Community Wildfire Protection Plan

For the East Shore of Staten Island

Richmond County, New York State

Figure 1, Near Fox Beach Avenue in Oakwood Beach, Friday November 12, 2010.
(Staten Island Advance/Anthony DePrimo)

NYC Environmental Protection

City of New York Parks & Recreation

FIRE DEPARTMENT CITY OF NEW YORK

NATIONAL PARK SERVICE

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Section 1.0 -Introduction

In 2003 Congress enacted the Healthy Forest Restoration Act (HFRA) which provides the first meaningful statutory incentive for federal agencies to give consideration to the priorities of local communities as they develop and implement hazardous fuel reduction projects on forested and other lands. In order for communities to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP). The development of a CWPP is designed to aid at-risk communities to establish recommendations and priorities that protect their citizens, homes, and essential infrastructure and resources from the destruction of catastrophic wildfire and to safeguard those responsible for fighting and controlling such fires, while preserving and protecting the natural environment. The CWPP is also a necessary precursor to applying for federal fuels management funds to assist with wildfire management within the defined CWPP area.

Although created with the devastating forest wildfires of the West in mind, the HFRA and the process of developing a CWPP acknowledges the growing reality of communities in dangerous proximity to deadly wildfires of all kinds, and designates this zone of contact the Wildland-Urban Interface (WUI). The WUI is commonly described as the zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels. The WUI zone poses tremendous risks to life, property, and infrastructure in associated communities and is one of the most dangerous and complicated situations firefighters face.

To those outside of the Eastern Shore of Staten Island, it might be unexpected to learn that such a WUI exists in the urban core of New York City. The source of these urban wildfires rests solely with stands of the invasive grass Common Reed (*Phragmites australis*). Capable of reaching heights in excess of twelve feet, the standing dead stalks are highly ignitable and capable of rapid spread. Residents of the Eastern Shore are all too aware of the potential and actual dangers they face from these wildfires, dangers that, thankfully to-date have not resulted in the tragic loss of life, to either residents or firefighter (See Figures 1-6). In the last fifteen years 103 serious *Phragmites* brush fires have occurred within the Eastern Shore communities (see Sec 1.3).

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

The initial step in developing a CWPP calls for the formation of an operating group with representation from local government, local fire authorities and the state agency responsible for protection and management of the state's natural resources. Together these three entities form the core decision-making team responsible for development of a CWPP as described in the HFRA (See Section 1.6 for a list of Staten Island Eastern Shore CWPP Core Working Group Members) and the HFRA stipulates that the Core Working Group members must mutually agree on the plan's final contents. (See Section 6.0)

Normally, the Core Working Group is directed by the HFRA to engage with local representatives of the US Forest Service (USFS) or the Bureau of Land Management (BLM) to share perspectives, priorities, and other information relevant to the planning process. In the case of the Eastern Shore communities, the National Park Service (NPS) is the relevant federal agency to work with, since they are large land holders in the community (see Table 7) and they maintain a fire management staff with a fulltime Assistant Fire Management Officer there. Also, a significant percent of the wildfires within the Eastern Shore CWPP Communities occur on NPS lands. (See Map 2- Fire Occurrence Map)

The turning point that lead to the initiation of the CWPP process was the December, 2010 public meeting, called by the Staten Island Borough President and two local City Council Members, and held in the East Shore community so heavily impacted by the ferocious 2010 wildfires. With the New York City Fire Department (FDNY) and the New York State Department of Environmental Conservation (NYSDEC) in attendance, residents expressed their fears, anxieties and anger with the lack of government leadership in finding solutions for minimizing the daily wildfire threat to their lives and property, especially from the *Phragmites* on publicly owned lands bordering their homes. The result was to spur a series of strategy meetings, starting in early 2011, between Staten Island elected officials and the local, state, and federal agencies with jurisdiction in the East Shore communities.

It was in the course of these meetings that NPS staff introduced the concept of CWPP planning as the tool that could lead the community out of the unacceptable status quo by proposing concrete steps leading to short, intermediate, and long term solutions to the wildfire threats.

Terms of the HFRA also call for the Core Working Group to effectively involve a broad range of local stakeholders to solicit substantive input from a diversity of interests to ensure that the final document reflects the highest priorities of the community and to facilitate timely implementation of recommended projects. In the development of the CWPP the Core Working Group was conceived with the direct participation of a member of the Staten Island Borough President's Office - on the team to represent the interests of the community from the very outset.

Once a draft CWPP was assembled a community process was initiated to solicit input and review of the draft, leading to the completion of a final CWPP document. The purpose of this community outreach was:

(1) Wide dissemination of the draft CWPP, particularly to the East Shore Community, but inclusive of all of Staten Island, to insure that the full content of the proposed plan was presented and understood allowing for sufficient, critical comment and input by those most immediately impacted.

(2) Staging of public forums within the East Shore Community where those with responsibility for implementation of the CWPP could interact with and directly receive the input of the East Shore Community in drafting the final CWPP.

(See Section 1.6 for details of the community outreach efforts)

Upon completion of the CWPP, copies were distributed to the following elected officials to read, comment and/or endorse the CWPP. (Submitted comments may be found in Appendix 11):

Community Representatives

Name	Staten Island Borough President James Molinaro
Address	Staten Island Borough Hall, 10 Stuyvesant Place, Staten Island, New York, 10301
Telephone Number	(718) 816-2200
Other Contact Information	jmolinaro@statenislandusa.com

Name	Hon. James Oddo New York City Council Member, 50th District
Address	900 South Avenue, Suite 403, Staten Island, New York 10314
Telephone Number	(718) 980-1017
Other Contact Information	joddo@council.nyc.gov

Name	Hon. Vincent Ignizio New York City Council Member, 51st District
Address	3944 Richmond Avenue, Staten Island, New York 10312
Telephone Number	(718) 984-5151
Other Contact Information	vignizio@council.nyc.gov

Name	Hon. Deborah Rose New York City Council Member, 49th District
Address	130 Stuyvesant Place, 6th Floor Staten Island, New York 10301

Telephone Number	718-556-7370
Other Contact Information	Fax: 718-556-7389

Name	Senator Charles E. Schumer
Address	New York City Office757 Third Avenue, Suite 17-02, New York, NY 10017
Telephone Number	212-486-4430
Other Contact Information	Fax: 212-486-7693

Name	Senator Kirsten Gillibrand
Address	New York City Office: 780 Third Avenue, Suite 2601 New York, New York 10017
Telephone Number	(212) 688-6262
Other Contact Information	Fax (866) 824-6340

Name	Congressman Michael Grimm
Address	265 New Dorp Lane, 2nd Floor, Staten Island, New York 10306
Telephone Number	718-351-1062
Other Contact Information	Nick.Curran@mail.house.gov

Name	State Senator Andrew Lanza
Address	3845 Richmond Avenue, Suite 2A, Staten Island, New York 10312
Telephone Number	718-984-4073
Other Contact Information	lanza@senate.state.ny.us

Name	State Senator Diane Savino
Address	36 Richmond Avenue, Staten Island, New York 10301
Telephone Number	718-727-9406
Other Contact Information	savino@senate.state.ny.us

Name	Assemblywoman Nicole Malliotakis
Address	11 Maplewood Place, Staten Island, New York 10306
Telephone Number	718-987-0197
Other Contact Information	malliotakisn@assembly.state.ny.us

This Community Wildfire Protection Plan encompasses the area of Richmond County, NY bounded by Lower New York Bay to the north and east, the southern boundary of Great Kills Park to the south, and Hylan Blvd and Maryland Avenue to the west. (See Map 1- Boundaries of the East Shore, Staten Island CWPP).

Map 1 -Boundaries of the East Shore, Staten Island CWPP

Section 1.1 -Statement of Intent

The purpose of this plan is to position fire protection agencies, community leaders and natural resource professionals to be better prepared to protect the community's residents and natural resources from the negative impacts of wildfire.

Section 1.2 -Background- Historical Fire Occurrence

Brush fires have beleaguered the residents of the Staten Island and especially the East Shore and South Shore communities for several decades. In 1926, a grass fire in Midland Beach burned some cottages and damaged some other buildings. As recently as 2007, one vacant home, a vehicle, and a boat were destroyed and several structures were damaged. Decade after decade, there have been fires documented in Oakwood Beach, New Drop Beach, Midland Beach, and South Beach among other areas throughout the island. The most devastating brush fire to occur in recent history on Staten Island was on April 21, 1963 when 125 homes were destroyed and roughly 1000 other structures damaged in a 10 square mile area including the communities from Tottenville up to Annadale. Losses from that fire were estimated at $1.8 million in 1963 dollars, or $13.7 million adjusted for inflation in 2012 dollars. It wasn't uncommon to have dozens of fires on a given day during the fire season and to have many of the fires reach multiple alarms.

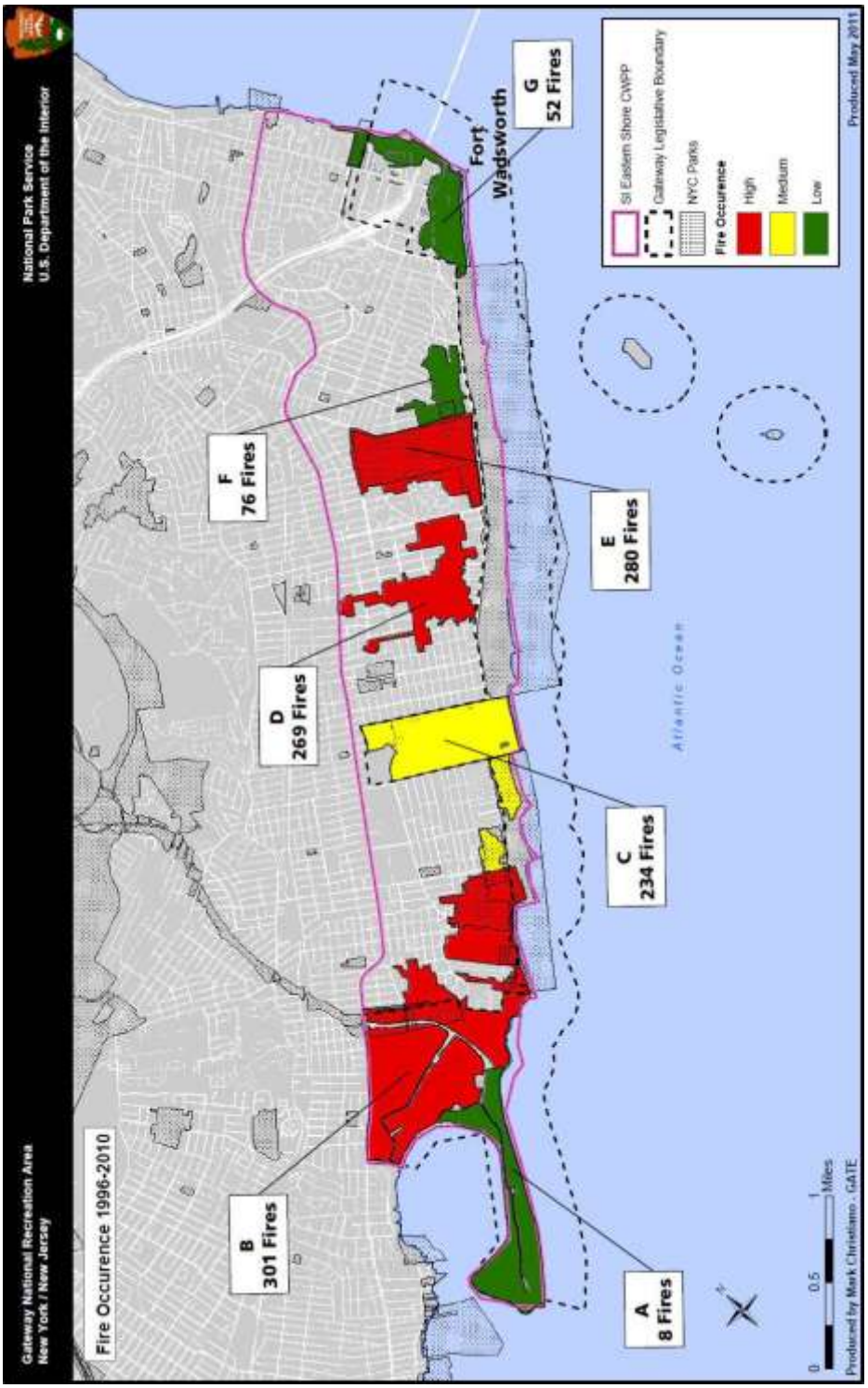
A recent FDNY analysis indicates that the New York City area has a bimodal fire season; that is, during a given year there is an increase in brush fires at two separate times. Analysis of fires within Gateway NRA supports this although the peaks occur at slightly different times of year. This is not unusual for New York City as most areas in the northeast have two distinct fire seasons during the year – a spring fire season and a fall fire season. This is not to suggest that fires do not occur during any other time of year, but rather conditions are most conducive for the start of brush fires during these periods. Most fires (65.1%) occur during the first six months of a year with the following distribution: winter 14.6%, spring 50.5%, summer 12.6%. and fall 22.3%. FDNY has defined the spring fire season as occurring from March 17 through April 30, and the fall fire season occurring from October 15 until November 30, when their brush fire units are staffed on a daily basis.

Fires typically occur in phragmites-dominated areas. There have been a total of 1220 brush fires in the CWPP area from 1996 through 2010 (Map 2). Three areas account for 850 (69.7%) of all fires within the CWPP area: Zone B (Great Kills Park, Oakwood Beach) 24.7%; Zone E (South Beach) 23.0%; and, Zone D (South Beach-Ocean Breeze) 22.0%.

Resources are assigned to fires in New York City on an alarm assignment system. Generally speaking, the higher the alarm, the more resources deployed to the fire. When

a fire is deemed serious it is defined as an “All Hands” (a full 1 alarm assignment) or “Multiple Alarm” (2 or more alarms) fire. From 1996 through 2010, 103 (34.6%) of the 297 serious brush fires have occurred in CWPP area. From 1995 through 2010, 45 (44.1%) of 102 serious brush fires have occurred in the CWPP area. All fires are believed to be human caused and many are suspected, but not proven to be, incendiary in nature.

Map 2--Fire Occurrence Map.



