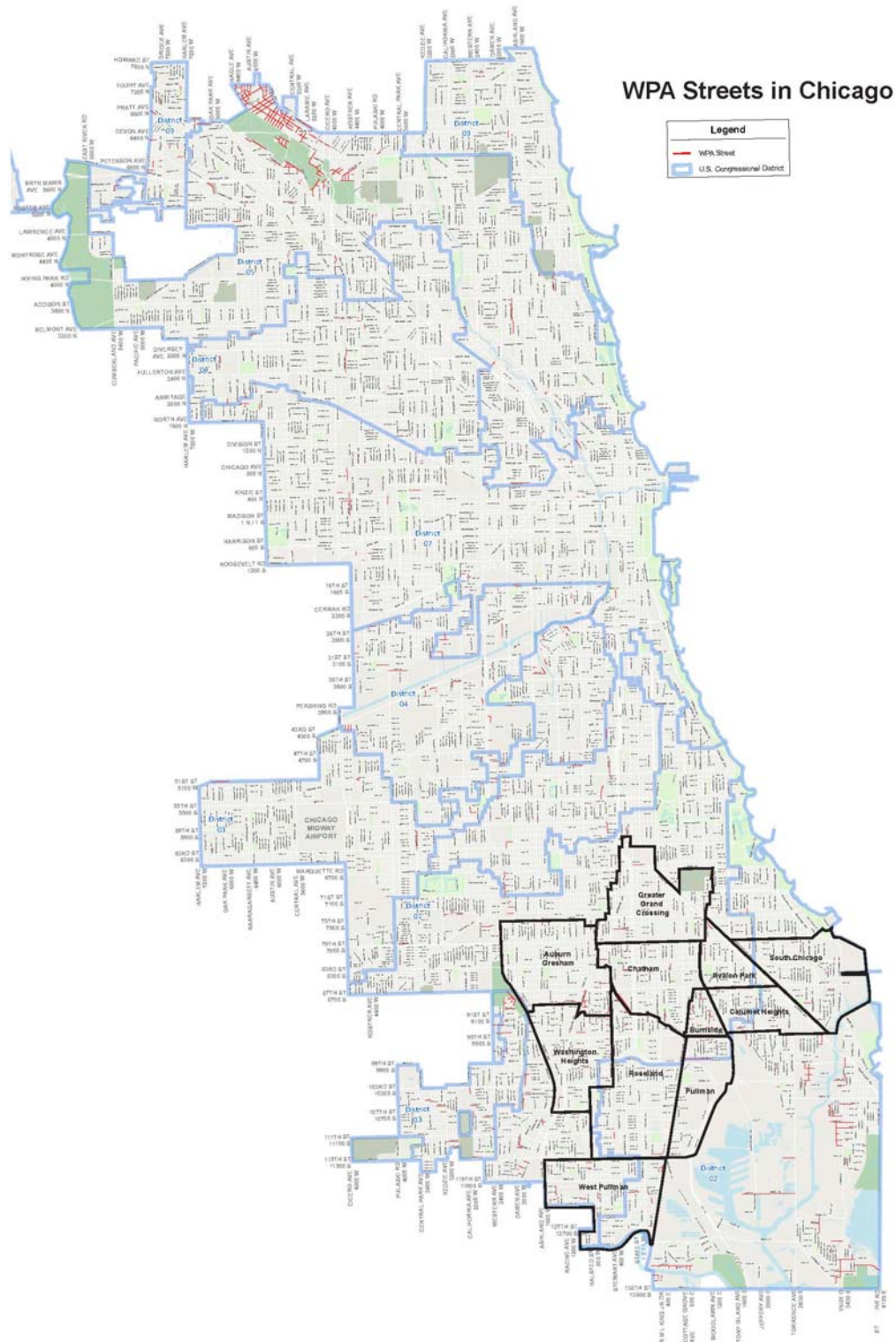
Community	Total Population	Median Income	Black	Hispanic	Asian	White	Age 65+	Labor Force	Employed
Albany Park	53,897	\$47,865	4.1%	53.1%	12.6%	29.8%	7.2%	72.4%	90.0%

Appendix 3. SBA Approved Damage Claims

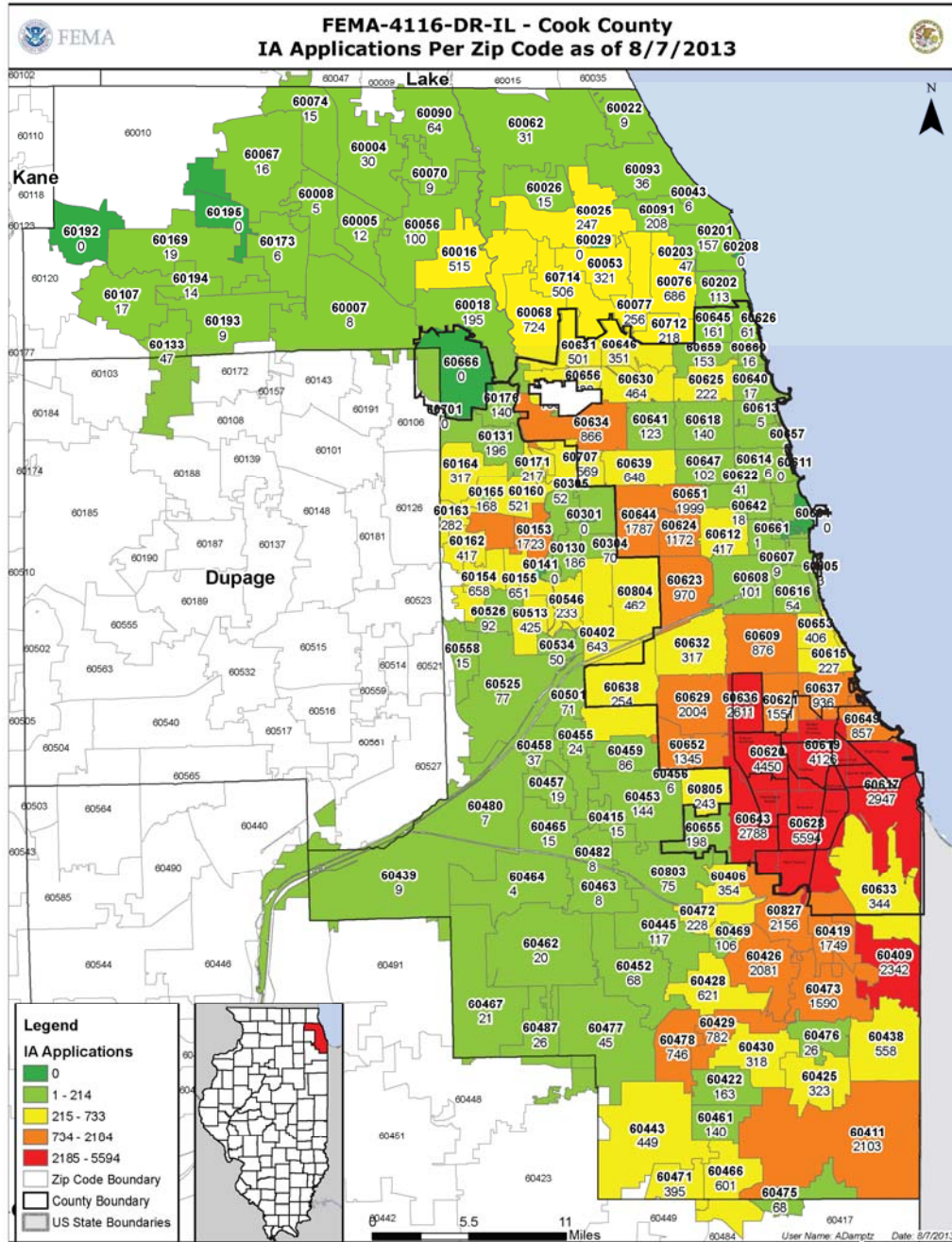
Appendix 3			
SBA Approved Damage Claims (Business and Home)			
60617	# of Applications	Total \$ Inspected	Total \$ Approved
Business			
<i>Real Property and Contents Inspected</i>			
< \$12,000	9	\$12,363.00	\$12,363.00
\$12,000 to \$29,999	2	\$34,479.00	\$34,479.00
\$30,000 to \$64,999	4	\$151,382.00	\$31,020.00
\$65,000 to \$150,000	1	\$127,370.00	\$127,370.00
> \$150,000	0		
		SUM	\$205,232.00
Home			
<i>Real Property Inspected</i>			
< \$12,000	166	\$290,773.00	\$209,431.00
\$12,000 to \$29,999	73	\$1,382,043.00	\$762,667.00
\$30,000 to \$64,999	8	\$331,398.00	\$223,241.00
\$65,000 to \$150,000	1	\$65,561.00	\$65,561.00
> \$150,000	0		
		SUM	\$1,260,900.00
60623	# of Applications	Total \$ Inspected	Total \$ Approved
Business			
<i>Real Property and Contents Inspected</i>			
< \$12,000	4	\$9,288.00	\$4,225.00
\$12,000 to \$29,999	2	\$42,125.00	\$15,500.00
\$30,000 to \$64,999	0		
\$65,000 to \$150,000	1	\$120,517.00	\$0.00
> \$150,000	1	\$216,416.00	\$0.00
		SUM	\$19,725.00
Home			
<i>Real Property Inspected</i>			
< \$12,000	47	\$42,870.00	\$40,753.00
\$12,000 to \$29,999	9	\$174,826.00	\$71,636.00
\$30,000 to \$64,999	2	\$65,412.00	\$31,341.00
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$143,730.00
60624	# of Applications	Total \$ Inspected	Total \$ Approved
Business			
<i>Real Property and Contents Inspected</i>			
< \$12,000	8	\$0.00	\$0.00
\$12,000 to \$29,999	1	\$21,856.00	\$0.00
\$30,000 to \$64,999	0		
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$0.00
Home			
<i>Real Property Inspected</i>			
< \$12,000	82	\$54,203.00	\$15,780.00
\$12,000 to \$29,999	4	\$76,785.00	\$57,377.00
\$30,000 to \$64,999	4	\$211,737.00	\$56,875.00
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$130,032.00
60628	# of Applications	Total \$ Inspected	Total \$ Approved

Business			
Real Property and Contents Inspected			
< \$12,000	28	\$60,134.00	\$32,711.00
\$12,000 to \$29,999	8	\$159,283.00	\$98,877.00
\$30,000 to \$64,999	1	\$57,616.00	\$0.00
\$65,000 to \$150,000	0		
> \$150,000	2	\$477,598.00	\$321,693.00
		SUM	\$453,281.00
Home			
Real Property Inspected			
< \$12,000	338	\$398,708.00	\$240,575.00
\$12,000 to \$29,999	104	\$1,986,361.00	\$1,105,848.00
\$30,000 to \$64,999	21	\$761,146.00	\$284,755.00
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$1,631,178.00
60633	# of Applications	Total \$ Inspected	Total \$ Approved
Home			
Real Property Inspected			
< \$12,000	17	\$41,619.00	\$20,183.00
\$12,000 to \$29,999	8	\$151,960.00	\$73,999.00
\$30,000 to \$64,999	1	\$35,883.00	\$35,883.00
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$130,065.00
60644	# of Applications	Total \$ Inspected	Total \$ Approved
Business			
Real Property and Contents Inspected			
< \$12,000	8	\$11,245.00	\$6,570.00
\$12,000 to \$29,999	3	\$56,252.00	\$0.00
\$30,000 to \$64,999	1	\$60,092.00	\$60,092.00
\$65,000 to \$150,000	0		
> \$150,000	0		
		SUM	\$66,662.00
Home			
Real Property Inspected			
< \$12,000	114	\$84,310.00	\$53,509.00
\$12,000 to \$29,999	16	\$344,027.00	\$137,987.00
\$30,000 to \$64,999	3	\$132,159.00	\$97,559.00
\$65,000 to \$150,000	1	\$68,445.00	\$68,445.00
> \$150,000	0		
		SUM	\$357,500.00
Total Business			\$744,900.00
Total Home			\$3,653,405.00
<i>United States Small Business Administration (SBA) RPT-13015 Last modified: 04/01/2014</i>			
<i>Database: Reporting</i>			
<i>NOTE: This Information is for use by SBA and its disaster assistance partners only.</i>			
<i>It is not to be distributed by any party other than SBA.</i>			