Section 1.3 -Existing Situation/Current Risks

Introduction

Common reed (*Phragmites* species) occurs throughout New York City however there are only a few natural spaces where *Phragmites* occurs in vast expanses. The Staten Island East Shore contains several of these expanses. *Phragmites* typically occurs in dense stands of cured and new growth between 6 and 20 feet in height. Due to the high availability of cured vegetation and the height of the fuel, fires occurring in *Phragmites* tend to have very high flame lengths and rates of spread. Outside of the wildland urban interface, these fires generally pose a greater threat to the firefighting personnel than to residents and their properties. On Staten Island's East Shore however, many of these stands occur directly adjacent to structures, threatening residents, property and firefighting personnel.

Fire Behavior

The natural open spaces of the Staten Island East shore are dominated by the grass *Phragmites*. *Phragmites* is a large perennial grass that is found in wetlands throughout temperate and tropical regions around the world. It can grow to between 6 and 20 feet in height, is capable of rapid growth rates (up to 1.6 inches per day), and spreads through rhizome and stolon growth, with rhizomes growing up to 16 inches a year. The rhizomes are thick and deep seated growing up to 70 feet long in total length. It often forms monotypic stands, as other species are excluded by persistent shading and extensive utilization of space by common reed. *Phragmites* typically begins sprouting in early to mid-spring and flowers from mid-summer to mid fall. Barring any fires or mechanical removal of *Phragmites*, stands tend to die and cure in the late-fall and winter months with new growth occurring the following springs, leaving behind thick, dense stands. Even with the occurrence of fire or cutting of these stands, since the rhizomes tend to be deep and long, new growth typically begins occurring within a week during the growing season.

Phragmites stands have a high fine fuel load (7.8 tons/acre using fuel model GR8) when compared to other fuels and a high moisture of extinction making it an available fuel for a greater length of time as compared to other fuels. Using gridded weather data compiled

for use in FireFamily Plus (version 4.1.0.0.Beta) software[1] by the Western Regional Climate Center for the period 1980 thru 2008, and the Middlesex RAWS (Remote Automated Weather Station) (located in New Jersey) for comparison to an existing nearby station, fire behavior was calculated using the 3rd percentile, 10th percentile, 50th percentile, and 90th percentile values of temperature, humidity, and wind. The Middlesex RAWS only has data available for the period 2008 thru 2010. Using 90% of fire occurrence from Gateway National Recreation Area to determine fire season, the weather data was analyzed from February 1st to November 30th. Temperature and humidity percentile values were used to estimate 1-hour dead fuel moisture.

Fire behavior was determined using BehavePlus (version 5.0.4)[2] and the following parameters:

- fuel model GR8 (108) high load, very course, humid climate grass;
- 10-hour fuel moisture 10%;
- live herbaceous moisture 30%;
- slope steepness 0%

Tables 1 thru 6 -Fire Behavior Tables

	10th percentile	50th percentile	90th percentile
Temperature (°F)	39	60	85
Relative Humidity (%)	41	56	82
Wind Speed (mph)	4	10	20
Corresponding 1-hr FM (%)	7	9	12

Table 1- Gridded weather data (Grid Point 130259) weather

[1] FireFamily Plus (FFP) is software for summarizing and analyzing daily weather observations and computing fire danger indices based on the United Stated National Fire Danger Rating System (NFDRS).

[2] The BehavePlus fire modeling system is a PC-based program that is a collection of mathematical models that describe a fire and the fire environment, and may be used for a multitude of fire management applications including the behavior of an ongoing fire, planning prescribed fire, and training.

	10th percentile	50th percentile	90th percentile
Temperature (°F)	40	66	84
Relative Humidity (%)	45	59	83
Wind Speed (mph)	5	11	18
Corresponding 1-hr FM (%)	8	9	12

Table 2- Gridded weather data (Grid Point 129258) weather

	10th percentile	50th percentile	90th percentile
Temperature (°F)	42	68	88
Relative Humidity (%)	30	50	93
Wind Speed (mph)	0	3	8
Corresponding 1-hr FM (%)	6	8	14

Table 3- Middlesex RAWS (Station 280231) weather

	Low		Moderate		Very High	
Rate of spread (mph/feet per minute)	1	91	4	308	9	804
Flame length (feet)	19		33		54	

Table 4 Fire behavior based on gridded weather data (Grid point 129258)

	Low		Moderate		Very High	
Rate of spread (mph/ feet per minute)	1	117	4	344	8	661
Flame length (feet)	21		35		48	

Table 5- Fire behavior based on gridded weather data (Grid point 130259)

	Low		Moderate		Very High	
Rate of spread (mph/feet per minute)	0.1	5	1	81	3	292
Flame length (feet)	5		18		34	

Table 6- Fire behavior based on Middlesex RAWS (Station 280231) weather.

There is a significant difference in fire behavior between the gridded points and the actual RAWS. This may be attributed to two factors: 1) grid point data was extrapolated from nearby existing weather stations and varying confidences exist for all the weather variables ranging from as high as 93% for daily temperature values to as low as 44% for daily wind values; 2) the Middlesex RAWS only has two years of data available which is not enough data for statistical analysis and comparison.

Regardless of the differences, the data indicate that fires in *Phragmites* have rapid rates of spread and long flame lengths which most typical people do not think to associate with fires occurring in New York City and would expect in other parts of the country such as California. For moderate fire behavior conditions, *Phragmites* fires can burn between 81 and 344 feet per minute (between 1/3 up to 1 football field per minute) with flame lengths of 18 to 35 feet. For very high fire behavior conditions, these fires can burn between 292 and 804 (between 1 and 3 football fields per minute) with flame lengths of 34 to 54 feet.

It is important to note that conditions experienced at Great Kills Park during the Great Kills Blowup Fire on September 8th, 2010 led to very high to extreme fire behavior. The Middlesex RAWS recorded a maximum temperature of 93°F (97$^{th\ percentile}$), minimum RH of 19% (1st percentile), maximum average wind of 13 mph (99th percentile) with a maximum gust of 27 mph. These conditions yield a 1-hour dead fuel moisture of 3% and capable of producing 56 to 83 foot flame lengths depending on wind speed. Although rare, these conditions have been occurring at a greater frequency in the greater New York City area and can be attributed to the complex interrelationships among short, intermediate, and long term weather oscillations.

Fires that exhibit this type of fire behavior present a clear danger to the public as well as to personnel responding to them. These fires do not allow for a direct attack on the head of the fire without the use of aerial resources and require either a direct attack on the flank or indirect fire tactics. However, as many properties have *Phragmites* growing adjacent to many structures, this presents conflicting interests as firefighting resources are tasked with protecting lives and homes, while providing for the safety of their personnel. The FDNY has adapted its strategy and tactics to overcome these challenges by positioning ladder trucks near these threatened structures, raising their ladders, and in many cases spraying water on the *Phragmites* over the tops of structures.

Currently few properties on the eastern shore that are adjacent to open natural spaces have a sufficient buffer between the *Phragmites* and structures to provide for the adequate protection of homes or firefighter safety.

Section 1.4 -Goals and Objectives

The goal of the East Shore CWPP is to significantly reduce damage and destruction to property and natural resources from wildfires. In order to achieve this goal the following objectives should be accomplished:

- Improve wildfire prevention techniques as a means of reducing human-caused wildfires
- Improve the FDNY's ability to contain and extinguish wildfires.
- Manage the fuel load of natural vegetation occurring on open spaces in the community to reduce the destructive potential of any wildfire
- Increase and maintain the community's understanding of wildfire in their community

Section 1.5 -Planning Process

Planning Process

An agency- and community- intensive process was utilized in the development of this Community Wildfire Protection Plan to ensure maximum resident and stakeholder input.

Staten Island Eastern Shore CWPP Core Working Group

A Core Working Group was established to oversee development of this Plan and to ensure its compliance as a Community Wildfire Protection Plan. The purpose of the committee was:

- to provide oversight to the Staten Island Eastern Shore CWPP process
- to meet the requirements of Community Wildfire Protection Plans (CWPP) of the National Fire Plan
- to ensure that the Plan meets the needs of all sectors of the Staten Island Eastern Shore in terms of fire safety and prevention

Staten Island Eastern Shore CWPP Core Working Group Members

- Robert Brauman, Construction Project Manager, NYC Department of Environmental Protection (NYCDEP)
- Nicholas Dmytryszyn, P.E., Environmental Engineer to the Staten Island Borough President (SIBP)
- Andy Jacob, Assistant Division Director, NYS Department of Environmental Conservation (NYSDEC) Forest Rangers
- Tomas Liogys, Assistant Fire Management Officer, National Park Service (NPS), Mid-Atlantic Fire Management Area
- Michael Marrone, Staten Island Borough Commander, FDNY
- Michael P. Schnall, Chief of Staff, Staten Island Borough Commissioner, City of New York, Parks & Recreation (NYC Parks)
- Ed Toth, Director, Greenbelt Native Plant Center, Natural Resources Group, NYC Parks
- Tim Wenskus, Special Projects Manager, Natural Resources Group, NYC Parks
- Stephen Zahn, Regional Natural Resources Supervisor, NYSDEC

Community/Neighborhood Meetings/Public Review and Comment

One of the goals of the Staten Island Eastern Shore CWPP was to insure that a plan was developed that was reflective of the community's perspective on what constitutes adequate protection from wildfire. Therefore, steps were taken to educate the public about CWPP goals and allow for public comment and input into the setting of those goals. The CWPP Working Group members took the following steps to present the CWPP for public review and comment.

(1) The public was presented with a CWPP draft ready for public comment. The public comment period was open from January 10, 2012 to February 3, 2012.

(2) The CWPP Working Group Members met with the three Community Boards within the boundaries of the CWPP area to present the CWPP for comment.

Additional outreach regarding the CWPP was done through an open forum presentation to the public on 1/19/12 from 7:00pm to 9:00 pm at the Greenbelt Recreation Center, 2nd floor, 501 Brielle Ave., S.I.

Community Board	Date and Time of Meeting	Location	Number of residents attended
Community Board 1	1/10/12; 7:30pm to 8:30pm	All Saints Episcopal Church, 2329 Victory Blvd, S.I.	75
Community Board 2	1/17/12; 7:30pm to 8:30pm	Seaview Campus, Lou Caravone Bldg., 460 Brielle Ave., S.I.	75
Community Board 3	1/24/12; 7:30pm to 8:30pm	655-218 Rossville Ave., S.I.	50
Public Presentation Session	1/19/12 7:00pm to 9:00 pm	Greenbelt Recreation Center 501 Brielle Ave., S.I.	4

Additional Community Outreach

The community was first made aware of the development of the CWPP on May 24, 2011 at an interagency press conference held at the Knights of Columbus in which the public was invited to attend. Once a final working draft of the document was prepared by the CWPP Working Group, additional efforts to reach as large a segment of the Staten Island Eastern Shore Community as possible were made.

On December 29, 2011, the CWPP was presented to a meeting of the *Staten Island Advance* editorial board to present the plan to the daily newspaper and their reading public. The meeting was covered in the 1/5/12 issue of the *Advance* (See: http://www.silive.com/news/index.ssf/2012/01/staten_island_brush-fire_accor.html).

A website was developed for the Draft CWPP on the NYC Parks website: www.nyc.gov/parks/cwpp where a full copy of the draft CWPP could be read or downloaded after 1/10/12. Comments on the CWPP could be sent electronically to staten.island@parks.nyc.gov with "CWPP" in the subject line, or snail mailed to: NYC Parks & Recreation, Attn: CWPP, 1150 Clove Road, SI NY 10301.

Hard copies of the CWPP, for public viewing were made available at the offices of Community Boards 1, 2, and 3, at the S.I. Borough Headquarters of NYC Parks, 1150 Clove Road, at the Greenbelt Nature Center, 700 Rockland Avenue, and at the Blue Heron Nature Center, 222 Poillon Avenue.

All comments received from the public are included in Appendix 11- "Submitted Comments from Elected Officials & the Public".

Section 2.0 -Community Profile, Location, and Size

The area covered by this CWPP is along the eastern shore of Richmond County, NY (Staten Island), and includes all or portions of the communities of Oakwood Beach, New Dorp Beach, Midland Beach, South Beach, Old Town, Grasmere, Arrochar and Shore Acres. These communities consist mainly of one and two family residential housing with commercial areas (primarily retail) along Hylan Blvd. Interspersed amidst these neighborhoods are over 1,350 acres of publicly owned open space, wetlands, and beach, mostly in large parcels (See Table 7).

The community is located in the mid-island section of Staten Island, New York. For purposes of the CWPP, the "community" is defined as the area bounded between Hylan Boulevard and Raritan Bay, from Great Kills Park north to Fort Wadsworth (**See Map 1**). The boundaries were so selected based on the past wildfires and the presence of *Phragmites*, the primary fuel type of concern in this area.

The area included in the CWPP is approximately 5.6 square miles (3, 558 acres) in size. The Oakwood Beach, New Creek, and South Beach watersheds are within the area defined by the CWPP.

Table 7 -Public Property in the CWPP Area

Property Ownership	Agency/Park	Acres
National Park Service	Great Kills Park, World War Veterans Park at Miller Field, and Fort Wadsworth.	790 acres of land; 245 acres of water
U. S. Coast Guard	Fort Wadsworth	64 acres
City of New York	Department of Parks and Recreation	632 acres

City of New York	Department of Environmental Protection	~ 195 acres

Section 2.1 -Structures

Owing to the dense urban character of the CWPP area (9,143 people per square mile), an even rudimentary estimate of the number of built homes, manufactured homes, storage structures, and commercial and industrial buildings is not realistic. (See Map 3-*Community Resources and Zoning within the CWPP, for the NYC Zoning designations within the CWPP*). There are at least 500 structures directly adjacent to vegetation within the CWPP area.

Section 2.2 -Population and Community Structure

Population in the 12 census tracts comprising the CWPP is approximately 51,200 people, based on the 2010 census data.

The community is comprised primarily of residential homes, followed by light commercial zoning, open space and manufacturing areas. Residential uses are predominantly single-family detached homes, although there are also two-family homes and multi-family apartment buildings in the area. Commercial areas, primarily along Hylan Boulevard, include restaurants, food markets, small offices and larger commercials centers. Public facilities and institutional uses, including places of worship and public and private schools, comprise a small portion of the area.