Appendix 4. WPA Streets



Appendix 5. FEMA Individual Assistance Applications

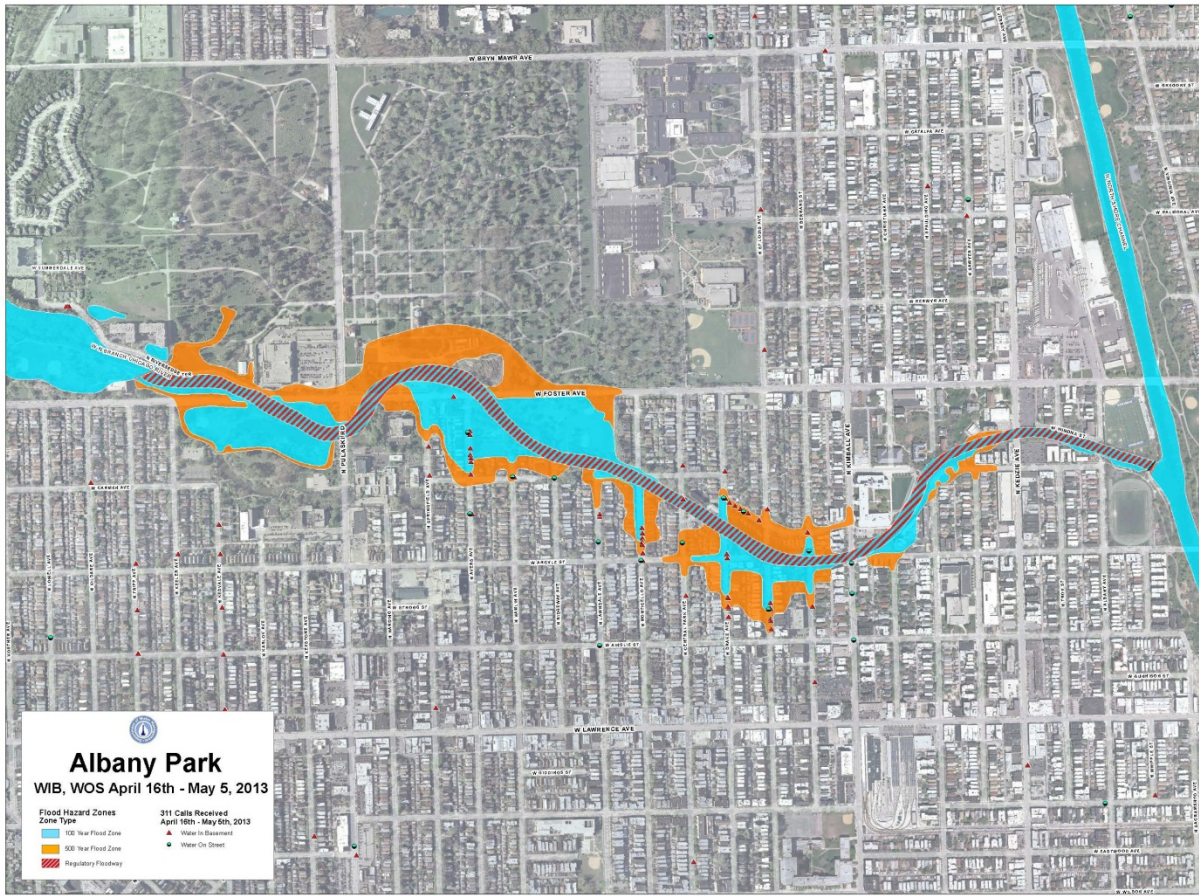


Appendix 6. Albany Park 2008 Storm Event Photographs

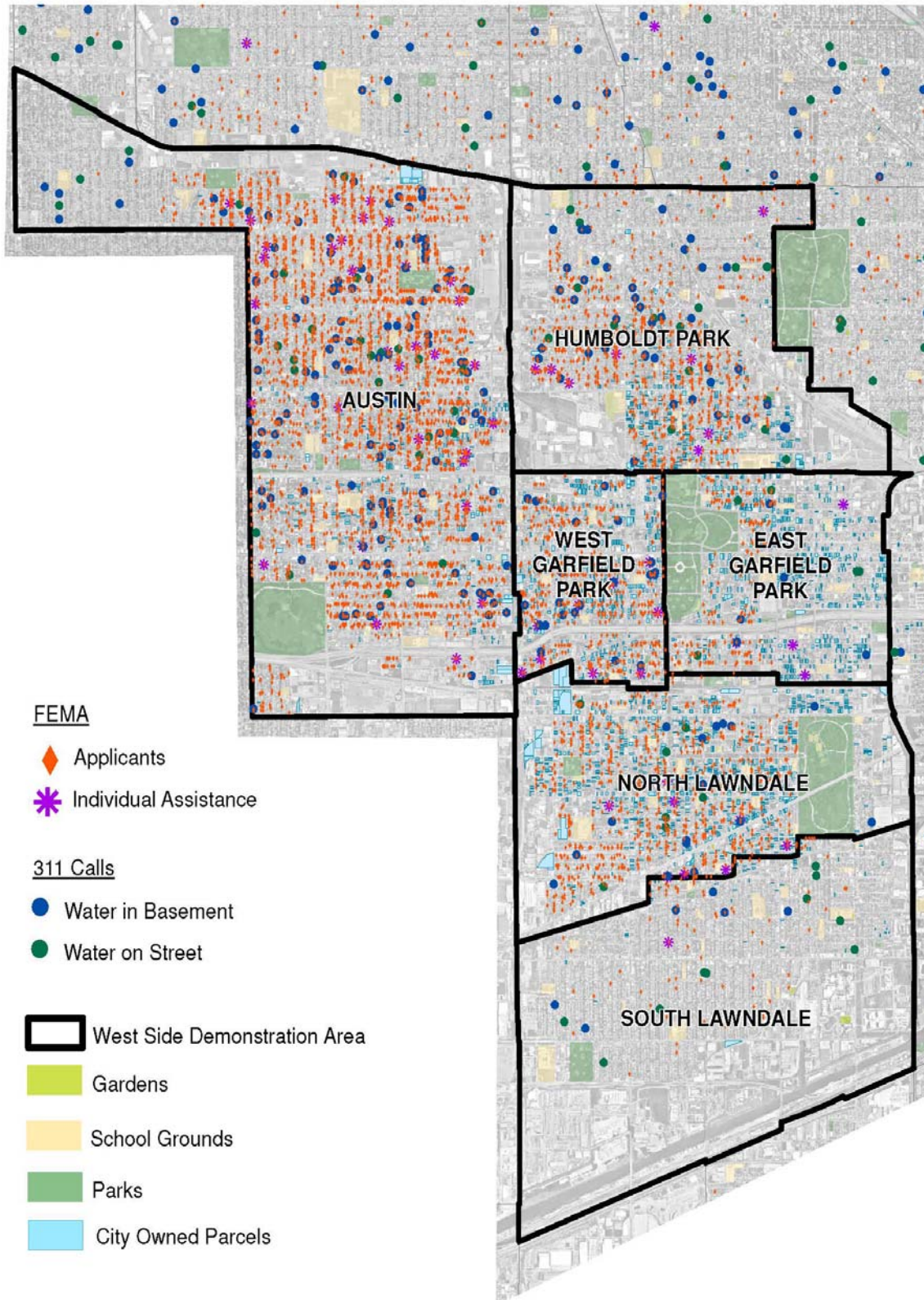




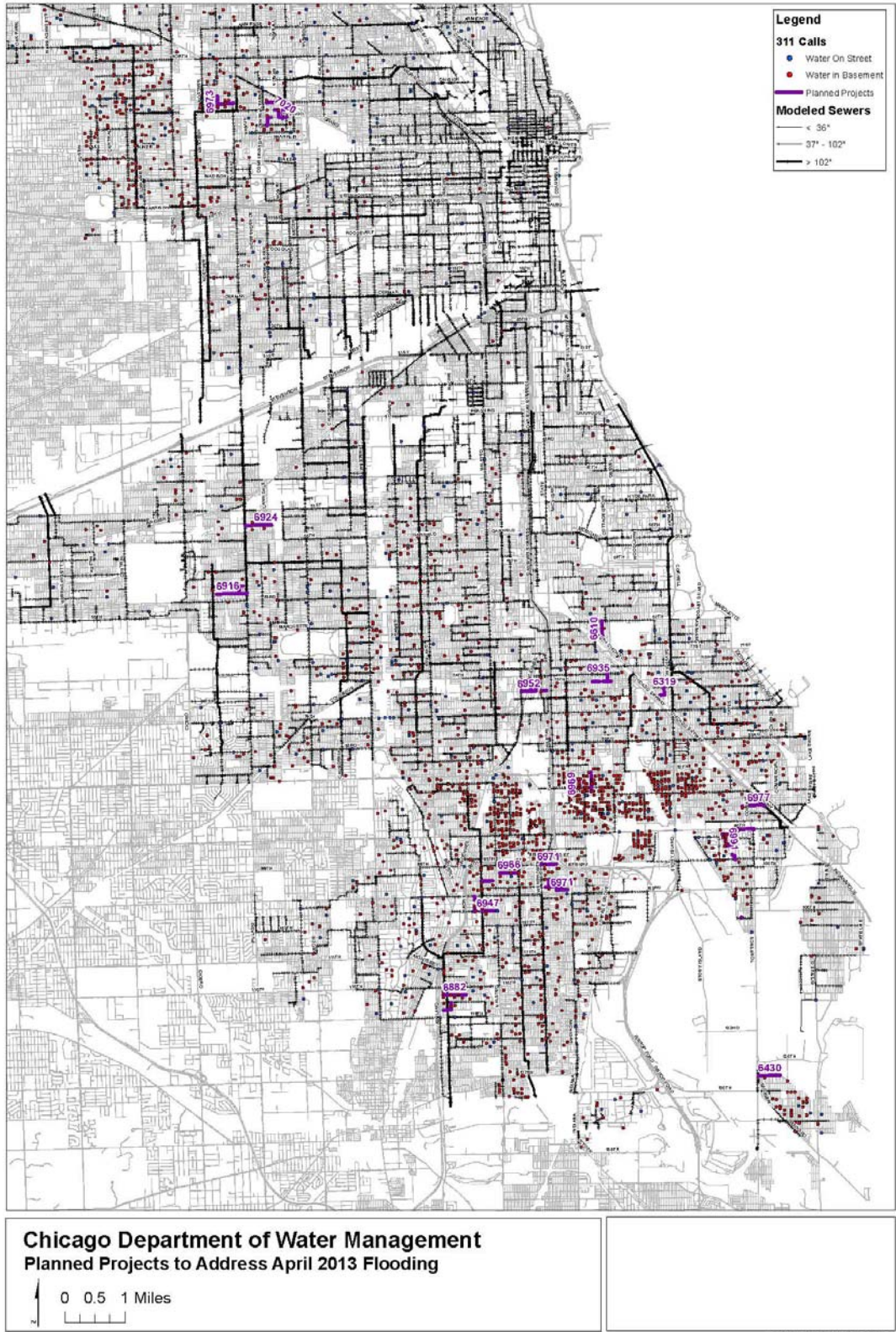
Appendix 7. 311 Calls, Albany Park Floodplains



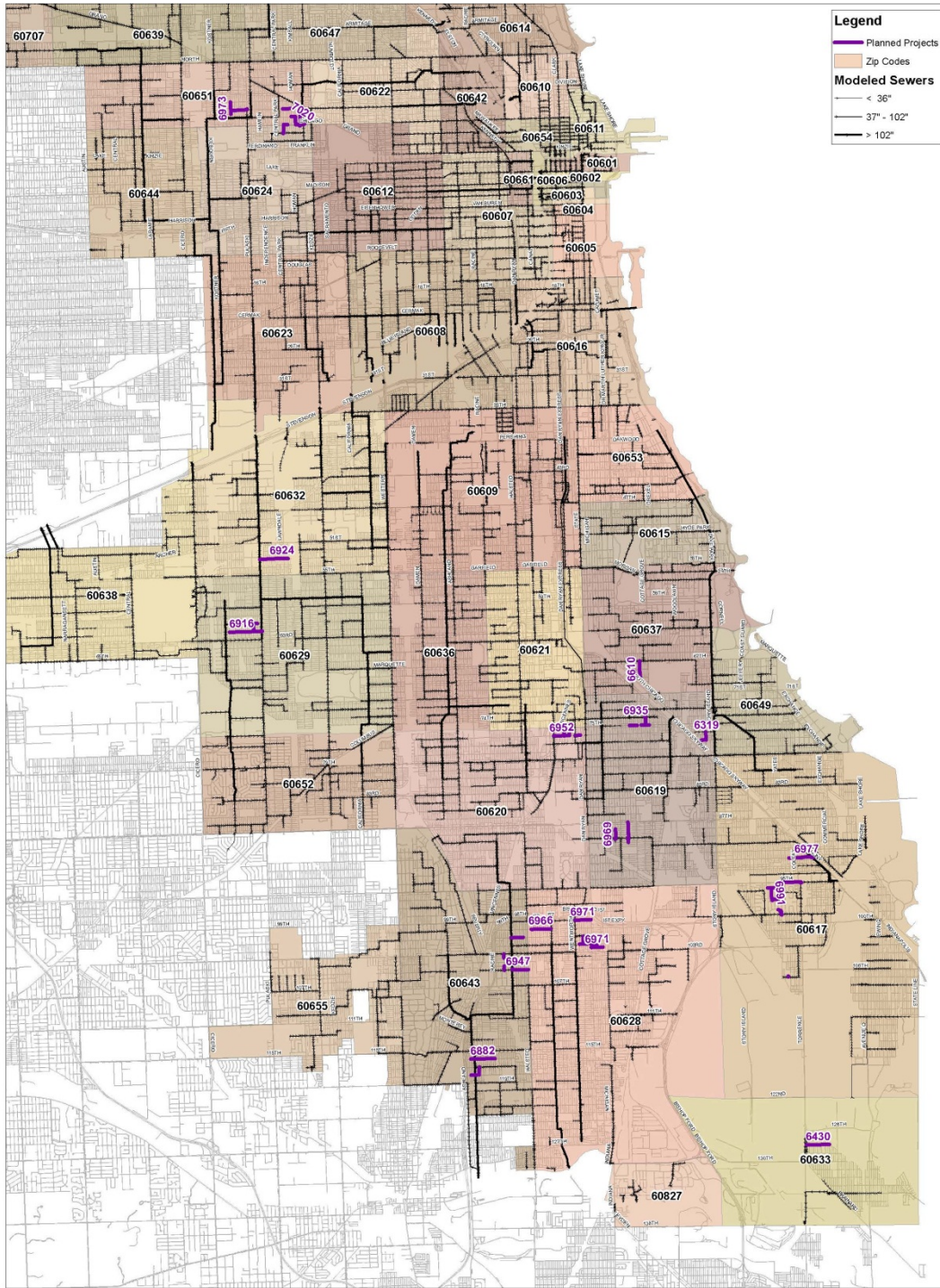
Appendix 8. West Side Demonstration Area Flooding



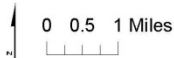
Appendix 9. 311 Calls, Sewer Projects



Appendix 10. Sewer Projects, Zip Codes

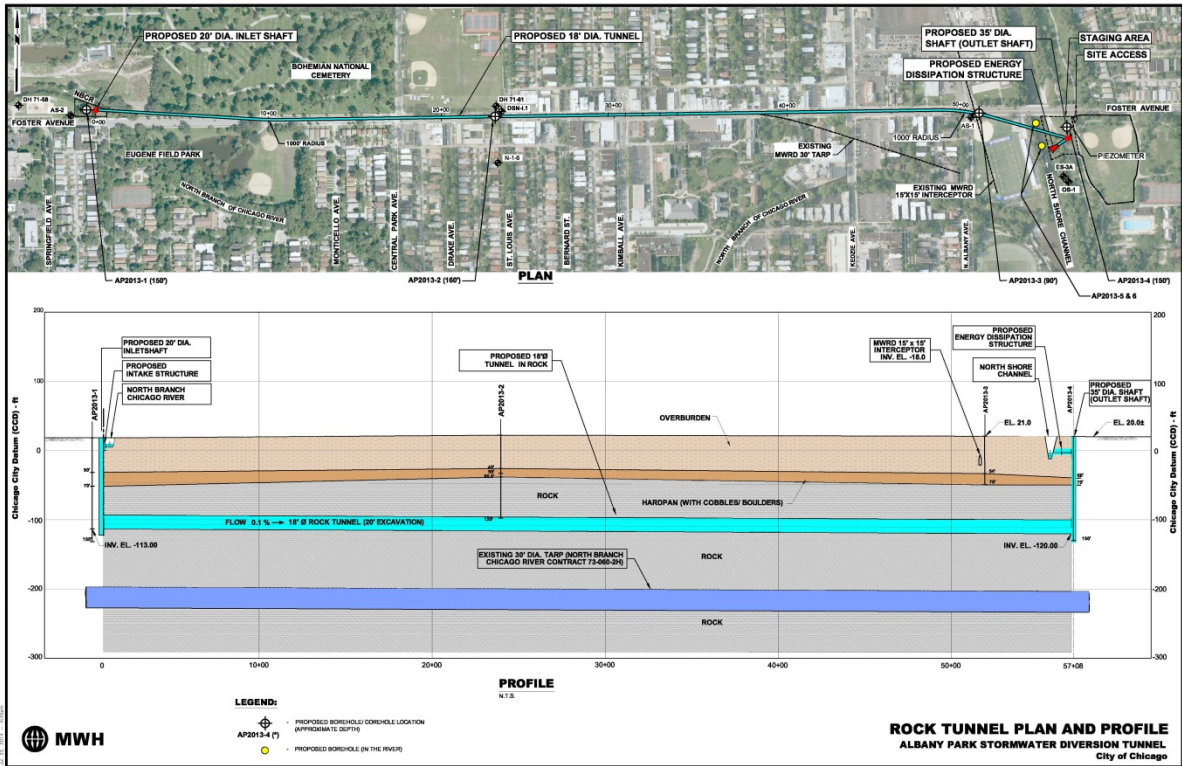


Chicago Department of Water Management
Planned Projects to Address April 2013 Flooding



CH2MHILL

Appendix 11. Albany Park Tunnel Plan



Appendix 12. Major Infrastructure Project

Major Infrastructure Project – Albany Park Tunnel

Activity Name: Albany Park Tunnel

Eligible Activity Type: §570.201 Basic eligible activities.

(c) *Public facilities and improvements.* Acquisition, construction, reconstruction, rehabilitation or installation of public facilities and improvements, except as provided in §570.207(a), carried out by the recipient or other public or private nonprofit entities.

National Objective: Urgent Need

Program Description: To address the recurring flooding problem in the Albany Park community area, the City’s departments of Water Management (DWM) and Transportation (CDOT) are engineering a diversion tunnel that will help alleviate the flooding of the portions of the North Branch Chicago River that are near Albany Park and led to the 2013 flooding as well as previous floods. The tunnel is 18 feet in diameter, 120 feet underground, and carved into rock. The diversion tunnel would run under Foster Avenue from its intersection with Avers Avenue until its discharge into the North Shore Channel as displayed in *Appendix 11*. The City of Chicago is planning to construct this tunnel because it would reduce flooding without buyouts, relocations, or construction of a wall through the neighborhood.

Total Project Cost:

Funding Need	Amount
Estimated Construction	\$62,624,845
Construction Contingency (4.8%)	\$3,000,000
Construction Management (5.6%)	\$3,500,000
Records and Estimates/QA (1.1%)	\$700,000
Designer EDDC Services	\$870,000
Total	\$70,694,845

Estimated Project Funding Sources

Funding Stream	Amount
MWRD GOB	\$24,750,403
CDBG-DR	\$15,600,000
IDNR State Grant	\$11,000,000
TIF Lawrence/Kedzie (T88)	\$4,600,000
TIF Lawrence/Pulaski (T116)	\$1,400,000
DWM Funding	\$13,344,442
Total	\$70,694,845

Impact and Unmet Needs Assessment: Following the April 2013 storms and flooding, a team of City officials from the Department of Buildings assessed the damage to the Albany Park area. Based on this investigation, they found approximately 70 buildings were damaged. Although we have no insurance claims for damages related to flood (as many homeowners are unwilling to risk long-term depreciation from filing such a claim), the City calculates that based on the nature and extent of the flooding, the value of homes in the area, and standard damage caused by flooding in the Chicago land area the total damage was approximately \$3,500,000. Albany Park also suffered damage from flooding to a very similar level from a storm on September 14, 2008. See *Appendix 6* for images from the 2008 Flood. This was less than 5 years before the April 18, 2013 storm. See *Appendix 7* for a map that shows calls to the City’s 311 system during the April 2013 storms overlaid with the FEMA-designated floodplains in Albany Park.

Under the planning assumptions that underpin the rainfall frequency projections and flooding maps, it is expected that the type of storms that occurred on September 14, 2008 and April 18, 2013 would be expected to occur once every ten years (a “10 year storm” event). However, Chicago is regularly receiving storms that exceed the expected rainfall frequencies, as evidenced by the occurrence of these two storms less than five years apart. Furthermore, since 2008, Chicago has experienced two “10-year storm”, one “25-year storm” (July 23-24, 2010), and one “100-year storm” (July 22-23, 2011)¹¹, primarily because of climate change. Therefore, it is reasonable to expect another storm that was similar to April 18, 2013 to occur in the near future.

As noted previously, to address this recurring flooding problem in the Albany Park community area, the City’s departments of Water Management (DWM) and Transportation (CDOT) are engineering a diversion tunnel for portions of the North Branch Chicago River in the Albany Park neighborhood. The tunnel would run under Foster Avenue and would reduce flooding without buyouts, relocations, or construction of a wall through the neighborhood.

In the Albany Park area that would benefit from this tunnel project, there are areas that are mapped by FEMA in the 1% (or a 1% likelihood of occurring in a given year) and .02% floodplains. 72 buildings are mapped in the 1% floodplain and 440 are mapped in the .02% floodplain. The vast majority of the homes located in the 1% floodplain were damaged from the storm on April 18, 2013. If a 0.2% chance storm occurred, which is possible given the increased frequency of storms over the past five years, the impact would be much greater, 440 buildings as opposed to 72 buildings, and the damage would be significantly higher, potentially exceeding \$20 million.

The anticipated construction cost is \$70.6 million. The City is working with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) to construct the tunnel. MWRD has pledged to pay approximately 35% of the total cost. The City will commit \$21.6 million towards

¹¹ City of Chicago Green Stormwater Infrastructure Strategy, pg. 12.

this project, \$15.6 million via CDBG-DR funds and the remaining \$6 million from TIF funding and funds from the State of Illinois. After construction, the City would operate and maintain the tunnel.

Comprehensive Risk Analysis: In the spring of 2013, CDOT and MWRD commissioned a feasibility study to evaluate the feasibility of the stormwater diversion tunnel and to determine any risks. The study concluded that a tunnel is feasible and that the lower cost option would be a deeper tunnel constructed into rock layer, versus a shallower tunnel constructed in the earthen overburden layer closer to the surface. CDOT also compiled a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR). Given that most of the work on this project happens underground, the greatest risk to the project's success comes from unknown/quantified subsurface conditions. The GBR and the GDR are reports which compiled as much subsurface data as possible to alert the contractors of the anticipated strata of rock and soil. Additionally, during construction, CDOT will continually monitor subsurface conditions as the tunnel boring machine advances, to ensure that fissures, cracks and wedges are identified and mitigated.

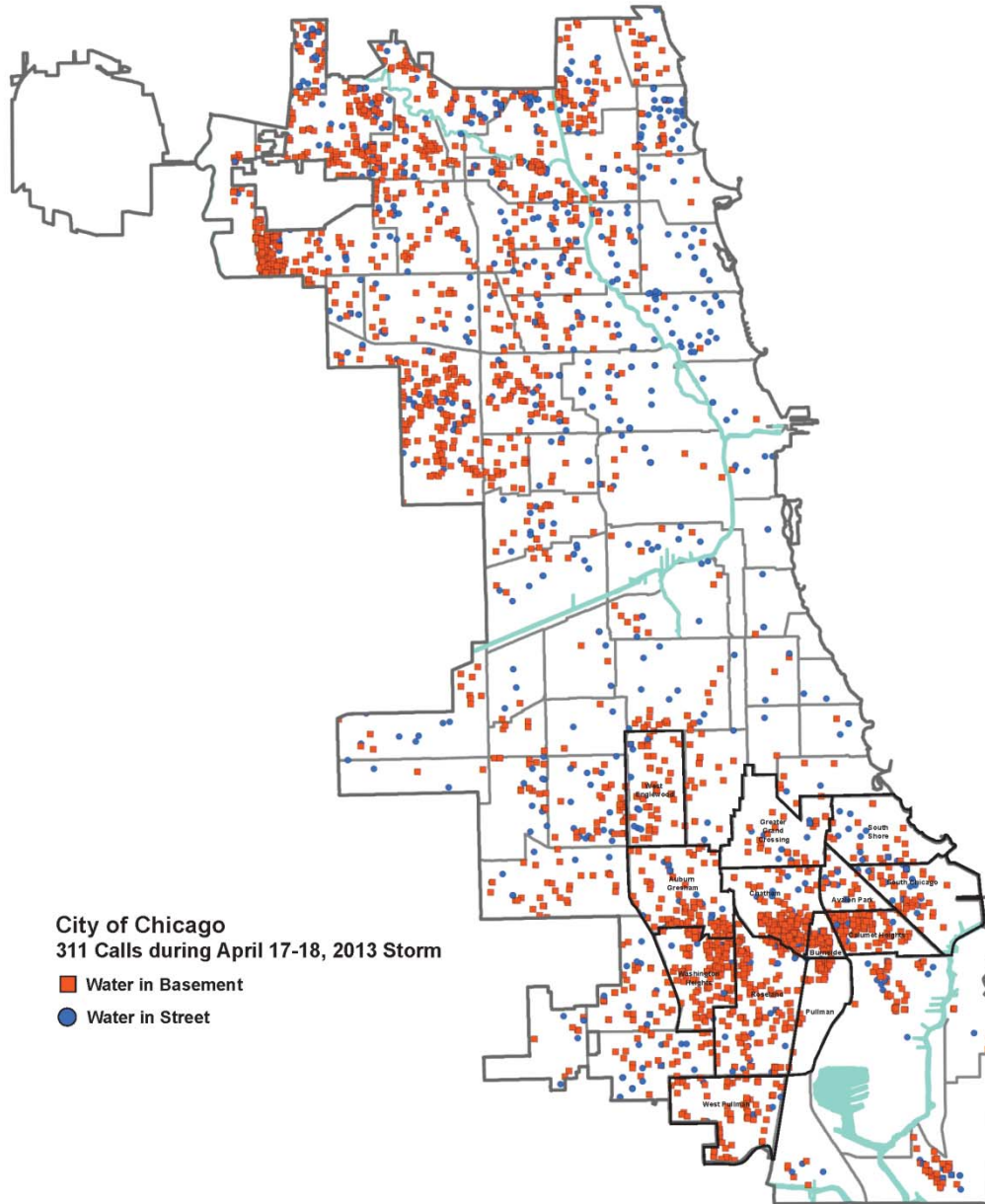
Transparent and Inclusive Decision Processes: CDOT conducted multiple public input processes for the Albany Park Tunnel project. These workshops and meetings are described below:

- May 29, 2013 - Albany Park Neighborhood Flood Workshop. This event was an open-house format meeting hosted by the Alderman (Ward 39) and attended by representatives from Department of Water Management, IEMA, FEMA, IDNR and State Representative D'Amico's office. CDOT presented the upcoming project (then in conceptual phase). 100 people attended.
- December 3, 2013 - North Branch of the Chicago River Watershed Council. Presented the overall concept of the tunnel to Watershed Council members. 20 people attended.
- April 1, 2014 - North River Commission Meeting. Presented the overall concept of the tunnel project with attendees. More than 250 people attended.
- April 2, 2015 - Open Public meetings in the community to present the developed design of the project and solicit input from the community in advance of design completion and project bidding. At least 60 people attended.

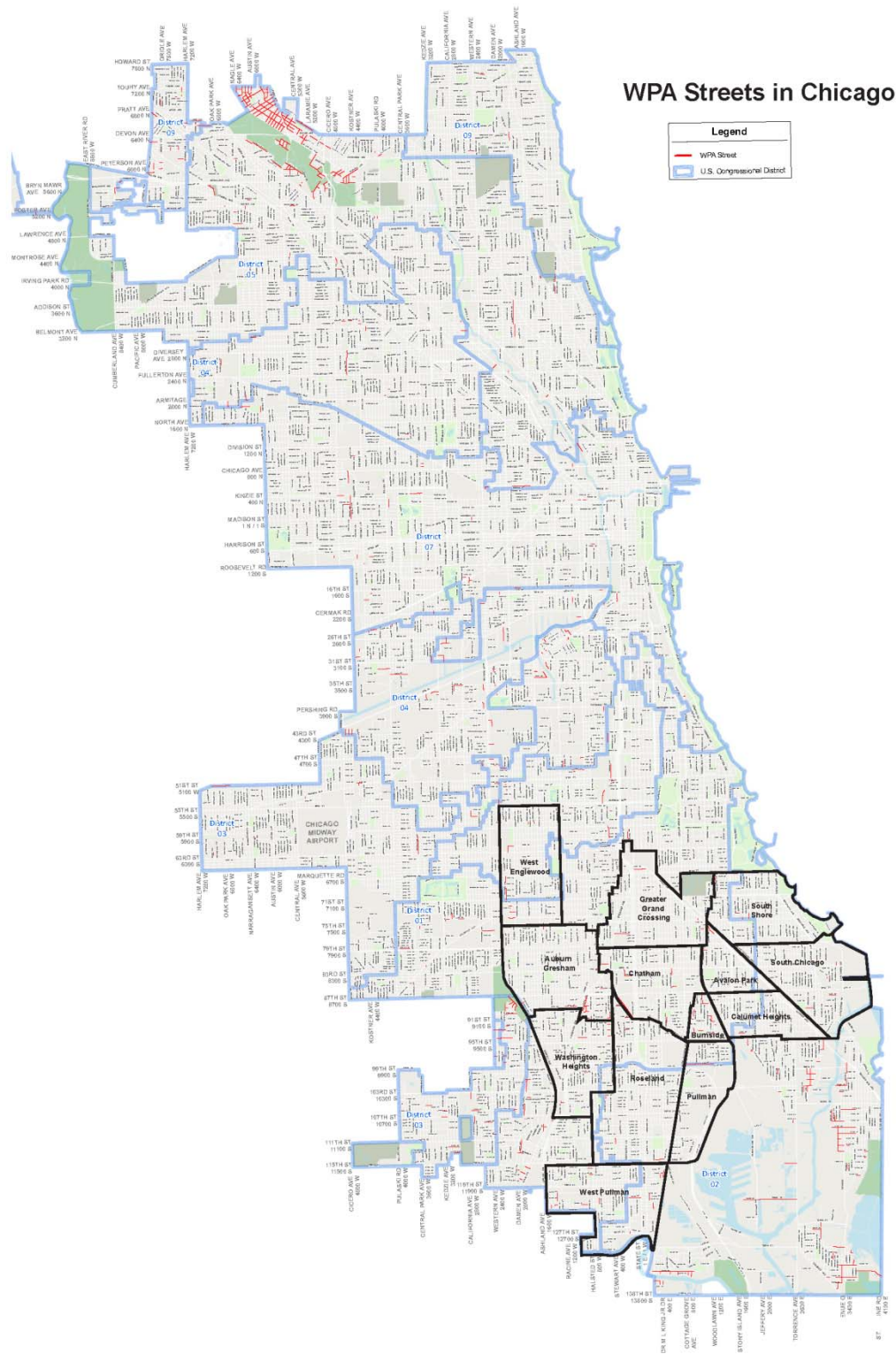
Long-Term Efficacy and Fiscal Sustainability: The efficacy of the project will be ensured by continuing monitoring (periodical inspections of the major components of the tunnel) and through 'after storm event' inspections to ensure the operation of the tunnel for the next storm event. The City has already been flexible throughout the initial stages of this process and has already addressed emerging needs of the project, including responding to the need of altering funding based on the scope of work. CDOT utilizes the Albany Park Stormwater Diversion Tunnel Operation and Maintenance Plan that addresses the long-term efficacy and fiscal sustainability of the project in depth (*Appendix 16*).