(Note: For an explanation of zoning terminology that follows, see the NYC Department of City Planning website at: http://www.nyc.gov/html/dcp/html/zone/glossary.shtml). The area contains a mix of lower-density residential zoning districts including R3-1, R3-2, R3X and R2, with a commercial zoning district (C4-1) and a manufacturing zoning district (M3-1). R3-1 zoning districts are mapped throughout the CWPP area. This district allows 1- and 2-family detached or semi-attached houses (the predominant housing type) with a maximum FAR of 0.5. The R3-2 district is found along Hylan Boulevard and allows a variety of housing types, including garden apartments and rowhouses, in addition to 1- and 2-family residences. The R3-2 district permits a maximum FAR of 0.5 and corner lots are limited in coverage to 60 percent of the lot.

This zoning designation is intended to allow greater density than the R3-1 district. The R3X district was mapped as a contextual zoning district to allow 1- and 2-family detached houses on lots with a minimum width of 35 feet. This zoning district has a maximum FAR of 0.5, with an additional attic allowance of 0.2 FAR. R2 districts are also common and are exclusively for single-family homes and has an allowable FAR of 0.5. C4-1commercial districts (FAR of 1.0) typically allow larger buildings and specialty stores such as furniture retailers and shopping centers. This zoning district is on the south side of Hylan Boulevard, at the intersection with New Dorp Lane. M3-1 manufacturing typically allow large manufacturing buildings with a FAR of 1.0. The southwest corner of the watershed, where the Oakwood Beach Waste Water Treatment Plant is located, is zoned M3-1. (See Map 3)

Open space in the community is owned and managed by several different entities, including private ownership, the National Park Service, and the New York City Departments of Environmental Protection and Parks & Recreation (See Table 7). Indicative of the area is the Oakwood Beach Watershed that is comprised of residential (about 47 percent), open space (8.5 percent), commercial (about 5 percent) and developed roadbed (about 21 percent) uses.

Section 2.3 -Community Legal Structure

The targeted community under the jurisdiction of the CWPP, stretching along the eastern shore of Staten Island, falls under the jurisdiction of Federal, State and City entities responsible to the maintenance and operation of greenspaces. Staten Island has 9,300 acres of federal, state and city parkland. (See Table 7)

On the Federal level, the National Park Service, a Bureau of the United States Department of the Interior, oversees the Gateway National Recreation Area. Gateway was created by an act of Congress and enabling legislation was enacted in 1972 that defines the original scope and vision for the park.[3] Gateway on Staten Island encompasses Fort Wadsworth, Miller Field/World War Veterans Park, and Great Kills Park.

On the State level, oversight and regulation on all matters pertaining to New York State's natural resources and environment, as well as efforts to prevent, abate and control water, land and air pollution, fall under the jurisdiction of the New York State Department of

[3] http://www.nps.gov/gate/parkmgmt/lawsandpolicies.htm

Environmental Conservation (DEC). DEC responsibilities also include being the lead state agency for wildfire mitigation and the primary state liaison with the federal agencies involved with wildfire. Created in 1970 to protect and enhance the environment, DEC is split into nine regions, with Staten Island under the jurisdiction of Region 2.[4]

On the City level, lands covered by the CWPP generally fall under jurisdiction of a number of city agencies, particularly the Department of Environmental Protection (DEP) and Department of Parks & Recreation (Parks). DEP manages and conserves the City's water supply, collects and treats wastewater, and regulates air quality, hazardous waste, and critical quality of life issues.[5] The Staten Island Parks & Recreation office is the steward of more than 7,200 acres of land, operate more than 35 athletic fields and 53 playgrounds, manage 16 tennis courts, 11 public pools and 16 tennis courts, maintain 56 water bodies, and 3.2 miles of public beaches.[6]

Besides governmental agencies, each of the three Staten Island Community Boards represents a specific geographic sub-section within the overall CWPP area. Lastly, a number of active civic associations are within the CWPP area, including the South Beach Civic Association, the Midland Beach Civic Association, and the Ocean Breeze/Graham Beach Civic Association.

Section 2.4 -Utilities

There is substantial utility distribution infrastructure in the CWPP area, but only some of it is vulnerable to wildland fire damage. The Consolidated Edison Company has four electric substations in the area, but only one, on Burgher Avenue at the west end of Ocean Breeze Park, is near enough to a fire prone area to be at any risk. Con Ed's distribution of electricity, however, is almost exclusively via wooden street poles and overhead power lines, making that system vulnerable, especially in areas of tall growing fuel. (See Figure 7)

Natural gas distribution in the area is provided by National Grid. Virtually all their infrastructure is underground, with little likelihood of being affected by wildland fire. There are no major natural gas transmission facilities in the CWPP area, nor are there known interstate pipelines.

[4] http://www.dec.ny.gov/24.html

[5] http://www.nyc.gov/html/dep/html/about_dep/mission_statement.shtml

[6] http://www.nyc.gov/parks

Water and sewer infrastructure is all underground, with the exception of the Department of Environmental Protection Oakwood Beach Wastewater Treatment Plant, which is located in the southwest portion of the Oakwood Beach watershed at the end of Mill Road. This facility is coterminous with Great Kills Park and bordered on the south and west by sizable stands of *Phragmites*. As such, the plant itself is at risk from periodic fire. (See Figure 8)

Figure 7: Fire scarred utility pole surrounded by Phragmites australis, Kissam Avenue

Figure 8: Oakwood Beach Treatment Plant, Mill Road

Section 2.5 -Emergency Response Capabilities

A. Local Resources

FDNY

	Department Name & Address	Contact Name, Title, E-mail	Phone Numbers

	New York City Fire Department, 9 Metro Tech Center, Brooklyn, NY 11201-3857		Michael F. Marrone, Staten Island Borough Commander; marronm@fdny.nyc.gov	Office: 718-494-7370
Resources			Response Time:	Five minutes for first due units
Engines/Type/ ID/Capacity	Ladders	Dozers & Tractor Plows	Miscellaneous Tankers/ Tenders etc./Capacity	Aviation/Type/ID/ Capacity
Five Type 1 Engines: Engine 152 Engine 159 Engine 161 Engine 162 Engine 165 Each with a tank capacity of 500 to 750 gallons and a pumping capacity of at least 1,000 gallons per minute.	Two Aerial Ladders: Ladder 81 Ladder 82 One Tower Ladder: Ladder 85	n/a	Two Brush Fire Units: BFU 3 – 500 gallon tank 500 gallons per minute pumping capacity BFU 5 – 225 gallon tank 160 gallons per minute pumping capacity	n/a

All the above units, along with the Chiefs of Battalion 21 and Battalion 23, would most likely be either first or second due to brush fires in the project site.

The FDNY is not limited to the above resources; there are more than a dozen more engines and nine more ladders on Staten Island plus additional companies available to respond from Brooklyn and other areas of the City in the case of a major multiple alarm fire or simultaneous fires.

NYPD

New York Police Department (NYPD) helicopters are available, weather permitting and NYPD needs permitting, for FDNY use. The main FDNY use of the helicopter is as an observation post for the FDNY's "Air Reconnaissance Chief" (ARC). The ARC can

report on conditions to the Incident Commander (IC), can suggest strategy, and can communicate directly with the IC or operating units on the ground. The use of the NYPD helicopter to drop water on brush fires would be limited to areas remote from operating FDNY field forces and historically it has had marginal success.

Volunteer Fire Companies

Two volunteer fire companies operate and respond in the Borough of Richmond:

-Oceanic Fire Company 4010 Victory Blvd, Travis, Staten Island, NY 10314-6710

- Type I Engine 1000 gpm/500 gwt
- Type 6 Brush Unit four wheel drive 250 gpm 200 gwt

-Richmond Engine Company, 3664 Richmond Rd, Staten Island, New York 10306

- Type I Engine 1250gpm/750 gwt

B. State Resources

Agency/Address/ Unit Identifier	Contact	Title	Email	Phone
NYS Department of Environmental Conservation	Captain Timothy Byrnes	Regional Forest Ranger	tpbyrnes@gw.dec.state.ny.us	646-739-4170; 518-408-5852

Kind	Type	Identifier	Location	Response Time
Single resource	ICT5	8N299	Mount Loretto, Staten Island	1 hour
Engine	Type 7		Suffolk County	4 hours
All	All		New York State or Northeast Forest fire Compact	24 hours

C. Federal Resources

Agency/Address/Unit Identifier	Contact	Title	Email	Phone

National Park Service, Gateway National Recreation Area, Fire Management Office, 210 New York Avenue, Staten Island, New York 10305 NY-GAP	Tomas Liogys	Assistant Fire Management Officer	tomas_liogys@nps.gov	Office: (718) 354-4551

Kind	Type	Identifier	Location	Response Time
Engine	Type 6	NY-GAP-E93	Great Kills Park	1 hour
Engine	Type 6	NY-GAP E94	Sandy Hook	2 hours

Gateway National Recreation Area (GATE) has one Assistant Fire Management Officer and a Fire Chief/Wildland Fire Coordinator available year round and two to three seasonal forestry technicians (firefighters) available between March and October. The park supplements its full time fire management staff with employees that choose to participate in the fire management program as a collateral duty. If necessary, the park may also be able to provide a squad (5 personnel) of firefighters to assist with suppression and other wildland fire related activities. The personnel come from various divisions and locations within the park. It may take up to 2 hours to provide a squad at an incident.

GATE is part of the Mid-Atlantic Fire Management Area (MAFMA) which is overseen by the fire management program at Delaware Water Gap National Recreation Area (DEWA) in Bushkill, Pennsylvania. If necessary, the Delaware Water Gap National Recreation Area may be able to provide additional resources in the form of equipment and personnel. The personnel come from various divisions and locations within the MAFMA. It may take up to 3 hours to provide these resources at an incident. In addition Gateway may request national resources through MAFMA and the national wildland fire resources ordering process. Depending on location and availability national resources may arrive within one to three days of being ordered.

New York State is a member of the Northeastern Forest Fire Compact. Fire fighting resources can come from New York, New England or eastern Canadian provinces within one to three days.

Section 2.6 -Schools and Day Care Facilities

A. Schools

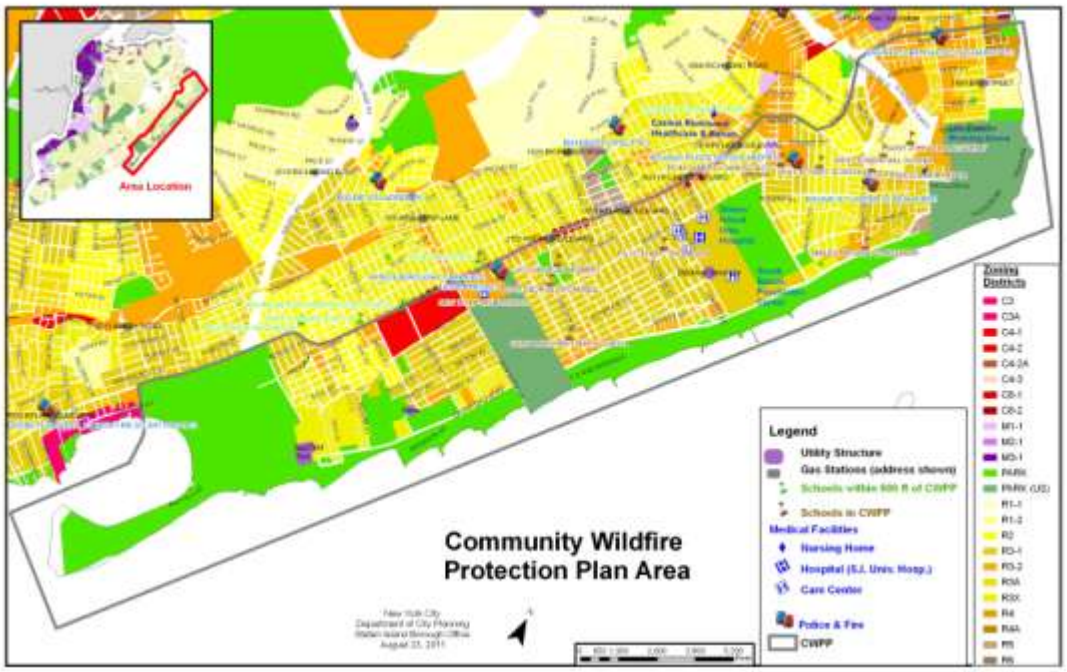
School	Address	Grades	Students
P.S. 38 George Cromwell	421 Lincoln Avenue	K, 1, 2, 3, 4, 5, SE	383
P.S. 39 Francis J. Murphy, Jr.	71 Sand Lane	K, 1, 2, 3, 4, 5, SE	538
P.S. 46 Albert V. Maniscalco	41 Reid Avenue	K, 1, 2, 3, 4, 5, SE	316
P.S. 52 John C. Thompson	450 Buel Avenue	K, 1, 2, 3, 4, 5, SE	650
I.S. R002 George L. Egbert	333 Midland Avenue	6, 7, 8, SE	932
New Dorp High School	465 New Dorp Lane	9, 10, 11, 12, SE	2400
Holy Rosary School	100 Jerome Avenue	PK3, PK4, K, 1, 2, 3, 4, 5, 6, 7, 8	
St. John Villa Academy	57 Cleveland Place	PK3, PK4, K, 1, 2, 3, 4, 5, 6, 7, 8	
St. John Villa Academy High School	26 Landis Avenue	9, 10, 11, 12	
St. Joseph Hill Academy	850 Hylan Boulevard	PK3, PK4, K, 1, 2, 3, 4, 5, 6, 7, 8	
St. Joseph Hill Academy High School	850 Hylan Boulevard	9, 10, 11, 12	
St. Margaret Mary School	1128 Olympia Boulevard	K, 1, 2, 3, 4, 5, 6, 7, 8	
Smiles Around Us Academy	351 Sand Lane	PK, K, 1, 2	91

B. Day Care Facilities

Name	Address
Buz-Z-Zy B Daycare Inc.	97 New Lane
SiFirst Child Day Care Center, Inc.	83 McClean Avenue
2morrows Leaders Child Care Inc.	311 McClean Avenue
Our Place School	329 Norway Avenue
Busy Beach Day Care Center	777 Seaview Ave # 11
Thursdays Child Inc	348 Seaview Avenue
S&D Kids	2750 Hylan Boulevard
Alisa Day Care	702 Tysens Lane

Rainbow of Staten Island	29 Eva Avenue
Oakwood Heights Nursery School	345 Guyon Avenue
Steps To Success 2	2975 Hylan Boulevard

Map 3 -Community Resources and Zoning within the CWPP



Section 2.7 -Emergency Medical Facilities

Both the Staten Island University Hospital and the South Beach Psychiatric Center are located within the CWPP area along Seaview Avenue. Neither of the facilities is vulnerable to a brush fire. Access to them would always be maintained, however delays may occur if, for example, Father Capodanno Boulevard is closed off and all traffic to Seaview Avenue would have to come off Hylan Boulevard. SIUH has a state-designated Burn Center.

A. Hospitals

Name	Address	State Designations
Staten Island University Hospital North	475 Seaview Avenue	Burn Center; Level 3 Perinatal Care; Regional Trauma Center; Stroke Center

B. Other Medical Facilities

Name	Address
South Beach Psychiatric Center	777 Seaview Avenue

C. Evacuation Centers

Name	Address
Curtis High School	105 Hamilton Avenue
IS 51	20 Houston Street
Petrides Complex	715 Ocean Terrace
Susan E. Wagner High School	1200 Manor Road
Tottenville High School	100 Luten Avenue

None of the Evacuation Centers are located within the CWPP.

D. Helipad/Helispot

Helipad/Unimproved Landing Site

Name	Type	Address	Latitude	Longitude
Staten Island University Hospital North[‡]	Helipad	475 Seaview Avenue	40.584200° N	074.083200° W
Fort Wadsworth[*‡]	Unimproved landing site	Softball field at the intersection of Battery Road and Hudson Road	40.602167° N	074.055318° W

Miller Field*‡	Unimproved landing site	Near New Dorp Lane and Cedar Grove Avenue	40.566730° N	074.098850° W
Great Kills Park*‡	Unimproved landing site	Great Kills Park Main Parking Lot	40.545547° N	074.123039° W

* Use of unimproved landing sites for emergencies must be coordinated through the United States Park Police.

‡ This site is not authorized for use by the public.

Section 2.8 -Regulatory Issues

SEQR Review of the CWPP

In New York State, most projects or activities proposed by a state agency or unit of local government, and all discretionary approvals (permits) from a NYS agency or unit of local government, require an environmental impact assessment as prescribed by 6 NYCRR Part 617 State Environmental Quality Review (SEQR). [Statutory authority: Environmental Conservation Law Sections 3-0301(1)(b), 3-0301(2)(m) and 8-0113].

SEQR requires the sponsoring or approving governmental body to identify and mitigate the significant environmental impacts of the activity it is proposing or permitting. Environmental assessments are standardized by using the Environmental Assessment Form (EAF). On completing an EAF, the lead agency determines the significance of an action's environmental impacts. The agency then decides whether to require (or prepare) an Environmental Impact Statement and whether to hold a public hearing on the proposed action. Under the rules of SEQR, the City of New York has issued its own procedures, known as City Environmental Quality Review (CEQR), in order to take into account the special circumstances of New York City's urban environment when assessing the environmental effects of discretionary actions that do not fall within certain statutory or regulatory exemptions. An Environmental Assessment Statement (EAS) is completed, which is intended to assist lead agencies in identifying the potential impacts a project may have on the environment and assessing whether such impacts may be significant and adverse.

Upon completion of the CWPP, the Plan will be submitted to the NYSDEC with an environmental assessment statement by the city agency that is designated as the "Lead

Agency" for purposes of environmental review. Proposed projects resulting from the CWPP will generally not require further SEQR or CEQR review unless the project exceeds the scope of actions proposed and approved in the CWPP.

In particular, projects of much greater size or beyond the limits of the CWPP mapped area would require separate SEQR reviews. **Specifically, the proposed Bluebelt projects described in Section 4.1.C "Mid-Island Bluebelts" will require separate SEQR/CEQR review and is not covered in the environmental review of the CWPP.**

For projects on federal lands, the federal National Environmental Policy Act (NEPA) process addresses State SEQR requirements.

It has been agreed that for purposes of environmental review of the CWPP, the New York City Department of Parks is designated the Lead Agency.

Wetlands

The CWPP coverage area largely coincides with State regulated freshwater wetlands. Management options for the control of hazardous fuel include excavation, cutting, prescribed fire, herbicide application, and re-vegetation with native plant communities, all of which have the potential to adversely affect wetland resources. Accordingly, all of these activities are subject to regulation under Article 24 (Freshwater Wetlands Act) of the Environmental Conservation Law, as administered by the NYSDEC. The Freshwater Wetland Permit Requirements are identified in the New York Code of Rules and Regulations (6 NYCRR Part 663). (Part 663 may be viewed in full at: http://www.dec.ny.gov/regs/4613.html). (See also Appendix 2: *Regulatory Considerations for the CWPP*).

Pesticide Use

The application of an herbicide to control *Phragmites* also must comport with NYS Pesticide Control regulations. Pesticides, properly used as defoliants, desiccants, plant regulators and for related purposes, are valuable, important and necessary to the welfare, health, economic well-being and productive and industrial capabilities of the people of this state. However, such materials, if improperly used, may injure health, property and wildlife. For compliance and enforcement purposes, the NYSDEC promulgates regulations pursuant to State laws, and issues policies as a part of compliance assistance. Under Sections 33-0301 and -0303 of the Environmental Conservation Law (ECL), the

State of New York has jurisdiction in all matters pertaining to the distribution, sale, use and transportation of pesticides. The State also regulates the registration, commercial use, purchase and custom application of pesticides (see NYCRR Part 325).

The use of an herbicide applied to standing or running water for aquatic vegetation control requires an aquatic permit (Article 15 Permit), issued by the Bureau of Pest Management. In the event that such permit is granted, the application of the herbicide should be conducted by a certified commercial pesticide applicator, certified in category 5A, or by someone working under the direct supervision of a category 5A certified applicator. The pesticide applicator(s) must be employed by a pesticide business, duly registered by the Department of Environmental Conservation. Please see 6 NYCRR Part 325 for a complete listing of New York State Pesticide regulations relating to the application of pesticides. This information is available at the DEC website: http://www.dec.ny.gov/chemical/298.html

Within New York City, certain local laws govern the use and management of pesticides. Local Law 37 of 2005 ("LL37") added Chapter 12 to Title 17 of the New York City Administrative Code to reduce the use of harmful pesticides by City agencies. LL37 generally prohibits City agencies and their contractors from using any pesticide classified by the EPA as Toxicity Category 1; any pesticide classified as a carcinogen, likely carcinogen, known/likely or carcinogen, probable carcinogen or possible carcinogen by the Office pf Pesticide Programs of the EPA; and any pesticides classified by the State of California's Office of Environmental Health Hazard (OEHHA) Assessment as a developmental toxin. Exceptions in the law allow use of such pesticides for particular purposes. LL37 also requires that Agencies must maintain records of all applications for at least three years, whether applied by agency personnel or by contractors. LL37 established an Inter-Agency Pest Management Committee (PMC) charged with developing and adopting integrated pest management techniques for New York City (§17-1204). The PMC developed a pesticide use reduction plan that is updated annually and submitted to the Mayor and to the City Council.

Local Law 54 of 2007 amended Chapter 12 of Title 17 to require agencies to submit all pesticide application records to the Department of Health and Mental Hygiene (DOHMH) no later than February 1st for applications made during the previous calendar year. DOHMH must submit an annual report of pesticide use by the City by May 1st of each year to the City Council. This is in addition to the DEC reporting requirements.

New York State:

Article 24- http://www.dec.ny.gov/docs/wildlife_pdf/wetart24a.pdf

Part 663- http://www.dec.ny.gov/regs/4613.html

Part 325 - http://www.dec.ny.gov/regs/4424.html

ECL 33-0301 - http://law.onecle.com/new-york/environmental-conservation/article33.t3.html

New York City

www.nyc.gov/health/LL37

State Law Governing Prescribed Fire

Prescribed Fire is a vegetative management tool used to mitigate wildfire fuel hazards or maintain fire dependent ecosystems and restore those outside their natural balance. Generally, low intensity prescribed fire, is applied by trained experts to clear ground of highly flammable fuels like dead wood and brush. This low-intensity fire is vital to the life cycles of fire-dependent range, wetland and forest lands.

Most prescribed fires are lit by crews using the drip torch, a hand-carried device that pours out a small stream of burning fuel. Exactly how each unit is ignited depends on weather, the lay of the land, and the intensity of the fire needed to meet the goal of the burn.

Prescribed fires require a written, approved prescribed burn plan that complies with city and state environmental conservation laws or National Environmental Policy Act requirements on federal lands, prior to prescribed fire ignition. The decision of when and where to use prescribed fire to manage fuels in the East Shore community is beyond the scope of this CWPP. In the event the City or a private owner wants to accomplish a prescribed burn, the DEC Regional Natural Resource (or Forester) Supervisor would approve the required plan.

Reducing fuel loads in the *Phragmites* wetlands through use of prescribed fire is a complex objective that will take significant planning along with public support. It should be expected that if prescribed fire is planned for some of the affected areas, it will need to be repeated regularly in order to maintain reduced fuel loading or to favor another species of wetland vegetation that is less of a wildfire hazard.

Prescribed fire may also be used as part of a comprehensive pest eradication protocol. Its use in this regard on *Phragmites* is limited to the burning of stubble and exposed roots and rhizomes of the plant to further weaken it. In this context it is not intended to control fuel loads and is not directed toward dead, unmown stands of *Phragmites* nor torwards the burning of mown *Phragmites* litter.

The full text of NYS Law, Part 194 - Forest Practices, which governs the use of prescribed burning in the State of New York, appears in Appendix 3.

State Law Governing *Phragmites* Removal

In August of 2011, the Governor signed into law Chapter 306 of the Laws of 2011 authorizing the unfettered removal of *Phragmites* by the owner of residential real property in a city having a population of one million or more. The bill directed DEC to issue a general fire break permit for the borough of Staten Island to the Staten Island Borough President's office. This permit would be for individual property owners to cut and remove *Phragmites* for purposes of creating a firebreak of up to 50 feet from their property line, but no further than 100 feet from their homes. These property owners would have to apply through the Borough Presidents office for this authorization. The permit would only apply to areas designated by DEC as high risk brush fire areas, and could only be performed by equipment having a ground pressure of four pounds per square inch or less. The act sunsets on December 31st, 2012.

The full text of the law can be found in Appendix 4.

Federal Law

Hazardous fuels reduction projects located on Gateway National Recreation Area owned lands are implemented using guidance provided by the park's General Management Plan (GMP), Resource Management Plan (RMP), and Fire Management Plan (FMP). The park's GMP is currently being revised and the first FMP should be completed by late fall 2012.

Compliance with Relevant Laws, Policies, and Planning Documents for Gateway National Recreation Area

A multitude of laws, regulations, and policies influence development and implementation of any project, including wildland fire management related projects to be conducted on lands owned by or for work conducted by Gateway National Recreation Area.

NPS Organic Act of 1916 – Congress directed the U.S. Department of the Interior and NPS to manage units "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (16 U.S.C. § 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress" (16 U.S.C. § 1 a-1).

National Environmental Policy Act (NEPA) – The purpose of NEPA is to encourage productive and enjoyable harmony between man and his environment; to promote efforts which would prevent or eliminate damage to the environment and stimulate the health and welfare of mankind; and to enrich the understanding of the ecological systems and natural resources important to the Nation. NEPA requirements are satisfied by successful completion of an EA or EIS, in addition to a decision document.

National Historic Preservation Act (NHPA) – The purpose of NHPA is to ensure the consideration of historic properties in the planning and implementation of land use and development projects. Section 106 requires federal agencies to assess the effects of their undertakings on historic properties and provides for review of those undertakings by the public and by the Advisory Council on Historic Preservation.

Director's Order-12 (DO-12) – DO-12 is the NPS guidance for Conservation Planning, Environmental Impact Analysis, and Decision Making. DO-12 states the guidelines for implementing NEPA according to NPS regulations. DO-12 meets all Council on Environmental Quality (CEQ) regulations for implementing NEPA. In some cases, NPS has added requirements under DO-12 that exceed the CEQ regulations.

Director's Order-18 (DO-18) – DO-18, the NPS guidance for Wildland Fire Management, states that "every NPS unit with burnable vegetation must have an approved Fire Management Plan." DO-18 defines what an approved FMP must include, stressing that "firefighter and public safety is the first priority" and promoting "an interagency approach to managing fires on an ecosystem basis across agency boundaries." Director's Order 18 also directs parks to identify, manage, and reduce, where appropriate, accumulations of hazardous fuels. Procedures for completion, review, approval, and required contents for FMPs are provided in Reference Manual-18 (RM-18). Until an FMP is approved, NPS units must take aggressive suppression action on all wildland fires.

Other documents that provide specific guidance on fire policy, planning, and implementation include the Federal Wildland Fire Management Policy and Program Review (1995), the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (1998), Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – a Cohesive Strategy (2000), and A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan (2001).

Section 3.0 -Community Risk Assessment

In order to focus the efforts on areas most at risk from wildland fire and prioritize mitigation activities, the SI ES-CWPP Working Group looked at fire occurrence in communities located within the boundaries of the SI ES-CWPP, the fire behavior and intensity to be expected in these areas, as well as the resources and assets at risk. As vegetation does not grow along neighborhood boundaries, the area was divided into zones based on dominant vegetation type. Using a scoring system for each of these three main elements, the working group assigned a value of high, moderate, or low to each factor and then used these rankings to determine the final score and overall risk to a community.

Fire Occurrence

The working group looked at the number of fires that occurred at 178 fire alarm call box locations within 800 feet of areas of vegetation from 1996 through 2010. There were 1220 fires that occurred during this period. Every brush fire that occurred within the CWPP during this period was considered.

No Risk – Fires do not occur in this area historically.

Low Risk – Fires occur relatively infrequently in this area historically. These areas contain less than 11% of the total fires (less than 9 fires per year).

Moderate Risk – Fire occur in this area with some frequency historically. These areas contain between 11% and 22% of the fires (between 9 and 18 fires per year).

High Risk – Fires occur in this area with regular frequency. These areas contain more than or equal to 22% of the total fires (greater than or equal to 18 firs per year).

Fire Occurrence		
No fires	0	Low
Less than 9 fires per year	1	Low
Between 9 and 18 fires per year	3	Moderate
Greater than or equal to 18 fires per year	5	High

Fire Behavior

Low Risk – Fuels in this area typically have low rates of spread (<100 chains/hours) and/or low flame lengths (< 4 feet). Fuels may consist of short grass, shrub litter, hardwood litter, or conifer litter

Moderate Risk – Fuels in this area may have relatively fast rates of spread (between 100 and 199 chains/hour) and/or moderate flame lengths (4-11 feet). Fuels may consist of tall grasses, shrub litter, shrubs, or conifer litter.