Environmentally Sustainable and Innovative Investments: The Albany Park Tunnel Project aligns with the President's Climate Action plan in several ways. The first is the City's commitment to protecting, conserving and managing our water wisely. The City's Stormwater Management Ordinance provides for specific practices to ensure that stormwater is managed responsibly. The ordinance includes strict controls on stormwater release rates and retention. The ordinance is updated as environmental conditions change, and with the changing climate. The Albany Park Tunnel project will adhere to this ordinance. In addition, the project will provide a mitigation plan and continued monitoring for impacts to waterways and to the local fish population. This will include construction of habitat installations, consisting of woody debris installations, and/or cobble/boulder structures that will ensure that species of fish that exist now within the watershed system continue to thrive.

Appendix 13. 311 Calls, Community Areas



Appendix 14. WPA Streets, Community Areas



Appendix 15. HOME Program Monitoring Requirements and Procedures

HOME Program Monitoring Requirements and Procedures

The purpose of the Monitoring and Compliance Division is to ensure that at a minimum all requirements of the HOME program are met, which include the following:

- That all tenant incomes meet the requirements articulated in the redevelopment agreements.
- That all rents meet HOME requirements, especially when coupled with Low Income Housing Credits, Section 8 Certificates, project-based Section 8 vouchers, other rental subsidy programs and any other Federal assistance, such as TCAP 1608, NSP or section 202 or 811 subsidies.
- That the period of affordability is maintained for the period of time contained in the redevelopment agreement.
- That projects funded through the HOME program are maintained in a manner which complies with the City of Chicago housing codes.
- That projects are being maintained and managed in such a way that the financial health of the project is not compromised.
- That other requirements such as Fair Housing requirements are being followed or that the City of Chicago Landlord Tenant Ordinance is being enforced.

The Long Term Monitoring and Compliance of the HOME Program begins during the construction phase of the project. All HOME projects are monitored for the following requirements during the construction period:

- Davis Bacon Wage Requirements
- Section 3 Requirements
- MBE/WBE participation requirements
- City of Chicago Local Hiring requirements

All developers and general contractors meet with Department of Planning and Development staff prior to the beginning of construction of a project. The department policy is that a monitoring and compliance meeting is held before a project is introduced at city council for approval. An auditor is assigned as the monitor of the project and all requirements of Davis Bacon, MBE/WBE, Local Hiring and Section 3 are discussed and questions are answered.

Both the developer and general contractor are requested to attend and asked to initial and sign a meeting recap sheet acknowledging that the training session was given. A letter is then sent to the participants explaining what was discussed in the meeting and this letter is then used as an exhibit by the Law Department's closing requirements.

DAVIS-BACON WAGE REQUIREMENTS

A copy of the most current Davis-Bacon wage requirements (both construction and landscaping) are provided as an example to the participants of the monitoring and compliance meeting. A copy of the current Davis-Bacon wage requirements in effect at the time of the signing are attached and become an

exhibit of the redevelopment agreement at the time of closing. The Davis-Bacon wage requirements that are attached to the redevelopment agreement are referenced on the semi-annual report to HUD and the redevelopment agreement signing date is the lock-in date for purposes of that report. Payrolls are requested for all sub-contractors who perform construction work on the job. Review of payrolls is completed on a monthly basis and a letter outlining any deficiencies is sent to the developer and general contractor and is tied directly to the payout request (monthly draw). Auditors will check and see that there are payrolls for each sub-contractor who is being paid on each draw down request. The payout of Federal funds can be held if there are not sufficient payrolls matching the draw request.

Additionally, if restitution is to be made to individual workers, the policy is that a copy of the canceled check (both front and back) and a signed, notarized statement from the worker is required.

SECTION 3 REQUIREMENTS

Developers and General Contractors are required to provide Section 3 documentation on any contract which is \$100,000 or more in value. Copies of employee lists are required when the first payrolls are submitted. Dates of hire for all employees are required on payrolls. If an employee is a new hire, a certification form is requested asking for household income information. Section 3 reporting is done once a year on or about March 1st of each year. The requirement which is used to judge compliance is that 30% of new hires must be Section 3 certified.

MBE/WBE REQUIREMENTS

Minority Business Enterprise requirements are 24% of Hard Cost Construction costs and Women Owned Business Enterprise requirements are 4% of Hard Cost Construction costs. If Tax Increment Financing (TIF) funds are utilized the 24% and 4% are based on a negotiated budget which is an exhibit to the redevelopment agreement. All MBE and WBE firms must be certified by the City of Chicago's Department of Procurement or Cook County Procurement office. General Contractors must be certified at the time work begins on the project not when a contract was signed. Suppliers are given credit at 60% of the total contract amount and suppliers must also be certified by the City of Chicago or Cook County. Double counting is prohibited if a firm is both a MBE and WBE. Documentation of Certification is required and consists of a five year letter of certification or three year letter of certification for Cook County documentation from the Procurement Department's web site showing that the annual no-change affidavit has been filed and the correct NAICS business code appears on the Contractor's Activity Report which is required on a quarterly basis. The Contractor's Activity Report is accompanied by a Contractor's Sworn Statement (which are part of each draw-down request).

CITY OF CHICAGO LOCAL HIRING

The City of Chicago has a local hiring ordinance which requires that 50% of all hours worked must be performed by City of Chicago residents. If a project does not comply with this requirement, liquidated damages are assessed and paid before a project can be "closed out". Damages cannot be paid by Federal funds. Damages are assessed as follows:

.0005 X Hard Construction Cost x the shortfall from 50%

Auditors review all payrolls for the above mentioned items and are responsible for ensuring compliance before any draws are paid.

LONG TERM COMPLIANCE MONITORING

There are three (3) components of the HOME long-term compliance monitoring process. The first is the Annual Owners Certification (AOC) which is requested on or about March 1st of each year with a due date of April 30th. The second are physical inspection of HOME projects which are 20% of the HOME units in the project as well as any common areas; and third are records inspections which are 20% if the HOME units in the project and should match the units which have a physical inspection.

AOC

As stated above, the Long-Term Monitoring and Compliance division sends the AOC HOME packet to owners of record on or around March 1st of each year. Owners are required to send back completed AOC documents by April 30th. The department will allow later submissions in extenuating circumstances, as long as the department was contacted and a request was placed in writing. Normally a thirty (30) day extension is granted.

The AOC packet of material contains the following:

1. Project information sheet
 - Project name
 - Project address
 - Main Contract
 - Mailing address of contact
 - Telephone, fax and e-mail of main contact
 - Name of property manager
 - Contact information for the property manager
2. Exhibit E- Annual Report of Project receiving HOME Funds
 - Information regarding code compliance
 - Information regarding change of ownership
 - Includes representations and warranties including a statement that the submitter of the document is representing that the project is in compliance with all of the currently applicable requirements of the National Affordable Housing Act, Home regulations and regulatory agreement.
3. Schedule I for each building in the project
 - Project information
 - Utilities paid by tenant and paid by the developer
 - Rent rolls - including the designation of high HOME rental units, low HOME rental units, Section 8 assisted households, project based Section 8 assisted households and other rental assistance. The rolls also requests approximate square footage of the unit, number of bedrooms and number of bathrooms.
 - Identification of any new tenants
 - Identification of steps taken to ensure that tenants have been qualified as low-income
 - Eviction information for the year

4. Tenant Income Certification Form

- A form is needed for each new household

NOTE that the tenant income certification form has been adopted by the City of Chicago, Cook County and the Illinois Housing Development Authority (IHDA) and is being used as a standard document for numerous funding sources.

5. A copy of the Lease Agreement for New Tenants

6. Audited Financial Statements

The HOME projects are distributed between the three auditors on staff. Auditors review the documentation provided and issue a letter of compliance or non-compliance. The auditor will write a specific reason for non-compliance and will require that a project submit documentation showing compliance within a 90 day period.

The Assistant Commissioner for Monitoring and Compliance maintains a log when letters were sent and the status. The results of the AOC review are then placed on the Master HOME Compliance sheet as a management tool to ensure that projects are being monitored.

RECORD INSPECTION

The policy of the department follows HOME regulatory requirements. The frequency of inspections is dependent upon the number of HOME assisted units in the project. Prior to 2013 the following was the standard:

- 5 or fewer units, once every 3 years
- 6-24 units, every other year
- 25 +units, annually

The frequency of auditing will not change but the statistical sample will change, however, beginning in 2014, the Department has determined that a 20% sample of HOME assisted units should be monitored with records inspections on each project. All files will be monitored in projects having five or fewer units. A 20% sample will continue to be used for all other projects.

The following items are contained in the Tenant File Checklist-Records Inspection:

- Property Name
- Property Address
- Developer/Owner
- Property Manager
- Unit Number
- Number of Bedrooms
- Tenant Name
- Number of Household Members
- Current Lease Date
- Rent Amount
- Utility Amount
- Maximum Rent Allowed
- Low/High HOME Rent Designation
- Rental Assistance/Type of Assistance

- Amount of Assistance
- Tenants Portion of Rent
- Income Type
- Verification Date of Income
- Asset Verification
- Date of Current Tenant income Certification
- Tenant Selection Policies
- Waiting List Documentation
- Lease Agreements - Properly executed; No prohibited provisions are for a minimum of one year unless otherwise agreed upon
- Verification of Disability for a Household in an Accessible Unit

The Monitoring Division imitates the on-site records inspection process. The auditor contacts the property manager to schedule an appointment at least ten days prior to a visit. The ten day requirement is especially important for the physical inspection because of the Chicago Landlord and Tenant Ordinance. Before the site visit, the auditor identifies which units to impact and reviews the General Agreement. Note that projects are monitored in conjunction with the redevelopment agreement. For example, if the redevelopment agreement states that 50% of the units are considered low HOME rents, the auditor will monitor for compliance even though the number of low HOME rent units are more than what the HOME regulations require.

The auditor brings the redevelopment agreement and the most recent rent roll with him/her on the site visit. Because most of the home funded projects have multiply funding sources, it is a requirement that the rent roll identifies "High" HOME rent units, "Low" HOME rent units, 50% tax credit units, 60% tax credit units and must identify the type of housing vouchers (project based, Section 8, Section 8 voucher or other rental assistance such as the Low Income Housing Trust Fund). It is also imperative that the rent roll indicates if the HOME units are floating or fixed.

Since many HOME projects are CHA Plan for Transformation units, the department utilizes the CHA utility allowance which is updated on an annual basis and is configured by the number of bedrooms, the type of building (i.e. elevator, walk-up, etc.) and what the tenant is responsible for payment.

When on-site, the auditor fills out a tenant file checklist form and supposed to enter the findings electronically once all project "records" files have been inspected. The auditor reviews project level information, such as affirmative marketing plans, compliance with overall funding requirements and management and financial viability analysis (vacancy rates, tenant complaints, management procedures, etc.

ADJUSTMENT OF RENTS FOR OVER-INCOME TENANTS

The following rules apply to Very Low Income Units (as designated in the schedule) in a HOME only rental housing project with both very low income units in either fixed or floating HOME assisted units:

- If upon income recertification, a tenant household's income exceeds 50% of AMI, but is less than 80% of AMI, the assisted unit shall be considered a low income unit and the rent shall remain a

very low income unit until another household is identified who is below 50% of AMI. The property owner shall maintain the correct number of HOME assisted units at all times.

The following rules apply to floating HOME-Only assisted projects. If upon income recertification, a tenant household's income equals or exceeds 80% of AMI, the rent shall increase to the lowest of the following:

1. 30% of the tenant household's monthly adjusted income
2. The maximum rent allowable under any affordability restrictions imposed by other project funders for the assisted unit (i.e. TIF), or
3. The market rent for comparable unassisted units in the neighborhood.

NOTE: that if HOME and Low Income Housing Credits (LIHTC) are utilized in the project, HOME defers to LIHTC rules on over income tenants. If a tenant's household income exceeds the LIHTC 140% limit, the rent remains at the LIHTC limit until an available unit replaces the previous LIHTC unit. Once the unit is replaced, an over income tenant may be charged market rent (if the unit is no longer HOME-assisted) or the lower of 30% of adjusted income or market rate rent (if the unit is still considered a HOME-assisted unit).

PHYSICAL INSPECTIONS

Physical inspections of 20% of the HOME assisted units and the common areas both interior and exterior are performed by department staff, who is a construction inspector. The City of Chicago code is utilized for HOME inspections. The documentation of the inspection utilizes two (2) forms. The first is a health/safety deficiency report which is filled out at the time of the inspection and is signed by the property manager, the inspector and the Director of Construction. The items which are documented are the following:

- Roofing System
- Carpentry/Porches
- Exterior Façade
- Plumbing
- Heating System
- Electrical System
- Elevators
- Environmental Issues
 - o Pipe Insulation
 - o Peeling Paint
 - o Oil Tanks/Storage
- Sprinkler/Alarm System
- Smoke Detectors
- Fire Extinguishers
- Carbon Monoxide Detectors
- Gas Flex Line
- H.W.T. Overflow Pipes

The second document is labeled a Property Monitoring Report and the following are monitored in each apartment:

- Floors
- Walls
- Ceilings
- Doors/Trim
- Paint
- Appliances
- Plumbing Fixtures
- Electrical Fixtures
- Smoke Detectors
- Carbon Monoxide Detectors
- GFI Outlets

Each box is rated as "good", "fair", or "poor" and any deficiencies are written up in the comments section.

There is also a matrix for the exterior, interior common areas and mechanical systems. The exterior matrix has the following components:

- Masonry
- Windows/Screens
- Doors
- Concrete Walks
- Porch System
- Roof
- Exterior Paint
- Landscaping
- Fencing
- Exterior Lighting
- Electrical Service
- General Appearance

The Interior/Common Area Section had the following components:

Vestibule - Lobby

- Entry Door System
- Mailboxes/Intercom
- Wall/Ceiling

The Good, Fair and Poor designations are utilized by the inspector for each of the items listed above.

- A "Good" rating means the building system is operating in perfect condition.
- A "Fair" rating means the building/items has been properly maintained. This also indicates that the item/system is working without health and safety concerns.
- A "Poor" rating means the building system is not working properly. It also is indicative that the malfunction is in such a state that the deficiencies would affect the tenants.

Example of the rating system:

Paint

Good - Freshly painted, no peeling, cracking or flaking anywhere; no marks or spots.

Fair - Paint may have marks or spots or blotches. Paint could be peeling, cracking or flaking in a small corner of one room (affected area is 1-4 square feet).

Poor - Paint is peeling, cracking or flaking on a number of wall surfaces. If paint is missing this would generate a poor rating.

GFI Outlets

Good - All outlets and switches are complete without cracks and affixed to the wall.

Fair - Cover plates are in place but are broken or cracked.

Poor - A cover plate or witch is missing causing vires to be exposed. Note that the department follows City Code as in regards to outlets. Outlets need to be GFI in bedrooms, as well as bathrooms and kitchens.

Windows

Good - Windows are properly sealed, none of the panes are cracked or broken, and window sill is not damaged. All Window units are operating properly.

Fair - Panes could be slightly cracked; window must still open and close without complications. Window sill could be slightly damaged; however no sharp edges are permitted. If more than one window is in this condition a poor rating would be rendered.

Poor - Windows have broken or missing panes, broken or missing sills. The window system does not function properly.

Appendix 16. Albany Park Stormwater Diversion Tunnel Operation and Maintenance Plan

Albany Park Stormwater Diversion Tunnel Operation and Maintenance Plan

Prepared for:

City of Chicago Department of Transportation

Prepared by:

MWH Americas, Inc.

June 2015



Section 1.0 INTRODUCTION

This document provides a general description of the minimum operation and maintenance requirements for the Albany Park Stormwater Diversion Tunnel. A general description of the system is provided in Section 2. Specific actions that are required periodically or on an as-needed basis for the proper operation and maintenance of the system are described in Section 3. Select drawings from the design set are provided for reference as figures in Attachment A. Items related to general site and utility maintenance are specified in a separate operation and maintenance plan which is to be approved by the City of Chicago Department of Water Management (CDWM). The plan submitted to CDWM is made part of this plan as Attachment B, and should be replaced with the final plan that is approved by the CDWM.

Upon completion of construction, the Contractor will provide manufacturer Operation and Maintenance (O&M) manuals and product guides for specific system components that should be attached to this document and followed by the City. This includes O&M requirements for items such as pumps, gates, SCADA, electrical components, surveillance, etc.

The City is responsible for conforming to all OSHA requirements and providing the necessary safety measures for the proper maintenance and operation of this facility.

Section 2 DESCRIPTION OF THE SYSTEM

2.0 General

The Albany Park Stormwater Diversion Tunnel was designed to reduce overbank flooding from the North Branch of the Chicago River (NBCR). The rock tunnel is generally located below Foster Avenue, running from the inlet site located at Eugene Field Park east of Pulaski Avenue, to the outlet site located at River Park west of California Avenue (Figure A-1). The tunnel system consists of 4 primary components listed below.

- Inlet Channel
- Shafts and Tunnel
- Outlet Structure
- Pumps and Control House

A general description of the facilities is provided below. Specific system components for access and maintenance should be verified in the field.

2.1 Operation

According to hydraulic analysis, the system is expected to operate at some capacity approximately four to six times per year. During flood events when the NBCR river stage exceeds the elevation of the fixed weir on the Inlet Channel, a portion of the NBCR flow will crest the weir, enter the inlet channel, and flow into the diversion tunnel, ultimately discharging through the Outlet Structure in River Park to the North Shore Channel (NSC). No action is required by the City before or during the flood event for the system to divert water as designed. Flow diversions will be apparent when the water level in the shaft/tunnel begins to increase, and can be confirmed visually by observing flow over the inlet weir and eventually flow discharging from the outlet structure. The diversion can be observed either on-site or remotely through SCADA and video monitoring. As the flow in the NBCR decreases, flow through the tunnel will gradually stop and water will remain in the tunnel. That water needs to be pumped out within three days to maintain water quality.

2.2 Inlet Channel

Water from the NBCR enters the system through the inlet channel (Figure A-2, A-3, and A-4) over an approximately 210-foot long inlet weir set at elevation 10.1 Chicago City Datum (CCD). During a flood event, water overtops the weir, passes through a horizontal trash rack, and enters the 22-foot

wide sheet pile inlet channel. While the horizontal trash rack was designed to support maintenance personnel, the spacing of the bars of the trash rack is too wide to be safely walked upon. Walkable grating at both ends of the inlet channel and at approximately 40-foot spacing provides suitable walking/standing platforms for personnel. An access ladder is provided at the west end of the channel, along with tether anchorage within the channel. The channel bottom slab elevation varies from 13.7' to 15.8' below the weir. The flow diversion then passes through the inlet structure and enters the vertical inlet shaft leading to the tunnel. The inlet structure also includes two manual sluice gates (and associated trash racks) that are provided for maintenance and are only to be opened to allow water to enter the tunnel for exercising the dewatering pumps located in the outlet shaft. Removable grating in the top slab of the inlet structure above the shaft to allow access to the tunnel for inspection and maintenance.

2.3 Shafts and Tunnel

The inlet shaft and tunnel was designed with an 18-foot finished diameter (Figure A-5). The finished elevation of the tunnel at the west end is -127 feet CCD (approximately 142 feet below grade) and the finished elevation of the tunnel at the east end is -134 feet CCD (approximately 154 feet below grade). The tunnel is approximately 5,800 feet long and is sloped to drain to the outlet structure. The outlet shaft was designed with a 30-foot finished diameter, and includes a 15-foot deep sump (Figure A-6) to trap sediment below the dewatering pumps (See Section 2.6). During a flow diversion, water flows down the inlet shaft, through the tunnel, and up the outlet shaft by gravity, due to the higher elevation of water in the NBCR at the inlet

2.4 Outlet Structure

Water exits the tunnel system during a normal flow diversion through the outlet structure, where it is discharged into the NSC. The outlet structure includes a vertical trash rack and energy dissipation blocks (Figure A-7). Removable grating above the outlet shaft allows for access to the sump and tunnel for inspection and maintenance. An inspection hole is also located above the sump for measuring the depth of sediment in the sump, along with separate access for a water level sensor.

2.5 Pumps and Control House

Two submersible pumps are provided for dewatering the tunnel after a flow diversion. The pumps are located at the bottom of the outlet shaft (Figure A-8), with the discharge pipe running up the shaft and discharging flow over the top of the outlet structure trash rack. Pump operation is manually initiated after a flood event either remotely through SCADA or via local control on-site. The pumps are then run automatically by a Variable Frequency Drive (VFD) which operates based on the depth of water until the tunnel is empty (P&ID shown on Figure A-9). Based on a nominal 5 cfs pump discharge rate, it will take approximately 80 hours to empty the tunnel and shafts. A submersible level sensor is

suspended at the bottom of the outlet structure between the bottom of the tunnel and the pump, and is accessible through a hand hole on the top of the outlet structure. The two pumps are redundant so that only one pump will operate at a time.

Electrical, SCADA, and other equipment needed to operate the pumps and monitor the system are located in the Control House (Figure A-10 and A-11).

Video cameras have been provided for remote monitoring of the system. Two cameras are at the inlet site (one on the east side of the channel and one on the west), and two are at the outlet site (one at the outlet structure and one inside the Control House). The electrical components for the cameras at the inlet site are housed on an out-door control cabinet.

Section 3

REGULAR OPERATION AND MAINTENANCE ITEMS

3.0 General

The following operation and maintenance items are to be completed as described in the sections below. Section 3.1 identifies items to be completed after every flood event, Section 3.2 describes items that are to be completed periodically and the anticipate frequency, and Section 3.3 describes items that are to be completed on an as-needed basis. Items are organized in each section by system element (i.e. pumps, inlet, outlet, tunnel).

3.1 After Every Flood Event

- 3.1.1. Pumps
 - a. Dewater tunnel – Following a flood event, when water is no longer overtopping the inlet weir or exiting through the outlet structure, start one of the pumps to dewater the tunnel. The pump will automatically shut off when the water level reaches a set elevation below the invert of the tunnel.

- 3.1.2. Inlet
 - a. Inspect trash rack and clear of any debris that is found.

- 3.1.3. Outlet
 - a. Inspect trash rack and clear of any debris that is found.

- 3.1.4. Tunnel
 - a. No Action

3.2 Periodically

- 3.2.1. Pumps
 - a. Test / Exercise pumps– Every 6 months for each pump unless the pump is run as part of normal operation during that time period. Test should occur in early spring and late fall to check operation before and after the majority of rain events occur for the year.
 - i. Open sluice gates at the inlet structure within the limits shown on Table 1 until water level in the sump is up to -131.5 feet CCD.
 - ii. Close sluice gates.
 - iii. Start pump to dewater tunnel.

Table 1
Maximum Gate Opening to
Maintain Flow Velocity at 1.5 fps or less

Flow Depth* (feet)	Maximum Gate Opening Height (feet)
1 or less	0.6
2	0.8
3	1
4	1.2
5	1.3
6	1.4
7	1.5
8	1.6
9	1.7
10	1.8
11	1.9
12 or more	2

*Flow depth measured above the bottom of the gate approach.

3.2.2. Inlet

- a. Inspect trash rack to identify the need for repair. Inspect annually.
- b. Inspect sheet pile and beams for corrosion to identify the need for repainting and repair. Inspect annually.
- c. Inspect concrete channel bottom and inlet structure to identify the need for repair. Inspect annually.
- d. Inspect / operate gates for corrosion and signs of failure to identify the need for repair. Inspect / operate annually unless gates are operated in conjunction with Pump Test / Exercise.
- e. Inspect stability of slope of NBCR in the vicinity of the inlet channel and structure. Inspect after the first year of operation and every five years thereafter.

3.2.3. Outlet

- a. Inspect trash rack to identify the need for repair. Inspect Annually
- b. Check sludge depth. Annually

- i. Drop a mass attached to a rope or cable through the inspection hole, down the outlet shaft, into the sump until the mass comes into contact with the top of the sludge. Measure the length of rope from the top of the sludge (i.e. from the mass) to the top of the grating. If the length of the rope is less than 162.5 feet, (i.e. top of grating at 21.5 feet to bottom of pump at -141 feet), see Clean Sump. The intent is to keep the sludge depth below the pump elevation.
 - c. Inspect outlet structure and wing walls to identify the need for repair. Inspect annually.
 - d. Inspect stability of slope of NSC in the vicinity of the outlet structure. Inspect after the first year of operation and every five years thereafter.
- 3.2.4. Tunnel
 - a. Visually inspect shafts and tunnel to identify the need for clean out of silt deposits or concrete repair. Inspect one year after initiation of operation, and then every five years. If silt deposit is greater than two feet at any one location, see Clean Tunnel.

3.3 As Needed

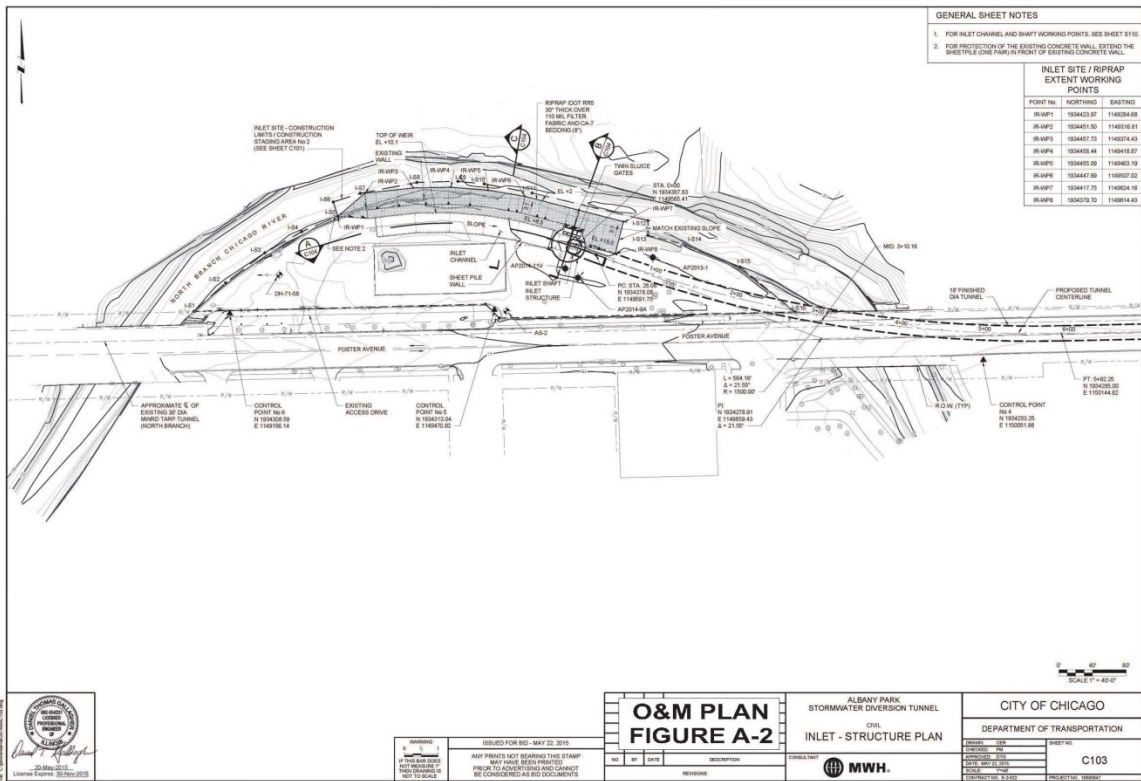
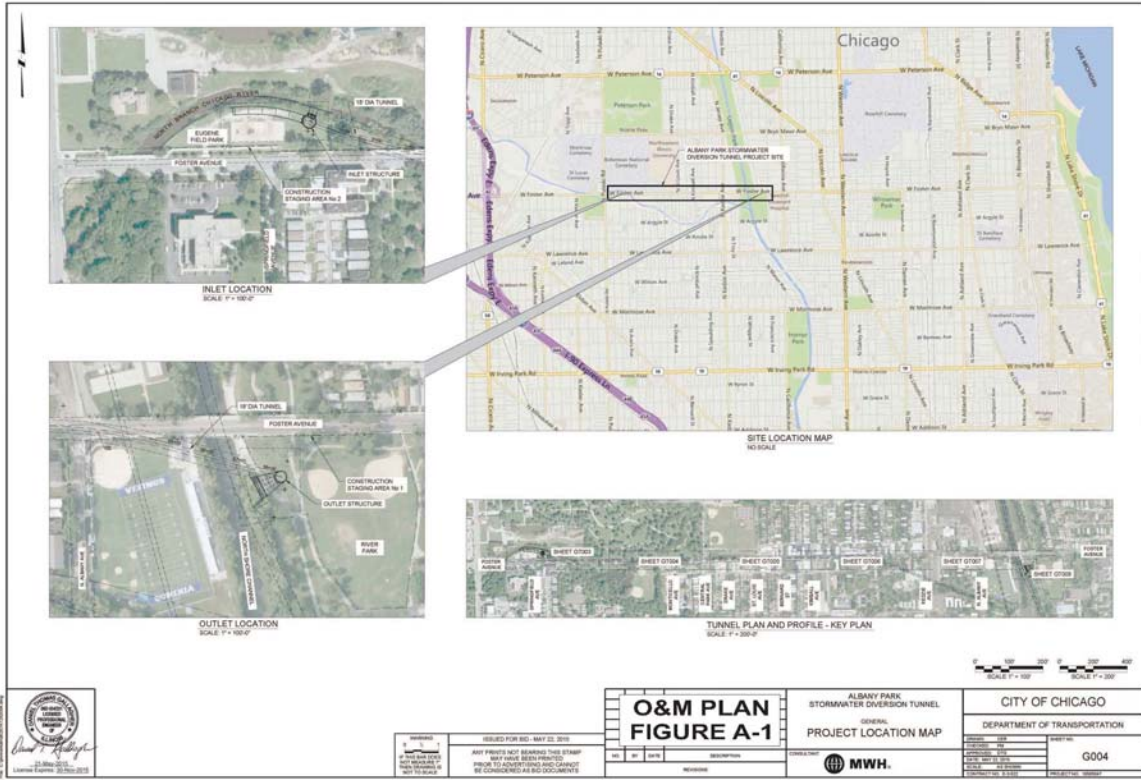
- 3.3.1. Pumps
 - a. Repair or replace pumps as required based on replacement schedule or repair history.
- 3.3.2. Inlet
 - a. Repair trash rack
 - b. Repaint and repair beams and sheet pile
 - c. Repair ladder and other access and safety appurtenances
 - d. Repair gates
- 3.3.3. Outlet
 - a. Repair trash rack
 - b. Repaint and repair sheet pile
 - c. Clean Sump – If sludge depth exceeds 8 feet. Assume every 5 years.
(Assume clam-shell from surface at outlet shaft only)
- 3.3.4. Tunnel
 - a. Clean Tunnel – If tunnel inspection reveals buildup of more than two feet deep along the majority of the tunnel invert. Assume every 10 years.