High Risk – Fuels in this area have rapid rates of spread (≥ 200 chains/hour) and/or long flame lengths (> 11 feet). Fuels may consist of very tall grasses or shrubs.

Fire Behavior	
Fuel Type	
Short grass	1
Shrubs or hardwoods	2
Conifers	3
Tall grass	5
Flame length	
0-4 feet	1
4-8 feet	2
8-11 feet	4
> 11 feet	5
Rate of spread	
0-99 chains/hour (< 1.25 mph)	1
100-199 chains/hour (1.25 to 2.5 mph)	3
≥ 200 chains/hour (≥ 2.5 mph)	5
Total Fire Behavior Scoring	
3 to 6 points	Low
7 to 12 points	Moderate
13 to 15 points	High

Assets at Risk

For the purpose of this analysis, assets are defined as any structure (i.e. residential, industrial, and commercial properties, religious and educational institutions, utilities infrastructure, etc.) that would be impaired in value or integrity if damaged or destroyed by a wildland fire.

Low Risk – These areas either have few or no structures, or a significant existing buffer, such as a road or manicured lawn, between the assets and significant burnable vegetation.

Moderate Risk – These areas have scattered or numerous structures and/or some buffers between the assets and significant burnable vegetation.

High Risk – These areas have continuous and a significant amount of structures and/or no buffers between the assets and significant burnable vegetation.

Assets at Risk	
Buffers	
Buffer exists between 95%-100% of assets	0
Buffer exists between 75%-95% of assets	1
Buffer exists between 25%-75% of assets	4
Buffer exists between < 25% of assets	5
Structures	
0-5% vegetation at structure perimeter	0
5-25% vegetation at structure perimeter	1
25-50% vegetation at structure perimeter	4
>50% vegetation at structure perimeter	5
Total Assets at Risk Scoring	
0 to 4 points	Low
5 to 7 points	Moderate
9 to 10 points	High

Overall Risk

Low Risk – Based upon fire occurrence, fire behavior, and assets at risk there is a low likelihood that wildland fire will have any significant adverse affects on the adjacent or surrounding communities. Properties in these areas are not likely to sustain damage from a wildland fire if a treatment is not implemented. The above statements do not indicate that properties can never sustain any damage or be impacted from wildland fire, but that the probability of damage or impact is low.

Moderate Risk – Based upon fire occurrence, fire behavior, and assets at risk there is a reasonable likelihood that wildland fire may have significant adverse impacts on the adjacent or surrounding communities. Without the implementation of a treatment, properties in these areas may be damaged, destroyed, or otherwise impacted by a wildland fire.

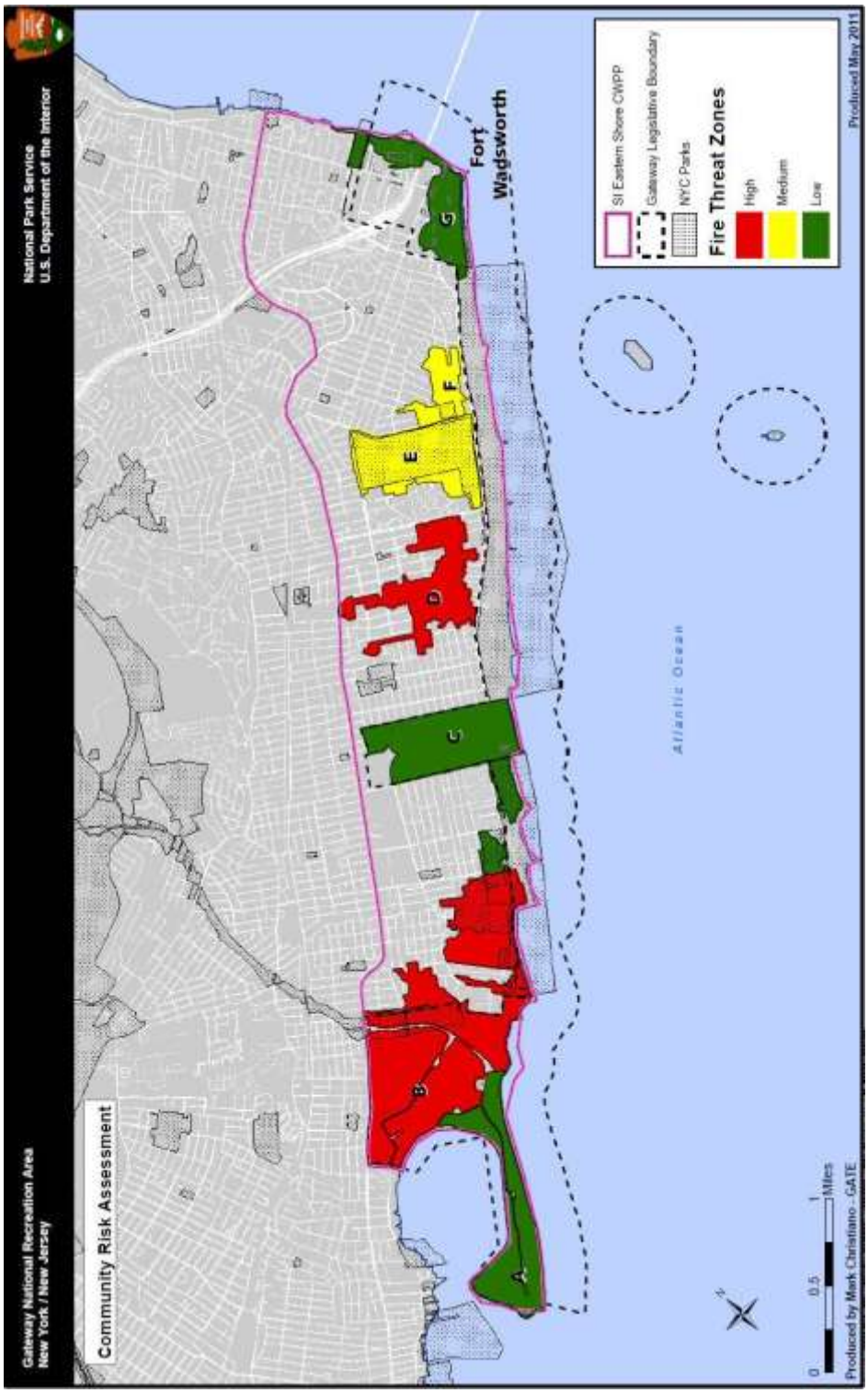
High Risk – Based upon fire occurrence, fire behavior, and assets at risk there is a high likelihood that fire will have significant adverse impacts on the adjacent or surrounding communities. Without the implementation of a treatment, properties in these areas will likely be damaged, destroyed, or otherwise impacted by a wildland fire.

Overall Risk Score	
≤ 13	Low
14 to 26	Moderate
27 to 30	High

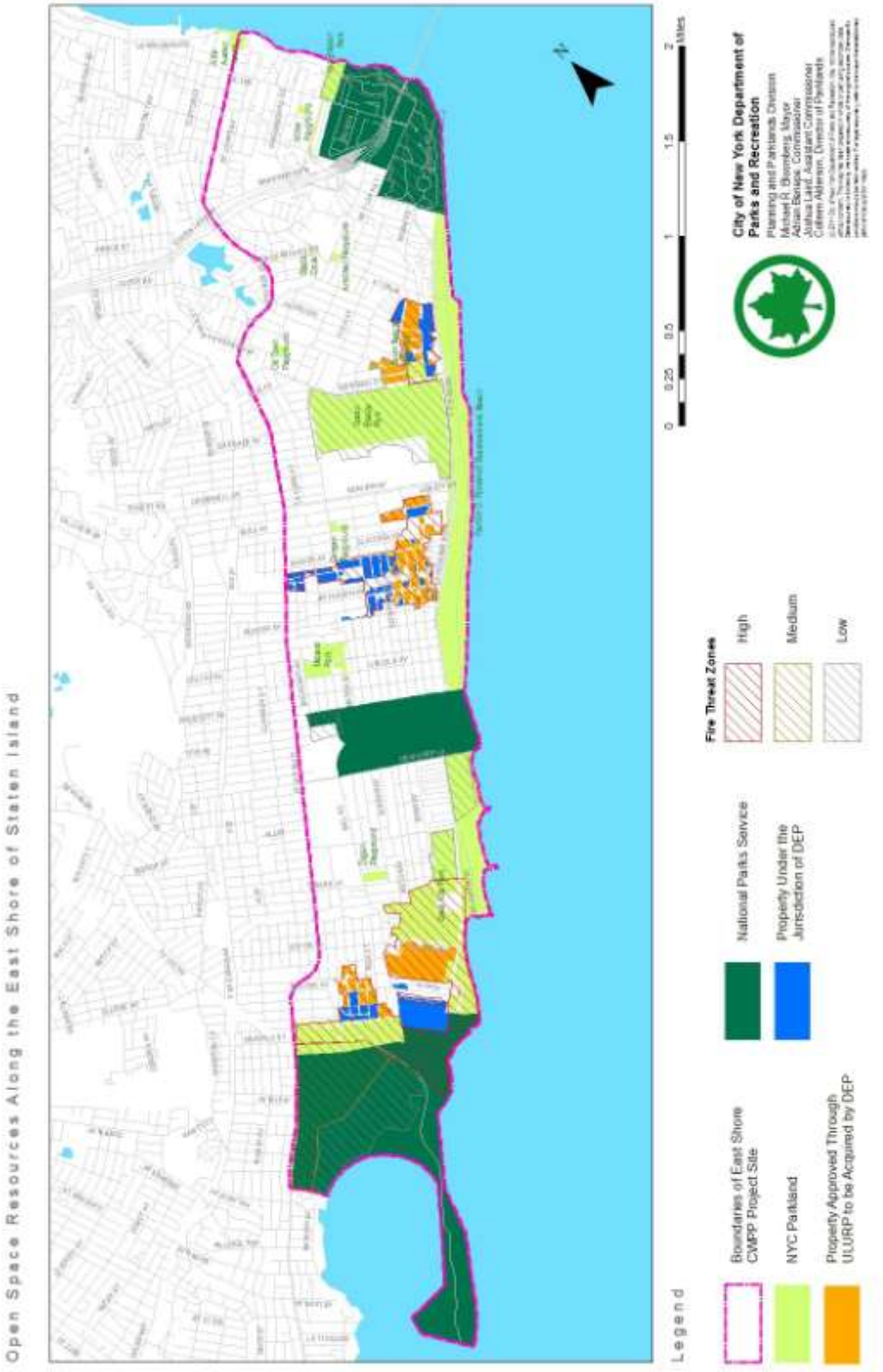
Table 8 -Overall Risk Assessment by Zone

Zone	Fire Occurrence		Fire Behavior			Assets at Risk			Overall Risk	
	Risk	Score	Risk	Score		Risk	Score		Risk	Score
A	Low	**1**	Moderate	Fuel	2	Low	Buffer	1	Low	**11**
				FL	5		Structures	1		
				ROS	1		**Total**	**2**		
				Total	**8**					
B	High	**5**	High	Fuel	5	High	Buffer	4	High	**28**
				FL	5		Structures	4		
				ROS	5		**Total**	**8**		
				Total	**15**					
C	Moderate	**3**	Low	Fuel	1	Moderate	Buffer	1	Low	**12**
				FL	1		Structures	5		
				ROS	1		**Total**	**6**		
				Total	**3**					
D	High	**5**	High	Fuel	5	High	Buffer	5	High	**30**
				FL	5		Structures	5		
				ROS	5		**Total**	**10**		
				Total	**15**					
E	High	**5**	Moderate	Fuel	2	Low	Buffer	1	Moderate	**15**
				FL	5		Structures	1		
				ROS	1		**Total**	**2**		
				Total	**8**					
F	Low	**1**	High	Fuel	5	High	Buffer	5	Moderate	**25**
				FL	5		Structures	4		
				ROS	5		**Total**	**9**		
				Total	**15**					
G	Low	**1**	Low	Fuel	1	Moderate	Buffer	1	Low	**10**
				FL	1		Structures	5		
				ROS	1		**Total**	**6**		
				Total	**3**					

Map 5 -Fire Threat Zones



Map 6 -Fire Threat Zones and Open Space Jurisdiction



Section 3.1 -Assets at Risk

The assets listed below are referenced on Map 4- "Community Resources".

Schools

None of the schools (listed in Section 2.6) are adjacent to any of the zones that pose an immediate risk (high, medium, or low). Depending on wind direction and fire intensity, there may be some smoke impacts to the schools. Any smoke generated by the fires in the area should be of short term duration.

Day Care Facilities

None of the day care facilities (listed in Section 2.6) are adjacent to any of the zones that pose an immediate risk (high, medium, or low). Depending on wind direction and fire intensity, there may be some smoke impacts to the day care facilities. Any smoke generated by the fires in the area should be of short term duration.

Hospitals

Staten Island University Hospital North is located adjacent to a low risk zone in the South Beach area. The closest burnable vegetation is located within 150 feet of one of the structures on the hospital property. However, the majority of the vegetation surrounding the hospital property is either short grass or deciduous shrubs and trees which would burn with minimal intensity. The open space adjacent to the hospital property contains *Phragmites*, but these stands are located far enough from the hospital that there will likely be no damage from either flames or radiant heat.

The largest impact to the hospital and its operations would be smoke produced from *Phragmites* fires. If the hospital does not have adequate enough ventilation to filter the smoke, it may impact patients and employees. The hospital also has a helipad located on the southeastern edge of the property. Smoke may impact flight operations. Any smoke generated by the fires in the area should be of short term duration.

Other Medical Facilities

The South Beach Psychiatric Center is located adjacent to a low risk zone in the South Beach area. The closest burnable vegetation is located against two of the structures on the center property. However, the majority of the vegetation surrounding the hospital property is either short grass or deciduous shrubs and trees which would burn with

minimal intensity. Vegetation should be cleared from around these structures to mitigate any impacts a fire may have on them. The open space adjacent to the center property contains *Phragmites*, but these stands are located far enough from the hospital that there will likely be no damage from either flames or radiant heat.

The largest impact to the hospital and its operations would be smoke produced from *Phragmites* fires. If the center does not have adequate enough ventilation in its buildings to filter the smoke, it may impact patients and employees. Any smoke generated by the fires in the area should be of short term duration.

Commercial

Beyond the extensive retail and commercial areas of Hylan Blvd, there are also a number of stores and restaurants located in clusters along various arterial roads (Fr. Capodanno Blvd, Midland Ave., others). These businesses are at potential risk of temporary smoke and air quality issues during a significant fire event. However, most are at low risk from the fires themselves.