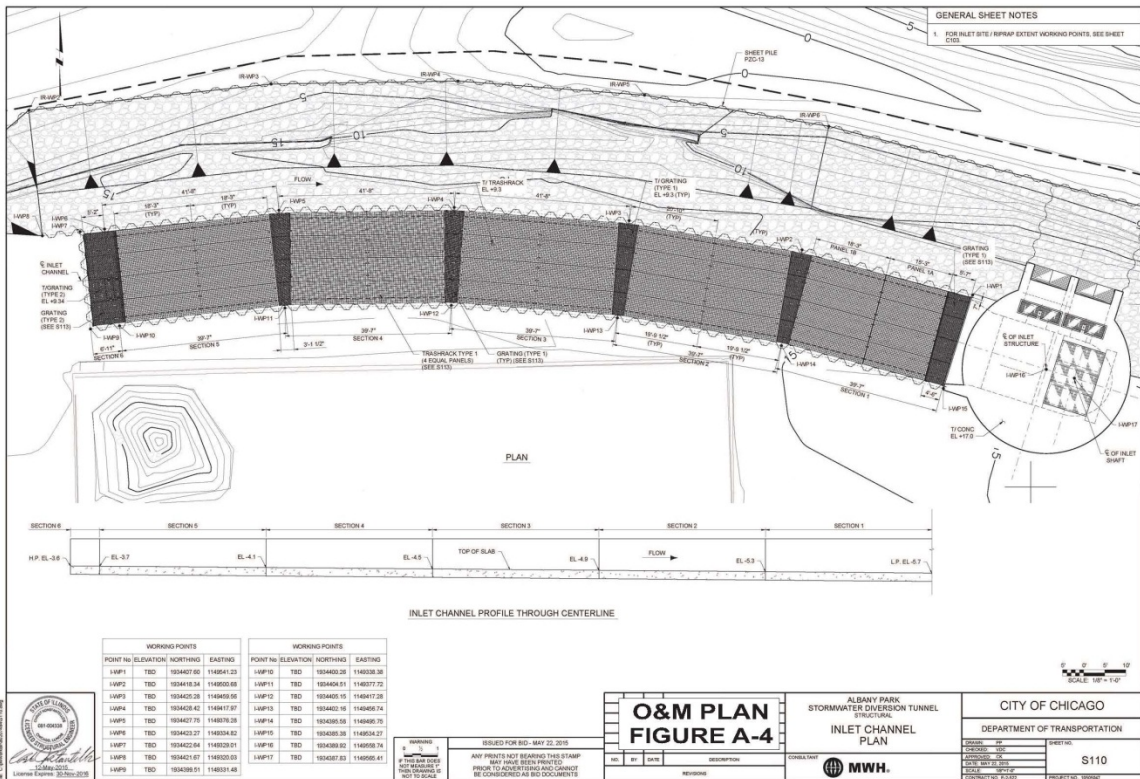
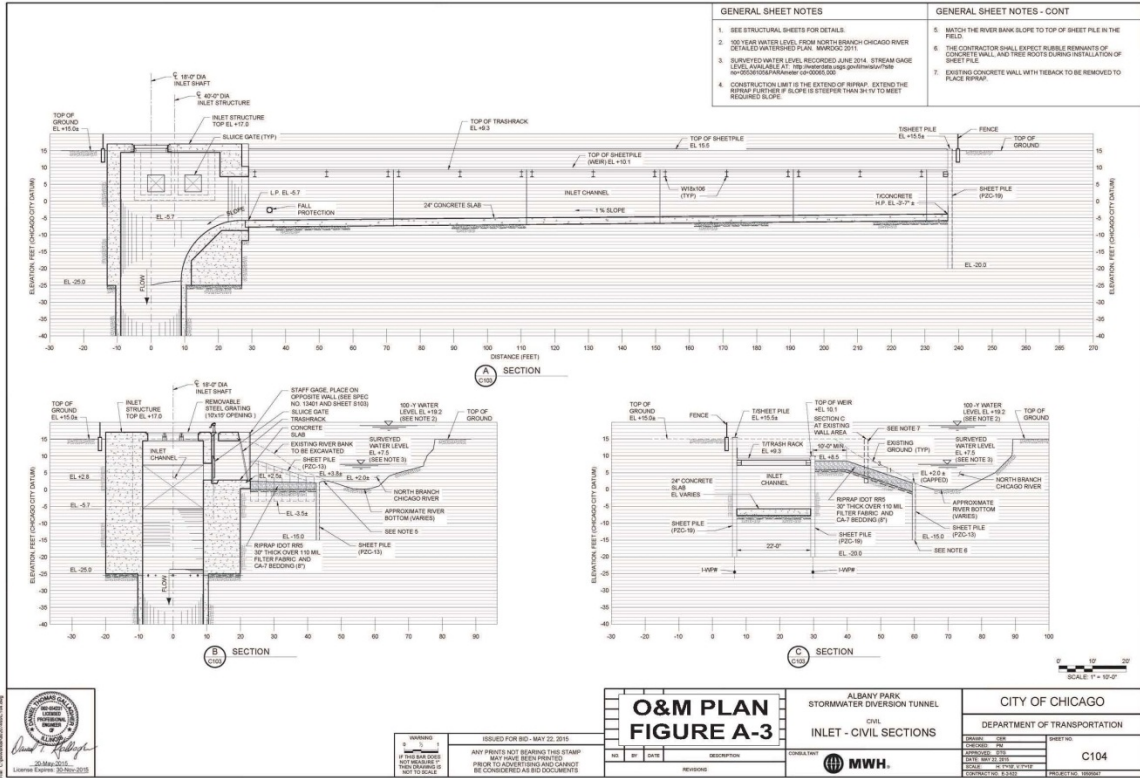
Attachment A

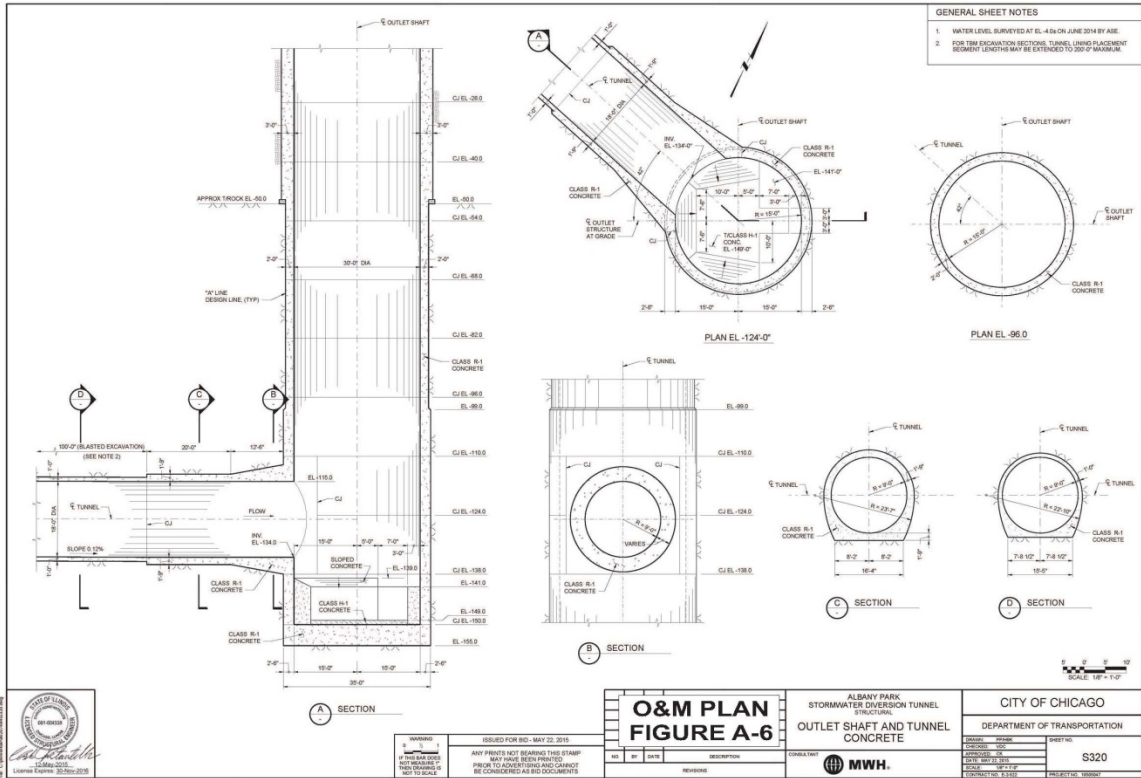
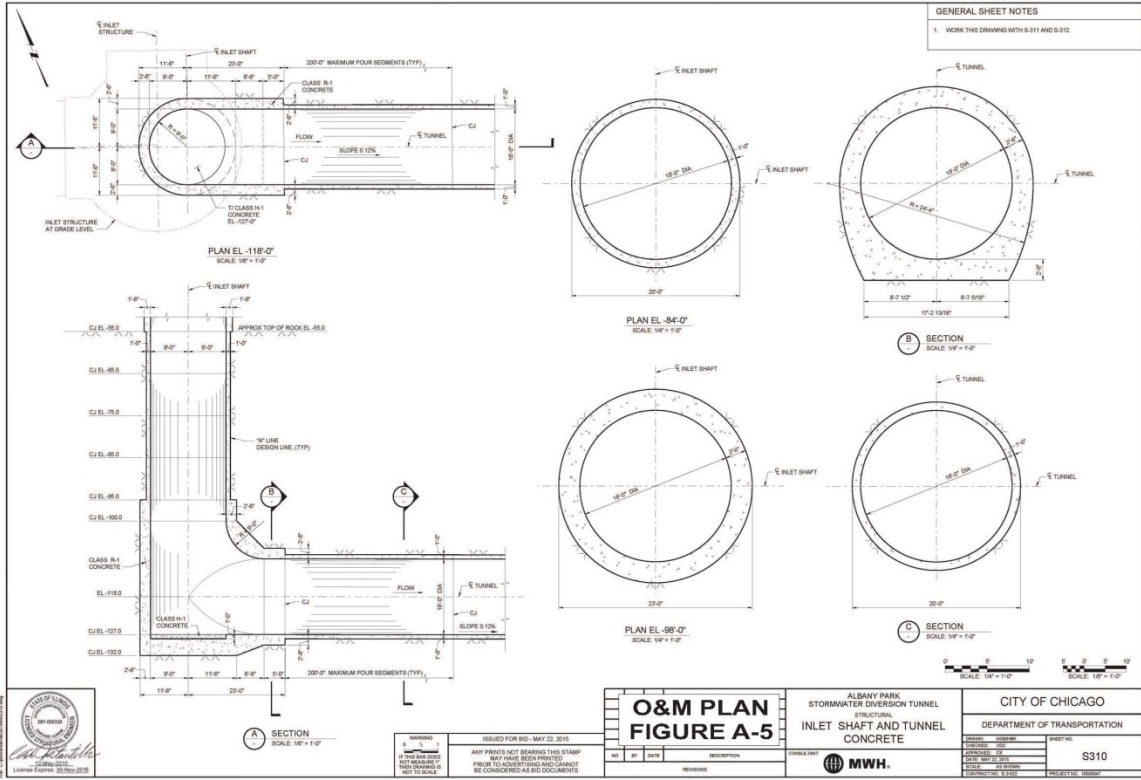
Operation and Maintenance Plan Figures