Transportation

There may be localized traffic disturbance during a significant fire event, both from mobilized fire equipment, and potential evacuation traffic.

Historical Assets

Historical Sites below Hylan Blvd., from Fort Wadsworth to Great Kills Park	1. **FDR Boardwalk & Beach** – Father Capodanno Blvd from Fort Wadsworth to Miller Field 2. **Gateway National Recreation Area** – Miller Army Air Field Historic District, New Dorp Lane, S/NR listed. Ft. Wadsworth Historic District, S/NR listed. Ft. Tompkins Quadrangle, Building 137, Ft. Wadsworth, LPC and S/NR listed. Battery Weed, Ft. Wadsworth, LPC and S/NR listed. 3. **St John Villa Academy, High School & Convent** - 57 Cleveland Pl & 25 Landis Ave 4. **St Joseph Hill Academy** (original 1880's "Arrochar Estate" of Henry MacFarlane) - 850 Hylan Blvd 5. **HH Richardson House** - 45 McClean Ave (NYC Landmark)

	6. **King House** – 29 McClean Avenue (NYC Landmark) 7. **Geller House School -** 77 Chicago Ave 8. **Our Lady of Lourdes Church** - Cedar Grove Ave
Historical Sites below Hylan Boulevard and beyond Fort Wadsworth:	9. **Alice Austen House** – 2 Hylan Blvd (NYC Landmark) 10. **McFarland-Bredt House** – 30 Hylan Blvd (NYC Landmark) 11. **Woodland Cottage** – 33-37 Belaire Rd (NYC Landmark) 12. **23-25 Belair Road House** 13. **30 Belair Road House** (NYC Landmark) 14. **St John's Church Complex**– 1334 Bay St (NYC Landmark and S/NR listed) 15. **St. John's Parish House** – 1331 Bay Street (NYC Landmark) 16. **St. John's Rectory** – 1331 Bay Street (NYC Landmark) 17. **Von Briesen Park** – School Rd & Bay St

S/NR = State/National Registers of Historic Places;

With the exception of Gateway National Recreation Area, all of these historical or historically eligible assets are at low risk from wildfire, either because of distance from fuel or the type of fuel in proximity or both. Wildfire risks to Gateway NRA are described in detail in section 1.2 and 1.3.

Section 3.2 -Natural Resources

General

Natural areas make up a significant portion of the CWPP area. There are over 600 acres of City-owned parkland, and an additional 790 acres of Federal parkland here. Of these parkland acres, 450 of the City park acres and 473 of the Federal park acres can be classified as natural areas. In addition NYCDEP owns or is in the process of acquiring 195 acres of wetland areas for future Bluebelt projects. A substantial portion of this acreage is subject to periodic wildland fire.

Wetlands

The natural area along the Staten Island eastern shore addressed by the CWPP is dominated by New York State-regulated freshwater wetlands. These habitats are protected under New York State Environmental Conservation Law (ECL Article 24) and activities within these wetlands are controlled pursuant to Freshwater Wetlands Regulations (NYCRR Part 663), as administered by the New York State Department of Environmental Conservation (NYSDEC). (See Appendix 2, Regulatory Considerations for the CWPP)

Plants

The majority of several parcels, most notably Great Kills, Cedar Grove/Oakwood Beach, and New Creek, are virtually pure stands of *Phragmites*. This plant also occurs in several other parcels where it is present in significant amounts, but is mixed with other wetland vegetation. Some of these stands have patches of groundsel bush (*Baccharis halimifolia*) or sumacs (*Rhus* spp.) along the wetland boundaries. The previous year's stalks of this tall perennial grass are the major fuel source for wildland fires in the area.

Additionally, many of these wet parcels have upland plant communities on elevated hummocks within the wetlands. These hummocks support a variety of species such as oaks (*Quercus* spp.), hickories (*Carya* spp.), rose (*Rosa* spp.), and raspberry (*Rubus* spp.). Several locally uncommon species, including Starry campion (*Silene stellata*), Canadian burnet (*Sanguisorba Canadensis*), Starry false lily of the valley *(Maianthemum stellatum),* Wood-anemone (*Anemone quinquefolia),* and Dwarf chestnut oak (*Quercus prinoides*) can be found here as well.

Parcels such as Great Kills and portions of Ocean Breeze have forest patches of various sizes. Stands of pin oak (*Quercus palustris*), gray birch (*Betula populifolia*), sassafras (*Sassafras albidum*), silver maple (*Acer saccharinum*), black locust (*Robinia pseudoacacia*), black cherry (*Prunus serotina*), willow (*Salix* spp.), and cottonwood (*Populus deltoides*) can be found on hummocks, on higher elevations, and on the perimeter of many of the wetlands throughout the area. Many of these patches have a significant amount of invasive Japanese knotweed (*Polygonum cuspidatum*), porcelainberry (*Ampelopsis brevipedunculata*) or multiflora rose (*Rosa multiflora*) in the understory or on their edges. Significant amounts of invasive mugwort (*Artemesia vulgaris*) and native seaside goldenrod (*Solidago sempivirens*) exist on the edges and perimeters of most of these areas.

Ocean Breeze differs from the other areas as it contains a mixture of scrubby forest patches as above, interspersed with a significant acreage of warm season grassland, mostly switchgrass (*Panicum virgatum*), little blue stem (*Schizachyrium scoparum*), and weeping love-grass (*Eragrostis curvula*), a non-native grass. While the dried stems of these grasses are flammable, their short stature limits the duration, intensity, and spread of the fires that occur here.

Birds

The natural areas within the CWPP host significant diversity of resident and migrant bird species. Mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), and Canada goose (*Branta canadensis*) can commonly be found in open water and channel areas. The coastal areas and wetland edges host waders such as killdeer (*Charadrius vociferous*), spotted sandpiper (*Actitis macularius*), and black crowned night heron (*Nycticorax nycticorax*). Breeding and full-time resident upland species include red-winged blackbird (*Agelaius phoeniceus*), yellow warbler (*Dendroica petechia*), swamp sparrow (*Melospiza georgiana*), song sparrow (*Melospiza melodia*), Carolina wren (*Thryothorus ludovicianus*), and red-eyed vireo (*Vireo gilvus*). The areas surrounding Ocean Breeze Park host a population of wild turkey (*Meleagris gallopavo*).

Mammals

There are several mammalian species present in the CWPP area, broadly distributed throughout. They are mostly common generalist species including but not limited to raccoon (*Procyon lotor*), white-footed mouse (*Peromyscus leucopus*), opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*), eastern gray squirrel (*Sciurus carolinensis*), and eastern cottontail (*Sylvilagus floridanus*).

Reptiles and Amphibians

A number of habitat generalists such as Eastern red-backed salamander (*Plethodon cinerus*), and common garter snake (*Thamnophis sirtalis*) can be expected in the *Phragmites* dominated wetlands, and spring peepers (*Pseudacris crucifer*) have been heard in several locations. Several additional species including green frog (*Lithobates clamitans*), Fowler's toad (*Anaxyrus fowleri*), and the newly discovered species of Leopard frog (Rana sp.) may be found in the wetlands of Ocean Breeze.

Threatened and Endangered Species

A review of existing available records, environmental assessments, and reports covering the area was conducted. These documents were reviewed for information on species

listed as endangered, threatened, of special concern, or rare by the U. S. Fish and Wildlife Service (USFWS) and the New York Natural Heritage Program (NYNHP).

A table listing the potential Federal and State listed protected species within the CWPP boundary is found below.

Table 9 -Potential Listed Species within the CWPP

Potential Federal & State Listed Protected Species within the CWPP Boundary	
Species	**State Ecological Rank**
Bird	
Osprey (*Pandion haliaetus*)	SC
Coopers hawk (*Accipiter cooperii*)	SC
Northern harrier (*Circus cyaneus*)	T
Peregrine falcon (*Falco peregrinus*)	E
Plant	
Slender blue iris (*Iris prismatica*)	T
Northern Gamma grass (*Tripsacum dactyloides*)	T
Turk's-cap Lily (*Lilium superbum*)	EV
Cinnamon fern (*Osmunda cinnamonea*)	EV
Royal fern (*Thelypteris palustris*)	EV
Green milkweed (*Asclepias viridiflora*)	T
Spinulose Wood fern (*Dryopteris carthusiana*)	EV
Globose flatsedge (*Cyperus echinatus*)	E
Narrow-leaved pinweed (*Lechea tenuifolia*)	T
Sanddune sandbur (*Cenchrus tribuloides*)	E
Needle-pod rush (*Juncus scirpoides*)	E
Butterflyweed (*Asclepias tuberosa*)	EV
Slender pinweed (*Lechea tenuifolia*)	T
Coast flatsedge (*Cyperus polystachyos var texensis*)	E
Fringed bonset (*Eupatorium torreyanum*)	T

(E) = Endangered; (T) = Threatened; (EV) Exploitably Vulnerable; (R) = Rare;
(SC) = Special Concern
Sources: *NYCDEP and NYCDPR reports incorporating NYNHP data (2009, 2011), and NYCDPR reports (2009).*

None of the wildlife species are known to nest in the fire prone areas of the CWPP area, however, fire may impact the abundance and availability of their prey. Data is scarce on the effect of fire on many of the plant species, though removal of the *Phragmites* will have the temporary effect of reducing competition for sunlight and opening new areas for seed germination. Indeed, regeneration of native vegetation has been observed in these areas following wildfire.

It is, however, acknowledged that it is likely that at least some listed species will be found to exploit or inhabit sections of the CWPP slated for projects. This will require that actions are taken in planning and staging these projects to avoid or mitigate any impact on species at these locations. However it should be noted also, that planned actions will occur only in narrow buffer strips of 50 to 150 feet and that these strips constitute a small fraction of the entire phragmites-dominated habitat within the CWPP, so that individual projects will only affect small percentages of the habitat at any one time in any one year.

Pursuant to New York State regulation (NYCRR part 182): No person shall take or engage in any activity that is likely to result in a take of any species listed as endangered or threatened in this Part, except as authorized by an incidental take permit issued by the department (NYSDEC). Any person proposing an activity or any entity with regulatory oversight over a proposed activity may request a determination from the department as to whether the proposed activity is likely to result in the take or taking of any species listed as endangered or threatened in this Part and is therefore subject to regulation under this Part.

In implementing activities under the CWPP, a determination must be made concerning the potential for the proposed activity to result in a take. This may require a more careful inspection of the area to determine the extent to which any listed species occupy or utilize the area. If SDEC finds the activity is likely to result in a take, an application for an Incidental Take permit must be made to the department. The application must include submittal of a mitigation plan providing a net conservation benefit to the species in question. The full Part 182 regulation may be viewed and downloaded at: http://www.dec.ny.gov/regulations/69355.html.

Section 3.3 -Estimated Values at Risk

The average of median values of homes from the 2010 Census data of tracts within the CWPP area was $352,000 (median high $394,000, median low $291,000) with homes ranging in value across the CWPP from less than $125,000 to greater than $1,000,000.

Section 4.0 -Wildland Fire Mitigation

Wildland fire mitigation can be defined as those actions taken to reduce the likelihood of loss of life and property due to a wildland fire. The intent of mitigation is not to completely eliminate the risk of loss nor does it reduce the risk of a wildland fire occurring. Effective wildland fire mitigation enables residents to evacuate safely, homes to withstand the occurrence of wildland fire, and firefighters to defend structures and suppress fires where possible. This can be accomplished through a variety of methods, including reducing hazardous fuels, creating defensible space around individual homes and subdivisions, utilizing fire-resistant building materials, enhancing emergency preparedness and response capabilities, upgrading current infrastructure, creating and updating legislation, and developing programs that foster community awareness and neighborhood activism. Once implemented, these actions can significantly reduce the risk of loss due from wildland fire to an individual home, and on a larger implementation scale, for an entire community. Most importantly, it makes WUI communities safer places to live and work, and in the event of a wildland fire, enhances the safety of residents and emergency personnel. Wildfires caused by arson activity are a high percentage of wildfires in this community. As such, law enforcement will need to be included with fire and community officials when developing a comprehensive and effective fire prevention program.

Section 4.1- Hazardous fuel reduction alternatives

The CWPP provides various alternatives to mitigating the effects of wildland fires. As with any solution to an issue, a combination of possible alternatives, rather than just a single alternative may be the best solution depending upon several factors, including but not limited to cost, site specific conditions, capabilities and availability of resources, etc.

The short term treatments listed in table 10 are brief in their duration and as such only provide a temporary solution. Until solutions with lasting effects are implemented, such as those listed in the second and third sections of table 10, these and other short-term alternatives may be continually implemented to provide an uninterrupted reduction in risk from wildland fire.

Those treatments listed are not intended to be the only alternatives to be considered as other alternatives may exist that have not yet been considered, however other alternatives may be plausible and feasible in each area identified in the SI ES-CWPP.

Considerations for physical treatment of vegetation

Wildland firefighters identify areas known as safety zones prior to engaging in suppression activities. These are areas where a firefighter can survive a fire without the use of a fire shelter. In the same sense that firefighters need a safety zone, homes and structures need a safety zone as well, but this area is known as defensible space.

Safety zone size is a function of flame height, and studies indicate that the minimum distance without an additional safety factor between a person and/or structure and a fire is four times the expected flame height (Butler and Cohen 1998). Scott (2003) describes a fuel treatment standard in coniferous fuel models to establish a crown fire free zone, thus establishing a defensible space for homes. This defensible space is to be established by homeowners before a fire threatens a structure rather than created by firefighters during an active fire. Scott's minimal crown fire free zone is four times the potential crown fire flame length.

Wind driven grass fires, such as those that typically occur in *Phragmites* can be considered for sake of simplicity wind driven, active crown fires and Scott's methodology for establishing a crown fire free zone can be used for estimating minimum safe distances between homes and fires. Averaging gridded weather station and RAWS data derived flame lengths for very high fire behavior in Section 1.4, the minimum safe distance between structures and vegetation should be 180 feet. Utilizing only RAWS data derived flame lengths, the minimum safe distance between structures and vegetation should be 140 feet. Cohen and Butler (1998) suggest that fuels need to be treated up to a distance of 130 feet from a structure to make the likelihood of ignition from radiant heat unlikely. Scott (2003) notes that this only takes into account the structures and not any homeowners or firefighters that maybe present defending the structures.