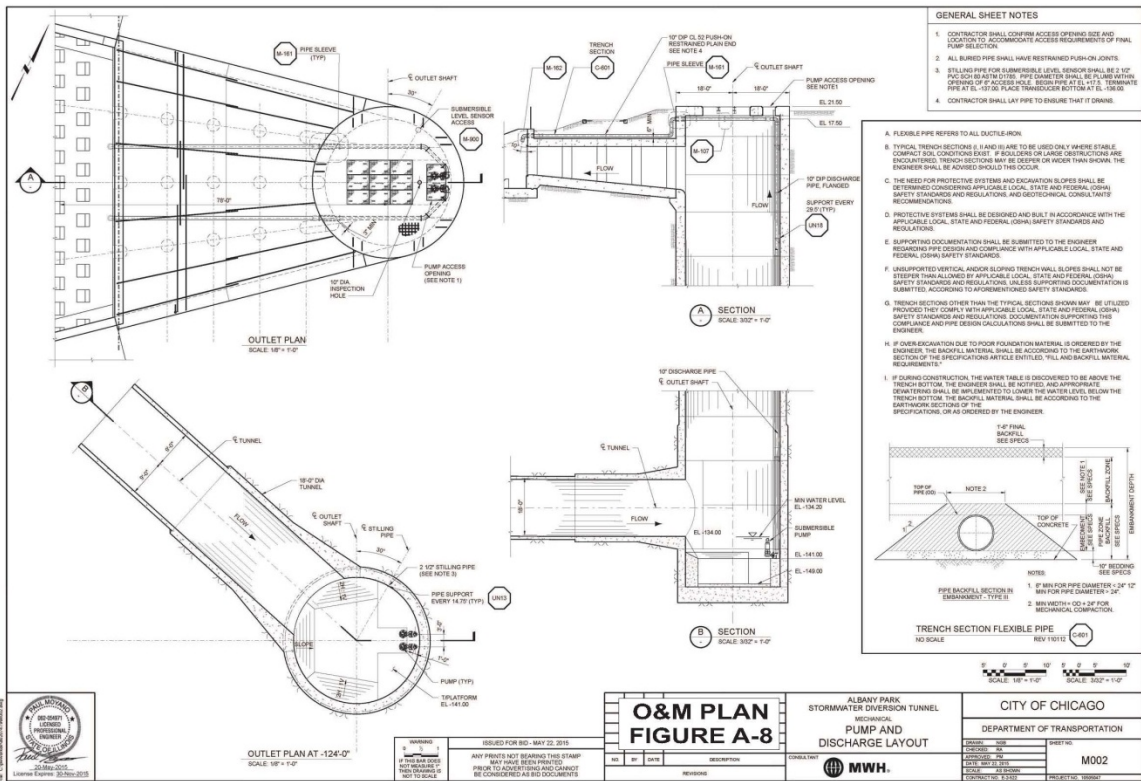
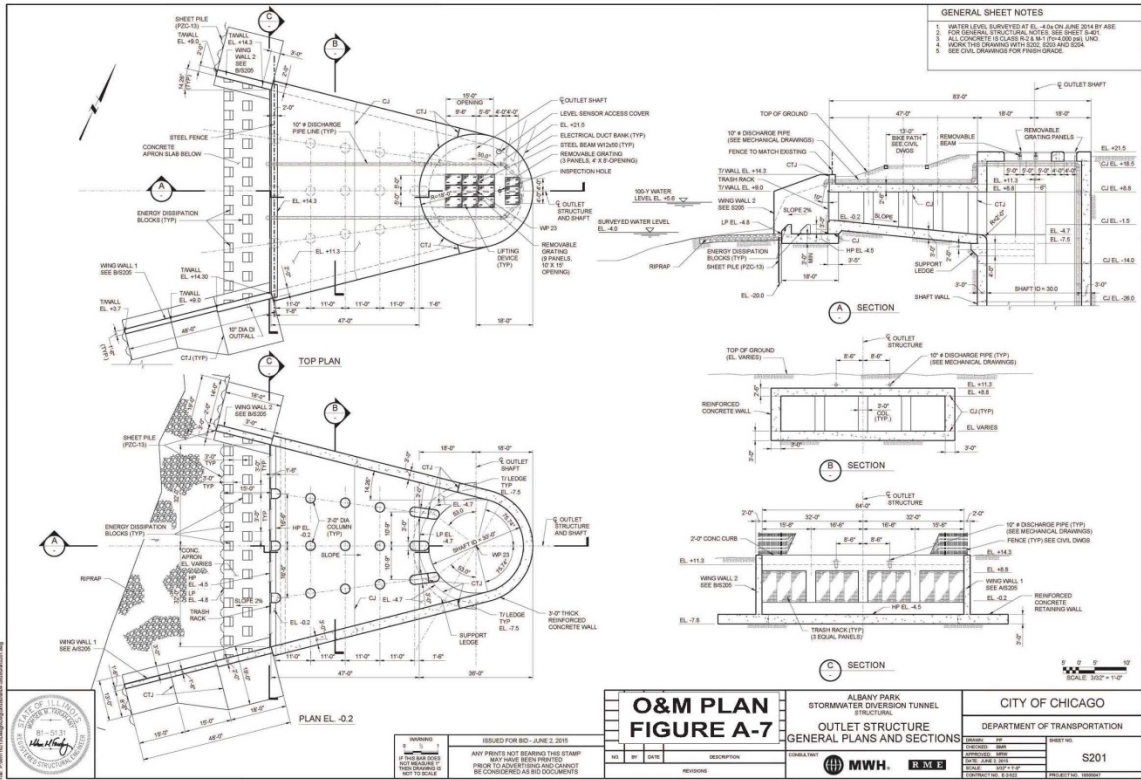
These figures are from the project design Bid Set dated June 2, 2015.

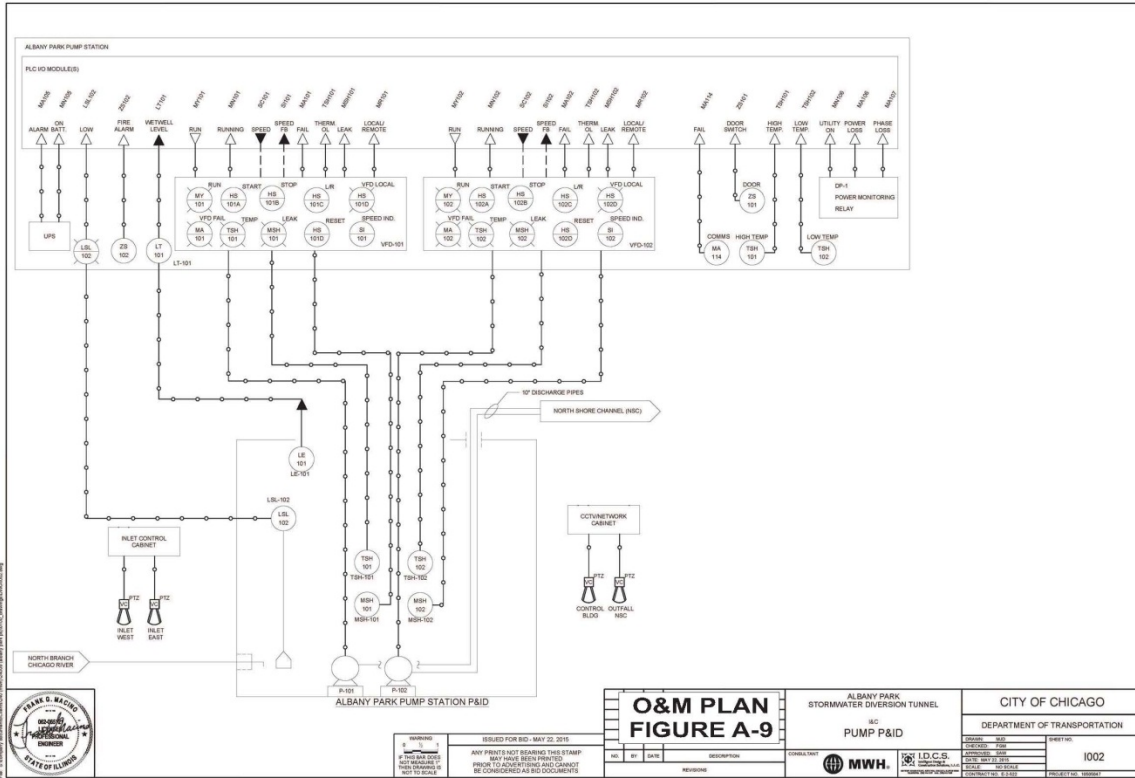
- Figure A-1 Project Location Map
- Figure A-2 Inlet Structure Plan
- Figure A-3 Inlet Civil Sections
- Figure A-4 Inlet Channel Plan
- Figure A-5 Inlet Shaft and Tunnel Concrete
- Figure A-6 Outlet Shaft and Tunnel Concrete
- Figure A-7 Outlet Structure General Plans and Sections
- Figure A-8 Pump and Discharge Layout
- Figure A-9 Pump P&ID
- Figure A-10 Outlet Structure Plan
- Figure A-11 Building Plans



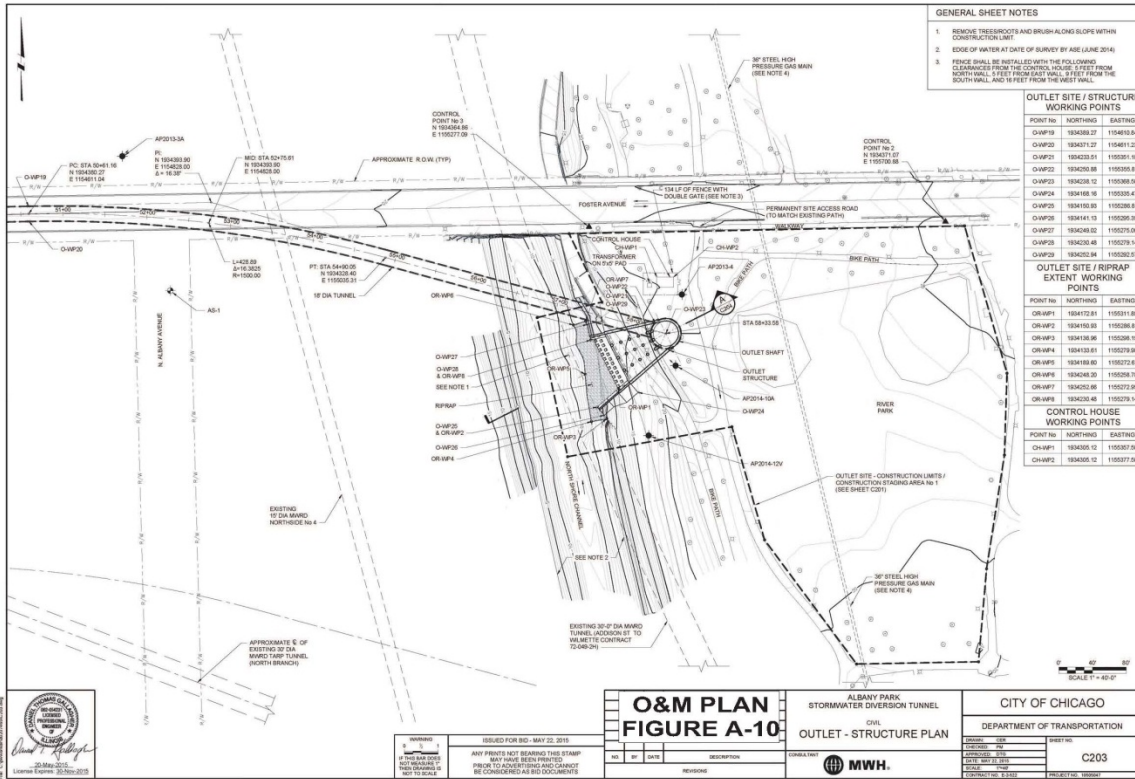








O&M PLAN		ALBANY PARK STORMWATER DIVERSION TUNNEL		CITY OF CHICAGO	
FIGURE A-9		PUMP P&ID		DEPARTMENT OF TRANSPORTATION	
NO.	REV.	DATE	DESCRIPTION	CONTRACT NO.	SHEET NO.
				MWH.	1002



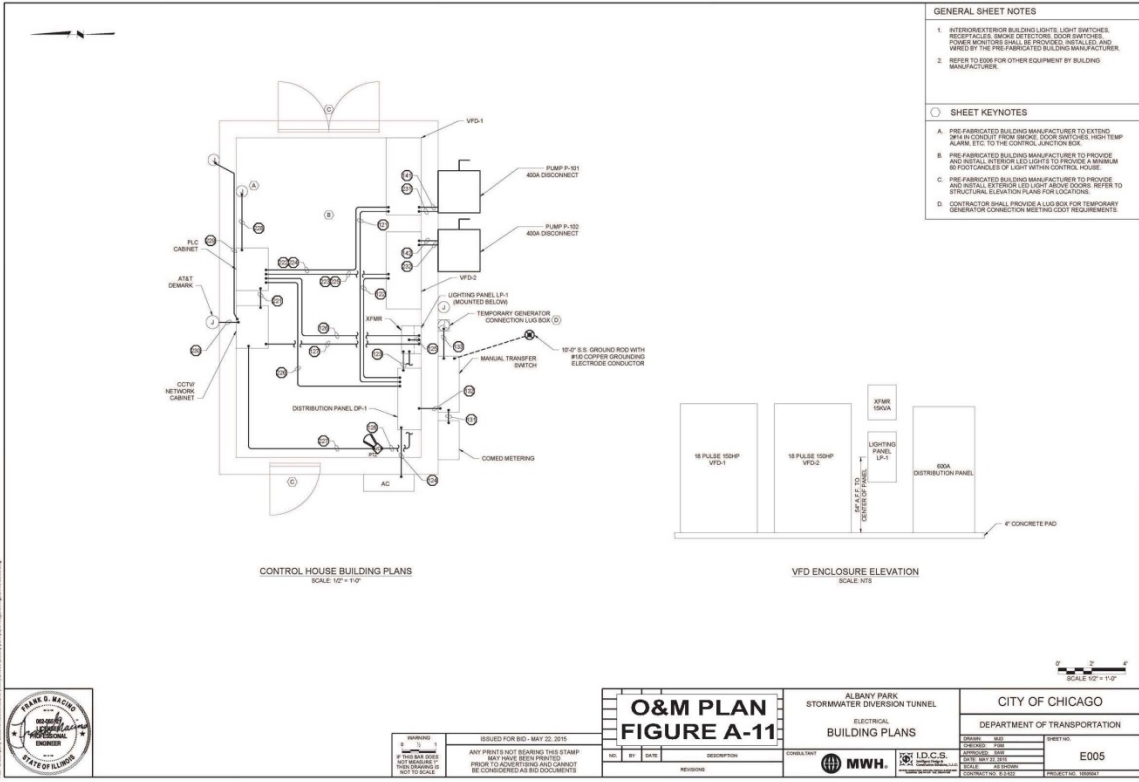
- GENERAL SHEET NOTES**
- REMOVE TREES/ROOTS AND BRUSH ALONG SLOPE WITHIN CONSTRUCTION LIMIT.
 - EDGE OF WATER AT DATE OF SURVEY BY A/E (JUNE 2014).
 - FENCE SHALL BE INSTALLED WITH THE FOLLOWING CLEARANCE FROM THE CONTROL HOUSE: 5 FEET FROM SOUTH WALL, 5 FEET FROM EAST WALL, 1 FEET FROM THE SOUTH WALL AND 15 FEET FROM THE WEST WALL.

OUTLET SITE / STRUCTURE WORKING POINTS		
POINT No.	NORTHING	EASTING
CHMP1	153428.27	115445.24
CHMP2	153427.27	115441.33
CHMP3	153423.51	115535.15
CHMP4	153423.88	115535.81
CHMP5	153423.12	115536.98
CHMP6	153418.16	115535.47
CHMP7	153415.33	115526.81
CHMP8	153414.13	115526.35
CHMP9	153425.02	115527.03
CHMP10	153423.48	115527.14
CHMP11	153423.24	115526.57

OUTLET SITE / RIPRAP EXTENT WORKING POINTS		
POINT No.	NORTHING	EASTING
CHMP1	153417.81	115531.88
CHMP2	153415.83	115526.81
CHMP3	153413.96	115526.98
CHMP4	153413.81	115527.98
CHMP5	153419.89	115527.41
CHMP6	153425.29	115526.18
CHMP7	153423.88	115527.95
CHMP8	153423.48	115527.14

CONTROL HOUSE WORKING POINTS		
POINT No.	NORTHING	EASTING
CHMP1	153425.12	115527.93
CHMP2	153425.12	115527.15

O&M PLAN		ALBANY PARK STORMWATER DIVERSION TUNNEL		CITY OF CHICAGO	
FIGURE A-10		OUTLET - STRUCTURE PLAN		DEPARTMENT OF TRANSPORTATION	
NO.	REV.	DATE	DESCRIPTION	CONTRACT NO.	SHEET NO.
				MWH.	C203



- GENERAL SHEET NOTES**
- INTERIOREXTERIOR BUILDING LIGHTS, LIGHT SWITCHES, RECEPTACLES, SWITCHES, OUTLETS, DIMMER SWITCHES, POWER MONITORS SHALL BE PROVIDED, INSTALLED AND WIRED BY THE PRE-FABRICATOR TO BUILDING MANUFACTURER.
 - REFER TO EDS FOR OTHER EQUIPMENT BY BUILDING MANUFACTURER.
- SHEET KEYNOTES**
- PRE-FABRICATED BUILDING MANUFACTURER TO PROVIDE 24" x 8" CONDUIT FROM PANELED DOOR ENCLOSURE, HIGH TEMP ALARMS ETC TO THE CONTROL JUNCTION BOX.
 - PRE-FABRICATED BUILDING MANUFACTURER TO PROVIDE AND INSTALL EXTENDED LED LIGHTS TO PROVIDE A MINIMUM 60 FOOT CANDLES OF LIGHT WITHIN CONTROL HOUSE.
 - PRE-FABRICATED BUILDING MANUFACTURER TO PROVIDE AND INSTALL EXTENDED LED LIGHT ABOVE DOORS. REFER TO STRUCTURAL ELEVATION PLANS FOR LOCATION.
 - CONTRACTOR SHALL PROVIDE A LUG-BOX FOR TEMPORARY GENERATOR CONNECTION MEETING CODE REQUIREMENTS.