Fire behavior for 26 of the worst fires to occur in the SI ES-CWPP area from 1996-2010 was derived using data from three local weather stations - Central Park (KNYC), Newark Liberty International Airport (KEWR), and John F. Kennedy International Airport (KJFK) – and obtained from the Northeast Regional Climate Center at Cornell University. Fire behavior was modeled for each fire for all three weather stations yielding a total of 78 sets of fire behavior (26 fires x 3 weather stations). Flame lengths averaged 39 feet with a range of 22 feet to 58 feet. Sixty percent (60%) of the flame lengths were 40 feet or less.

Taking into consideration variations in fuel type that will control fire behavior, as well as already existing buffers between structures and vegetation, varying confidence in weather data, and the above studies, vegetation should be treated between 100 and 150 feet from primary structures to provide adequate defensible space.

A. Short term alternatives

1) Treatment of structural ignitability

Individual homeowners are encouraged to do as much as they can around their properties to reduce the risk of their homes from being damaged or destroyed by wildland fires and to help firefighters effectively protect their homes. Homeowners have a shared responsibility in ensuring the safety and defensibility of their property. Inadequately prepared properties increase the difficulty for firefighting personnel to effectively protect those properties. Homeowners can make preparations in two areas concerning their properties to reduce the potential for structural ignitability - home construction and maintenance, and landscaping.

Although the homeowner recommendations that are listed here are characterized as "short term", it should be understood that homeowners must maintain these conditions indefinitely into the future to insure lasting benefit in protecting themselves and their property from *Phragmites* driven wildfires.

1a) Home construction and maintenance

Roofing

Homeowners are encouraged to used fire resistant materials in the construction homes, attachments, and secondary structures, such as sheds and garages. Roofs should be constructed of composition shingles, metal, clay, or cement tile. Homeowners should consider constructing roofs with UL Class A rating, those with the highest fire-resistance rating for roofing as per ASTM E-108. Roofs with these materials are able to withstand severe fire exposure originating from sources outside of the building. Roofs with UL Class B and Class C rating are acceptable, however, these will only withstand moderate to light fire exposure, respectively, originating from sources outside of the building. Roofing materials that lack a UL rating should be avoid as they may afford little to no protection from fire exposure.

Any eaves, soffits, fascias should be covered with 1/8 inch screen to prevent embers or burning debris from accumulating in these spaces. Eaves should be boxed in, but enough ventilation needs to be provided to prevent condensation or mildew from forming.

Most importantly, homeowners need to remove any leaves, branches, and twigs from overhangs, gutters, and the roof in general. Embers landing on any fuel on the roof can ignite compromising the safety of the structure.

Exterior walls

Exterior walls should be constructed of fire resistant materials such as fiber cement siding and shingles, stucco, stone, brick, or blocks. Plastic siding may melt from the heat generated from wildland fires potentially exposing the underlying material and increasing the risk of ignition.

Fences

Fences should be constructed of non-flammable materials. However, if a fence is constructed of flammable materials, it should not be directly attached to the home or any other structure.

Balconies and decks

Balconies and decks should also be constructed of non-flammable or fire resistant materials. Overhangs created by balconies and decks should be enclosed to prevent any embers or burning debris from accumulating underneath them. Homeowners should try to avoid storing flammable and combustible materials under these spaces and keep the areas clear of leaves, pine needles, branches, and twigs.

Windows

Windows should be double-paned or tempered glass to reduce the risk of breakage from heat. Blinds, drapes, and curtains should be made of material with high ignition points. Generally, non-synthetic materials have higher ignition points than synthetic materials. Lace drapes should be avoided. Blinds, drapes, and curtains should be pulled closed to reduce the effects of radiant heat within the structure.

1b) Landscaping

The area within 30-feet of the home should be well-irrigated and kept clear of fuels that may ignite homes, fences, and other structures. Along with mowing the lawn regularly, pruning and removing dead material from lawns, shrubs, and trees, flammable and

combustible materials, such as wood piles and propane tanks, should be stored away at least 30 feet away from structures. Other flammable and combustible materials should be stored indoors.

Trees should be limbed to a height between 6 and 10 feet from the ground to avoid fire from spreading into canopies. Any branches within 10 feet of the chimney, roof, or house should be removed.

Plants around the home should be low-growing and less flammable, such as azalea, viburnum, crepe myrtle, spirea, hydrangea, and annual or perennial flowers. Less flammable trees are dogwood, maples, and oaks. Evergreens, laurels, rhododendron, and any other plant with a resinous or waxy luster are considered more flammable and should not be located within 30 feet of structures.

Homeowners should apply for coverage under the Staten Island Borough President's existing NYSDEC permit to cut any *Phragmites* on their properties. If it is necessary to cut *Phragmites* on adjoining or adjacent properties, homeowners should obtain permission to access the property from the property owner prior to cutting. When possible, homeowners should work together and encourage one another to create a continuous defensible space around the collective groups of properties. The existing permit allows homeowners to cut *Phragmites* a distance of 100 feet from the primary residence, though not greater than 50 feet beyond their property line.

In general, homeowners should keep the area within 30 feet of their homes clear of any vegetation, items, or debris that may create obstacles for firefighters and their equipment while fighting a fire.

2) Mechanical Fuels Reduction

Mechanical fuel reduction provides for the most immediate and effective treatment of *Phragmites* and can be implemented by homeowners and land management agencies alike. Cut *Phragmites* may either be left behind or removed. Any cut material that is left behind may contribute to some additional fire risk, however, the fire behavior exhibited by cut *Phragmites* will be significantly less than standing *Phragmites*. This type of treatment however must occur one or more times throughout a year to ensure that the *Phragmites* does not re-grow to heights that present hazardous fire conditions in the treated areas.

It is recommended that any mechanical treatment to be conducted around structures be between 100 and 150 feet from a structure to provide for a reasonable level of safety for personnel and property. In areas where *Phragmites* is growing along the edge of a street and there are no structures present, it is recommended that for firefighter safety, any mechanical treatment to be conducted on these streets be between 50 and 150 feet on either side of the street.

Two mechanical fuel reduction demonstrations- the first on October 18, 2011 by the NYSDEC and the second on November 8, 2011 by the US Fish and Wildlife Service- were accomplished for Kissam Avenue, a long road that has seen its residents severely impacted by past wildfires. While each demonstration event used a different machine to successfully cut down the *Phragmites*, both events revealed a serious impediment for future fuel reduction plans. Because remnants of illegal dumping remain hidden by the fields of *Phragmites*, the debris – refrigerators, tires, shopping carts, scaffolding, C&D waste, etc. – created havoc as the mechanical equipment was operating such that on the November 8th *Marshmaster* demonstration, that machine broke down three times within three hours due to encountering unseen debris. It is thus imperative that, before any future fuel reduction endeavor is undertaken, a "pre-cleaning" must take place first, i.e., the mechanical and/or hand removal of all debris within the areas designated for *Phragmites* cutting. With debris removal accomplished once and for all, all future maintenance cutting will run more efficiently and more quickly.

B. Intermediate term alternatives

No single control method currently available for the eradication of *Phragmites* has proved effective by itself. Rather an intensive protocol utilizing multiple control methods and deployed over multiple seasons (2 to 3 years) is the only recognized strategy for eradication. Eradication must be followed immediately by revegetating with appropriate native species that do not present the same fire hazard threats as *Phragmites*, or the *Phragmites* will soon aggressively repopulate the controlled area.

The treatments listed here are considered intermediate because they can be implemented over the next three to five years with adequate planning and funding. If fully implemented as detailed below, they will provide long-term solutions for the control of *Phragmites*.

Chemical Treatment of Vegetation

Chemical treatment of vegetation is one of the most effective methods for treating *Phragmites* as this treatment affects the entire plant and not just a portion of it. Chemical treatment however requires specialized training and certification within the State of New York and cannot be implemented by homeowners or land management agencies without the proper training and additional environmental compliance. Treated *Phragmites* stands also must be cut and/or removed after treatment as any cured stands left will increase potential fire risk. Herbicides used on *Phragmites* are not plant specific and may inhibit other plant growth. Chemical treatment can only be successful if implemented and monitored over several years and combined with mechanical treatment or physical removing and/or burning of the treated stands.

The extent of areas treated with chemicals should be the same as those described for mechanical fuel reduction. In areas where *Phragmites* is growing along the edge of a street and there are no structures present, it is recommended that for firefighter safety, any chemical treatment to be conducted on these streets be between 50 and 150 feet on either side of the street.

Prescribed burning

Prescribed burning is a method used by several agencies and municipalities throughout the country as part of a comprehensive program to control *Phragmites*. If prescribed fire is used, it would be limited to the burning of stubble and exposed roots and rhizomes of the plant to further weaken it. In this context it is not intended to control fuel loads and is not directed toward dead, unmown stands of *Phragmites* nor torwards the burning of mown *Phragmites* litter.

Implementing a prescribed burning program in Staten Island may be a complex process as it will require a review of state and city regulations, environmental compliance including conformity with new ambient air quality standards, and completion of a prescribed burn plan. Completion of burns is limited to specified prescription parameters that limit the time period that burns may be completed. Any use of prescribed burn would be determined at the time individual eradication projects are planned.

Revegetation

There are many references in the literature for Best Management Practices (BMP) for eradication of *Phragmites* (see references). The most widely accepted protocols prescribe at least two (2) separate applications of herbicide over two years, with either discing of the rhizomes or controlled burn (preferred) spaced between the two herbicide

applications. (Given the extremely hydric (wet) soils in most situations where controls will be applied within the CWPP, discing is not likely to be a practical control tool). Revegetation with appropriate native species then follows once successful eradication has been achieved.

Revegetation could encompass one of three possible strategies, or some combination of them: (1) natural recruitment from surviving soil seed banks and /or from surrounding populations of appropriate species; (2) seeding or (3) planting with live plant material; with (1) being the least expensive option and (3) the most expensive. Choice of plant materials could range from graminoids and forbs to shrubs, or a combination of both. Shrubs have the additional advantage, once reaching mature heights, of shading out *Phragmites*, making reinvasion less likely, or at least much less vigorous.

In anything but pristine or near pristine conditions natural recruitment (Option 1) is not a workable option. Newly cleared and controlled areas in close proximity to noxious weed seed and plant populations will be re-colonized very quickly by those species with no lasting benefits from the management steps taken. This is commonly the case within the CWPP. Two examples from within the CWPP support this conclusion: (1) following the spring 2009 fire at Oakwood Beach, NYC Parks-Greenbelt Native Plant Center staff observed the post-fire emergence of some common wetland species in areas formerly occupied by pure stands of *Phragmites.* The *Phragmites* quickly re-emerged and soon out-competed these natives. (2) Similar observations have been made by GNPC staff in areas repeatedly cleared of *Phragmites* by homeowners adjacent to their homes along Kissam Avenue.

The artificial nature of the control boundary being proposed for the CWPP poses the most significant challenge for revegetation. In most instances eradication and revegetation measures will be applied over a narrow 50 to 100 foot width and end abruptly at the designated line of demarcation, adjacent to uncontrolled and extensive stands of existing *Phragmites*. Even with a dense planting of live plant material, reinvasion into the newly restored areas is likely to be quick and vigorous, again yielding very little lasting benefits from the management steps taken. Control of the entire population of *Phragmites* in any given area, which would be the more effective approach, would be cost prohibitive and beyond the scope of this CWPP, with the exception of the planned NYCDEP Bluebelt projects, which will be sufficiently funded to stage such large scale eradications and restorations. (See immediately below for a description of the planned Bluebelt projects).

A reasonable approach to revegetation in this “line across the landscape” management scenario would be to maintain a buffer zone between more permanent native plantings

and the adjacent, uncontrolled stands of *Phragmites*. Such a buffer zone would consist of only herbaceous species (grasses and forbs), free from woody trees and shrubs. This zone could then be periodically managed with a combination of controlled burning selective herbicide application and overseeding when *Phragmites* reaches a pre-determined stage of reinvasion into the buffer zone. While this would impose a long-term maintenance regime onto the management of the CWPP, this buffer zone approach would likely be the most cost effective approach and presumably the most fundable, given the large acreage proposed for treatment within the CWPP.

In areas within the CWPP where mechanized removal is likely to be recurring, control and revegetation may be limited to the allowed 50 foot distance, and the plantings therefore should consist only of these meadow buffer plantings. Experiments could be conducted to determine if a 50% shrub zone and 50% meadow buffer zone within the 50 foot allowance could be successfully established and maintained. If situations are found where the control area is broader (for instance on public parkland, not adjacent to private homes) space may allow for a combination of buffer plantings and more permanent shrub plantings which would require only infrequent spot control of reinvasions with wick-applicated herbicides.

Ideally, allowance would be made by the NYSDEC, where appropriate, for larger revegetation zones, as this would allow for both a permanent shrub zone and a buffer zone. These larger zones would be more resistant to re-invasion and would require less frequent maintenance burning and overseeding and lower long-term maintenance costs.

Lists of appropriate species for revegetation within the CWPP are presented in Appendix 9 (Recommended Plant Lists for Revegetation of *Phragmites* Eradication Sites in Freshwater Wetlands). Species are listed in the three common habitat types found within the CWPP: Emergent Marsh, Wet Meadow, and Deciduous Swamp Forest. All of these species are grown by the NYC Parks/GNPC and some of these species are currently being developed for seed mixes and will be available in coming years.

Legislation and regulation

See section 4.8, *Project Support*, for a discussion of legislative action needed to deal with fire threats from *Phragmites* and absentee or uncooperative landowners within the CWPP area.

C. Long term alternatives

The treatment listed here is considered long-term because it is not foreseen that it will begin implementation for at least ten years and may take an additional ten to twenty years to be fully implemented. If fully implemented as detailed below, it will provide a long-term solution for the control of *Phragmites* within the CWPP.

Mid-Island Bluebelts

The New York City Department of Environmental Protection is proposing to construct storm water wetlands in the Oakwood Beach, New Creek, and South Beach watersheds (see map 6- Fire Threat Zones and Open Space Jurisdictions). These wetlands, also called Best Management Practices (BMP's), will reduce the amount of *Phragmites*, the primary wild fire fuel source in the area. The reeds will be removed through the excavation of existing fill soils that contain the roots (rhizomes) of the reeds and converting much of the area to standing water. The creation of standing water is one of the most successful techniques to fully remove *Phragmites* from an area. In upland areas surrounding the proposed BMP sites, *Phragmites* will be removed and replaced with native plants that are less of a concern from a wild fire fuel perspective. A maintenance plan will be employed to regularly remove *Phragmites* from the BMP areas. It is important to note that due to the prevalence of *Phragmites* in the watersheds and its aggressive nature, it is unlikely that all *Phragmites* will be removed from the proposed BMP areas.