CONTROL HOUSE BUILDING PLANS
SCALE: 1/2" = 1'-0"

VFD ENCLOSURE ELEVATION
SCALE: NTS



ISSUED FOR BID: MAY 22, 2018
 ANY PRINTS NOT BEARING THIS STAMP
 MAY HAVE BEEN PRINTED
 PRIOR TO ANY REVISIONS AND CANNOT
 BE CONSIDERED AS BID DOCUMENTS

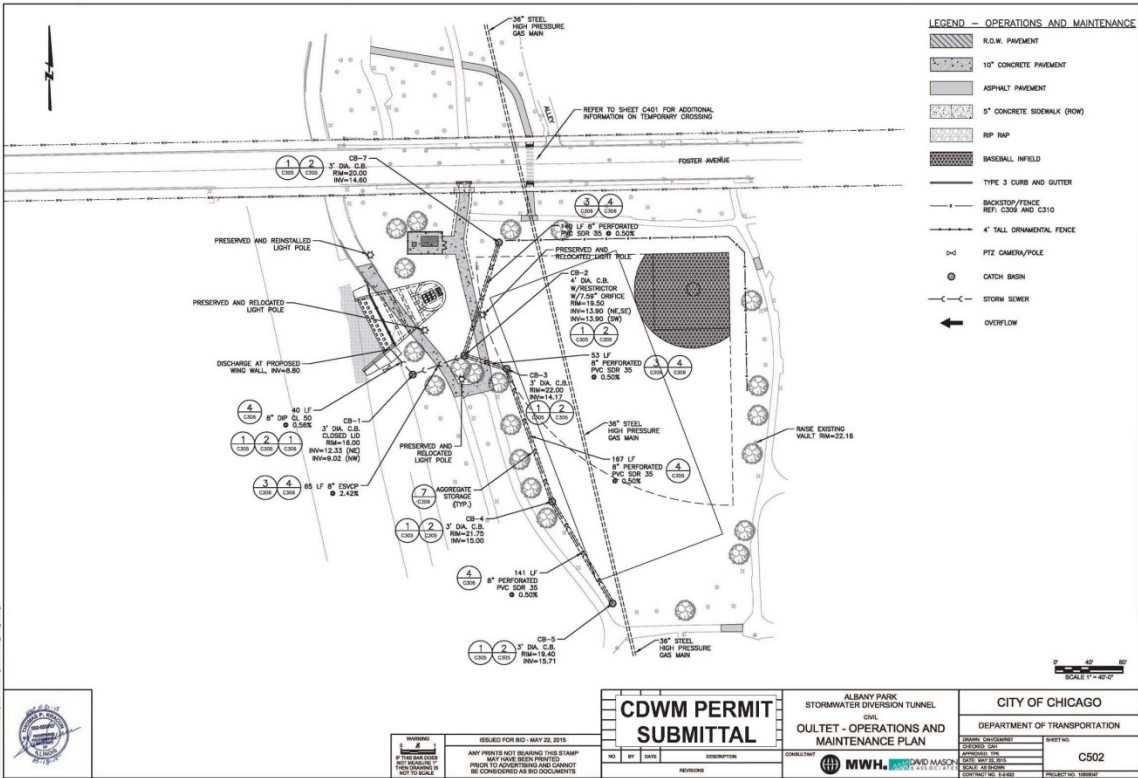
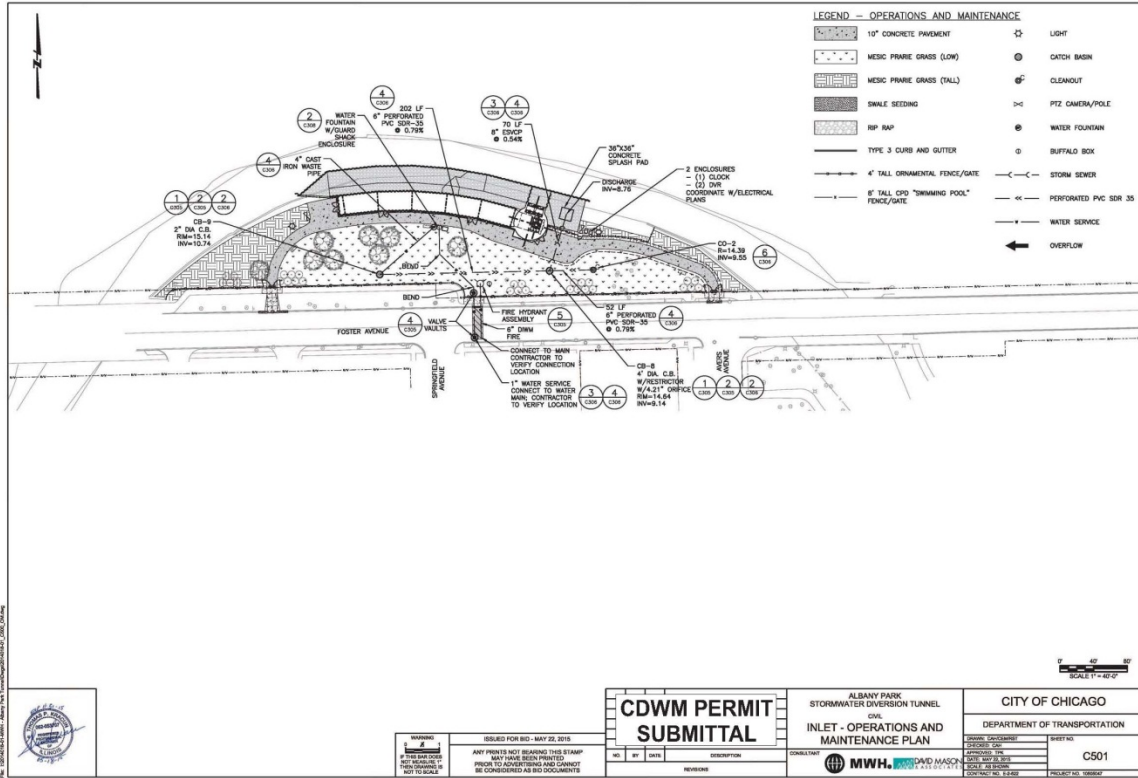
O&M PLAN
FIGURE A-11

ALBANY PARK
 STORMWATER DIVERSION TUNNEL
 ELECTRICAL
 BUILDING PLANS

CITY OF CHICAGO	
DEPARTMENT OF TRANSPORTATION	
DESIGNED BY: [blank]	DRAWN BY: [blank]
CHECKED BY: [blank]	DATE: [blank]
PROJECT NO: [blank]	SHEET NO: E005
DATE: [blank]	SCALE: [blank]
PROJECT NO: [blank]	PRIORITY: [blank]



**Attachment B
Chicago Department of Water Management Permit
Operation and Maintenance Plan**



OPERATION AND MAINTENANCE NOTES

GENERAL INFORMATION PER CITY OF CHICAGO

- PROPER TRAINING AND WRITTEN GUIDANCE SHOULD BE PROVIDED TO ALL PERSONNEL WHO WILL BE INVOLVED IN OPERATIONS & MAINTENANCE (OMA).
- OMA PLAN PROCEDURES AND PRACTICES MUST BE REVIEWED AND ASSESSED ANNUALLY.
- ACCESS ROUTES INCLUDING ROADWAYS AND SIDEWALKS SHALL BE INSPECTED ANNUALLY AND MAINTAINED AS NEEDED.
- DRAINAGE STRUCTURES AND FLOW RESTRICTORS MUST BE INSPECTED AND CLEANED SEMI-ANNUALLY.
- VALVE CONTROL BAFFLES SHALL BE INSPECTED SEMI-ANNUALLY AND AFTER SIGNIFICANT RAINFALL EVENTS EXCEEDING 1.5 INCHES.
- THE OWNER SHALL KEEP AN UPDATED LOG BOOK DOCUMENTING THE PERFORMANCE OF THE REQUIRED OMA ACTIVITIES FOR FUTURE REFERENCE. LOG BOOKS MUST BE PRODUCED UPON THE REQUEST OF A CITY INSPECTOR.
- VEGETATION SHALL BE MAINTAINED ON A REGULAR BASIS.
- PEST CONTROL MEASURES SHALL BE IMPLEMENTED TO ADDRESS INSECTS AND RODENTS.
- SIGNAGE AND FENCING SHALL BE INSTALLED AND MAINTAINED WHERE NECESSARY TO PROTECT PROPERTY AND THE PUBLIC.
- UNDERGROUND VAULTS MUST INCLUDE DESIGN MEASURES TO FACILITATE CLEANING AND MAINTENANCE. CONFINED SPACE SAFETY PROCEDURES MUST BE FOLLOWED.
- PROPOSED MODIFICATIONS TO THE OMA PLAN MUST BE SUBMITTED TO THE DEPARTMENT OF BUILDINGS (DOB) FOR REVIEW AND APPROVAL. THE EXISTING AND PROPOSED OMA PLANS AND A COPY OF THE ORIGINAL DOB APPROVAL FORM ARE REQUIRED FOR THE MODIFICATION AND MUST BE SUBMITTED SIMULTANEOUSLY WITH THE PROPOSED MODIFICATIONS.

SWALE NOTES

MAINTENANCE GUIDELINES

COMPARED TO OTHER STORMWATER MANAGEMENT MEASURES, THE REQUIRED LIFE/KEEP OF SWALES IS RELATIVELY LOW. THE FOLLOWING SCHEDULE OF INSPECTION AND MAINTENANCE IS RECOMMENDED:

ACTIVITY SCHEDULE:

AS NEEDED:

- MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER SWALE OPERATION AND TO SUPPRESS WEEDS AND INVASIVE VEGETATION. MOW ONLY WHEN SWALE IS DRY TO AVOID RUTTING.
- RE-SEED BARE AREAS, INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SEED IS EXPOSED OR DRAINAGE CHANNELS ARE FORMING.
- PLANT ALTERNATE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT.
- REMOVE LITTER.
- CLEAR OBSTRUCTIONS AND REPAIR ANY CHANNELIZATION NEAR CHECK DAMS.

ONCE PER YEAR:

- INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, SEDIMENT AND DEBRIS ACCUMULATION, AND POOLS OF STANDING WATER.
- INSPECT FOR UNIFORMITY IN CROSS-SECTION AND LONGITUDINAL SLOPE. CORRECT AS NEEDED.

DETENTION SYSTEM NOTES

MAINTENANCE GUIDELINES:

MAINTENANCE IS REQUIRED FOR THE PROPER OPERATION OF DETENTION SYSTEMS. PLANS FOR DETENTION SYSTEMS SHOULD IDENTIFY OWNERS, PARTIES RESPONSIBLE FOR MAINTENANCE, AND AN INSPECTION AND MAINTENANCE SCHEDULE FOR DETENTION SYSTEMS.

ACTIVITY SCHEDULE (UNDERGROUND DETENTION SYSTEMS)

AS NEEDED:

- REMOVAL OF SEDIMENT AND DEBRIS FROM CATCH BASIN OF RESTRICTOR MANHOLES. SEDIMENTS SHOULD BE TESTED FOR TOXICANTS IN COMPLIANCE WITH APPLICABLE DISPOSAL REQUIREMENTS IF LAND USES IN THE CATCHMENT INCLUDE COMMERCIAL OR INDUSTRIAL ZONES, OR IF INDICATIONS OF POLLUTION ARE NOTICED.

QUARTERLY:

- FLOATING DEBRIS SHOULD BE REMOVED.

ONCE PER YEAR:

- INSPECTION OF CONTROL STRUCTURES.

Operation and Maintenance Plan Owner's Certification Statement

Property Name: _____

Project Address: _____

In the presence of the subject property, by signing this document, I/we acknowledge that I/we have received and reviewed the Operation and Maintenance Plan, dated _____ and understand its contents, as required by the Stormwater Management Ordinance, Section 12-10-010.

In the event that I/we have not read this property, I/we agree to give a copy of the Plan to the contractor and the Owner's Certified Representative for signature. The signed Plan and any changes must be submitted to the City Department of Building upon completion of work.

I/we further agree to adhere to the maintenance schedule of the management practices outlined in the Plan. I/we acknowledge that I/we will maintain the minimum as shown in the Plan, upon City inspection. I/we understand that I/we will be liable for a violation of the City's Municipal Code regarding Stormwater Management Ordinance Section 12-10-010.

Initial Owner's Printed Name: _____

Initial Owner's Signature: _____ Date: _____ Notary Public: _____

Initial Owner's Printed Name: _____

Initial Owner's Signature: _____ Date: _____ Notary Public: _____

Initial Owner's Printed Name: _____

Initial Owner's Signature: _____ Date: _____ Notary Public: _____

PER: 10/20/2016 10:00 AM - Albany Park - 10/20/2016 10:00 AM - 10/20/2016 10:00 AM



		ALBANY PARK STORMWATER DIVERSION TUNNEL CIVIL OPERATIONS AND MAINTENANCE NOTES		CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION	
ISSUED FOR: MAY 22, 2016 ANY PRINTS NOT BEARING THIS STAMP MAY HAVE BEEN PRINTED PRIOR TO APPROVAL AND SHOULD BE CONSIDERED AS OLD DOCUMENTS	NO. _____ DIST. _____ DESCRIPTION _____ REVISIONS _____	CONSULTANT: MWH DAVID MASON 1011 S. LEXINGTON CHICAGO, IL 60605	DRAWN BY: _____ CHECKED BY: _____ DATE: _____ PROJECT NO.: C503 PROJECT NO.: 1008647	REVIEWED: _____ APPROVED: _____ DATE: _____ PROJECT NO.: C503 PROJECT NO.: 1008647	

Appendix 17. Map of Community Areas Most Impacted by April Floods

Top Wards – Water in Basement Reports – Flood Event, April, 2013