In addition to the storm water wetlands, the NYCDEP has constructed several "maintenance roads" behind homes on City property in areas of thick *Phragmites* stands. *Phragmites* and debris were removed to create a maintainable space that can be kept free of debris and excessive vegetation. Additional such maintenance roads may be constructed in the New Creek and South Beach watersheds. All proposed work by the NYCDEP is contingent on future property acquisition in some areas and on future fiscal considerations. In addition, the construction of the proposed BMP sites and associated sewers will be phased over an approximately thirty-year period and should be viewed as a long term strategy for the removal of *Phragmites*.

Table 10 -Short-, Intermediate-, and Long-Term Mitigation Alternatives

SHORT TERM MITIGATION ALTERNATIVES (Implementable immediately)		
	Benefits	**Issues**
Homeowner Treatment of structure ignitability	• Homeowners become active stakeholders and take greater ownership of the protection of their homes and community • Homeowners become better educated about wildland fires in their community • Fosters better communication and cooperation between homeowners, all levels of government, and agencies responsible for land management of fire suppression	• Various levels of participation from homeowners
Mechanical Fuel Reduction	• Mowing provides immediate wildland fire risk reduction by changing fuel characteristics such that fire behavior is significantly less extreme • Mowing can occur during any time of year • Mowing is not impacted by weather	• To be effective, mowing may need to occur several times during the growing season • Low ground pressure equipment needs to be utilized to minimize surface and subsurface impacts • The areas to be treated have debris scattered on the ground which may impact and damage equipment and possibly surrounding property • Disking may increase *Phragmites* since pieces of the rhizome may produce new plants

INTERMEDIATE TERM MITIGATION ALTERNATIVES (Implementable within 3 to 10 years)		
NOTE: No single control method currently available for the eradication of *Phragmites* has proved effective by itself. Rather an intensive protocol utilizing multiple control methods and deployed over multiple seasons (2 to 3 years) is the only recognized strategy for eradication. Eradication must be followed immediately by the long-term solution of revegetating		
Chemical Treatment of vegetation	• Various herbicides are approved for use in wetlands • Large areas may be treated • Applied appropriately, herbicide will kill the entire plant (leaves, stems, and rhizomes) • Areas are treated once a year • Areas should be sprayed for two successive years, and then spot treated in succeeding years to prevent reestablishment thus reducing the cost of successive treatments	• Active ingredients in herbicides may not be plant specific and impact other plant species • Treatments take six (6) to eight (8) weeks to be effective • Treatments are weather dependent and should not occur if rain is forecast within 12 hours of application • Dead *Phragmites* should be left on site to prevent spread by seed during removal to adjoining areas increasing wildland fire risk until it is removed • *Phragmites* must be mechanically removed or burned after it is killed • Large areas more effectively treated through aerial application • Time specific application of herbicide (Mid-July to October)
Prescribed burning	• Burning removes *Phragmites* litter providing other species an area to germinate • Burning of weakened *Phragmites* roots and rhizomes can further weaken the plants as part of a comprehensive eradication program	• A ground fire that kills the roots is necessary to limit *Phragmites* growing ability • Short range spotting of 100 feet may pose control issues • Burning should occur from mid- to late summer (Mid July to September) to be most effective • Burning can only occur when burn prescription parameters are met • Burn windows may be short and limited due to time of year burns should occur • Air quality may be impacted for a short duration • Lack of qualified personnel to conduct prescribed burning
Re-vegetation	• Fire resistant native vegetation can be planted, significantly reducing wildland fire risk. • The Greenbelt Native Plant Center, located on Staten Island, is the NYC Parks Department native plant nursery and grows over 450 species of natives, with a stock of over 400,000 plants, many species suitable for re-vegetation efforts in the CWPP.	• Time and labor intensive • Doesn't completely eliminate risk of fire, only mitigates. • Will still require a commitment of funds, staff, and time for on-going management and spot treatment of *Phragmites* reinvasions.

Legislation and regulation	• Provides a legal means for the city and/or state to cope with absentee or uncooperative landowners	• Clarification is necessary to determine whether the proper legislation needs to occur on the state or city level

LONG TERM TREATMENT ALTERNATIVES (Implementable within 10 years or more)		
Mid-Island Bluebelt	• Plan is already in its developmental stage • *Phragmites* would be removed from the location and can be replaced with fire resistant native vegetation significantly reducing wildland fire risk • Creation of stormwater wetlands will limit the spread of wildland fire across the landscape • Creation of stormwater wetlands will prevent *Phragmites* from re-establishing itself	• Plan could take up to 30 years for completion • Plan may treat only portions of areas of concern requiring additional or alternative treatments especially adjacent to private property

Section 4.0 References

- ASTM Standard E108-20, 2010a "Standard Test Methods for Fire Tests of Roof Coverings", ASTM International, West Conshohocken, PA, 2010, DOI 10.1520/E0108-10A, www.astm.org

- Butler, B.W. and Cohen, J.D., 1998, Firefighter safety zones: A theoretical model based on radiative heating. International Journal of Wildland Fire. 8(2): 73-77.

- Cohen, J.D. and Butler, B.W., 1998,Modeling potential structure ignitions from flame radiation exposure with implications for wildland/urban interface fire management. In: 13th Conference on Fire and Forest Meteorology; 1996 October 27-31; Lone, Victoria, Australia. Fairfield, WA: International Association of Wildland Fire:81-86.

- Scott, J.H., 2003, Canopy fuel treatment standards for the Wildland-Urban Interface. In: Fire, fuel treatments, and ecological restoration: Conference Proceedings; 2002 April 16-18; Fort Collins, CO. Omi, P.N, and Joyce, L.A., tech. eds. Proceedings RMRS-P-29. Fort Collins, CO: U.S. Department of Agriculture, U.S. Forest Service, Rocky Mountain Research Station: 29-37.

<u>References on Re-vegetation</u>

- Dodici, Gian. 2004. Integrated Management of *Phragmites australis* at the Lower Cape May Meadows- Cape May Point Environmental Restoration Project. Prepared for U.S.

Army Corp of Engineers, Philadelphia District. Prepared by U.S. Fish and Wildlife Service, Ecological Services, Region 5, New Jersey Field Office, Pleasantville, N.J.

- Olson, Bridget E., 2007. *Phragmites* Control Plan. U.S. Fish and Wildlife Service, Bear River Migratory Bird Refuge, Brigham City, Utah.
- Cross, Diana H. and Karen L. Fleming. 1989. Waterfowl Management Handbook 13.4.12: Control of *Phragmites* or Common Reed. U.S. Fish and Wildlife Service, Office of Information Transfer, Ft. Collins, CO.
- Virginia Department of Conservation & Recreation. 2007. Marsh Invader! How to Identify and combat one of Virginia's most invasive plants: *Phragmites*.
- Michigan Department of Environmental Quality. 2006. A Landowner's Guide to *Phragmites* Control.
- Kafcas, Ernest and John Schafer. 2006. *Phragmites* Control in the St. Clair River Delta: Study Overview and a Guide for Landowners. (Power Point Presentation). Michigan Department of Natural Resources.
- Carlson, Martha L., Kurt P. Kowalski and Douglas A. Wilcox. 2009. Promoting Species Establishment in a *Phragmites*-dominated Great Lake Coastal Wetland. Natural Areas Journal, Vol. 29 (3) pp. 263-277.
- Ailstock, Stephen M. (unpublished?). Adaptive Strategies of Common Reed *Phragmites australis*. Environmental Center, Anne Arrundel Community College.
- Heffernan, K.E., R. K. Myers, and P. A. Clarke. 2009. Management Plan for *Phragmites australis* on the Seaside of Virginia's Eastern Shore. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Natural Heritage Technical Report #09-09. 31pp. plus appendices.

Section 4.2 -Treatment of Structural Ignitability

The issue of structural ignitability is best addressed by bringing the *Firewise* program to the community in the form of an educational and informational tool. The CWPP Fire Council will coordinate this effort. If key individuals or community leaders develop a

strong interest in the *Firewise* program, the East Shore community could, in part or in total, become a certified *Firewise* community. This would help develop community understanding of their risk to wildfire and varieties of mitigation projects that can reduce loss of property, injury or loss of life. The *Firewise* program is very interested at providing help, expertise and support at any endeavor to reduce the wildfire hazard in this wildland-urban interface community. Information about *Firewise* can be found at www.firewise.org . Also see Appendices 6 (*Firewise* Guide to Landscape and Construction), 7 (*Firewise* Brochure for Homeowners), and 8 (*Firewise* Brocure for Civic Leaders).

Section 4.3 -Public Outreach and Education:

Public outreach and education about wildfire prevention awareness will be accomplished as a collaborative effort between the members of the CWPP *Fire Council* (See section 4.7). Reasonable efforts will be made to present materials to the public at least twice a year in late winter and late summer, just prior to the two major fire seasons within the CWPP. The *Fire Council* members will use the resources at their disposal, and will seek funding opportunities to add to these efforts as well. Existing programs such as the FDNY's Fire Safety Education (FSE) program, the NYSDEC's Smokey the Bear program and others can act as venues to incorporate specific content regarding wildfire prevention awareness. Assistance from the *Firewise* Regional Coordinator will also be sought to see what resources from that national program can be incorporated.

Section 4.4 -Emergency Equipment Enhancement

Currently, there is no fire weather station (manual or Remote Automated Weather Station (RAWS)) located in New York City. The closest fire weather station is the New Middlesex RAWS operated by the New Jersey Forest Fire Service. Although there are various weather stations operated by the National Weather Service (Newark Liberty International Airport, Central Park, John F. Kennedy International Airport) and other entities nearby, there are no weather stations that the agencies can rely upon for accurate and immediate fire weather information. A RAWS situated in Staten Island could provide reliable and critical information to fire managers during fire season as well as during actual wildland incidents. The agencies responsible for land management and fire suppression in the SI ES CWPP area will review the types of fire weather stations

available, review the procedures for obtaining and establishing a fire weather station that is in compliance with the Interagency Wildland Fire Weather Station Standards & Guidelines (NWCG Publication 426-3), and consider acquiring a fire weather station.

All of the agencies lack adequate equipment to perform any mechanical fuel reduction. Furthermore, because the *Phragmites* generally occurs in wetland areas, the New York State Department of Environmental Conservation requires that only motorized equipment with a ground pressure of less than 4 psi be utilized to minimize significantly disturbing the soils. Limiting the ground pressure also guarantees that such equipment would not have difficulty operating in the soft soils and wetlands while performing such work. At the moment, the only ways to perform any mechanical fuel reduction with motorized equipment are either through the use of contractors or requesting assistance from the U.S. Fish and Wildlife Service. The agencies responsible for land management and fire suppression in the SI ES CWPP area will review the types of equipment available and consider acquiring this type of equipment to perform mechanical fuel reduction in the future.

Section 4.5 -Emergency Response Plan

FDNY's typical response to a reported brush fire would be one engine company, or one Brush Fire Unit during the times that the Brush Fire Units are independently staffed (3/17 - 4/30 and 10/17 - 11/30 from 0900 to 1800).

Upon the receipt of several phone calls for a particular area before the arrival of the first unit, the FD dispatcher could increase the response to a total of three engines, two ladders, and a Battalion Chief; a Brush fire Unit would also be brought by its associated engine company dispatched on the increased response.

Upon arrival of the first FD unit additional help or a multiple alarm could be requested.

As a supplement to fire operations, a Community Emergency Response Team (CERT) is available to the FDNY at a large scale incident. A CERT is made up of volunteers who undergo a 10-week training program in disaster preparedness and basic emergency response skills through the New York City Office of Emergency Management (OEM). The program is taught by active and retired personnel from the Fire and Police Departments. After completing training that includes lessons in fire safety, light search

and rescue, and disaster medical operations, CERTs support their local communities by assisting City agencies that prepare for and respond to disasters.

During non-emergency situations, NYC CERTs educate their communities on emergency preparedness by working with the Ready New York program and building community disaster networks. The FDNY could request the CERT response through OEM to assist in traffic and crowd control, evacuation, etc.

Gateway National Recreation Area is in the process of formulating its first Fire Management Plan (FMP). This plan will establish staffing levels at various fire danger levels within the park based upon historic weather data. Currently, Gateway National Recreation Area utilizes the fire danger level Division B of the New Jersey Forest Fire Service and has established an interim staffing plan while the FMP is being completed. The fire danger level utilizes the fire danger adjectives and colors established in the National Fire Danger Rating System (NFDRS) (See Appendix 6- What is the National Fire Danger Rating System?). If the fire danger level is high or greater, fire personnel work extended tours of duty. Gateway National Recreation Area notifies FDNY, all park personnel, the US Park Police, the NYS DEC Forest Rangers and Emergency Management Unit, MAFMA, and the NPS Northeast Region's Fire Management Office when fire danger is high or greater.

Section 4.6 -Enhancement of Utilities and Infrastructure

Based on the types of utility infrastructure present in the area, only minimal changes are required in the short term. Existing electrical substations should manage or maintain their surrounding vegetation in accordance with *Firewise* guidelines. New substations should include the risk of wildland fire in their design guidance. The wastewater treatment plant should likewise manage the fuels on their property accordingly, and work with adjoining landowners to create or maintain a safe zone around the facility. New facilities or expansions of the existing facility should also include risk of wildland fire in their design guidance.

It is unlikely that any substantive changes can be made to the overhead electrical grid, however, the long term solutions proposed for the highest fuel areas should reduce the risk to these assets.

In the long term, cover type change associated with the construction of the Bluebelt is expected to significantly reduce the character and amount of fuels present in the CWPP area, with concurrent reduction in hazard to these facilities.

Section 4.7 - Evaluate, Update and Maintain Planning Commitments- Creation of an *East Shore Fire Council*

An ***East Shore Fire Council*** will be organized to support and facilitate this plan, and will consist of representatives appointed by each of the CWPP agencies and by the elected officials and community board members or their appointed representatives that serve the East Shore Community. The 21 members of the *Fire Council* will be:

AGENCY REPRESENTATIVES:

- NYC Fire Department
- NYC Department of Environmental Protection
- NYC Department of Parks & Recreation
- NYS Department of Environmental Conservation

ELECTED OFFICIAL REPRESENTATIVES:

- Mayor's Community Affairs Unit
- Staten Island Borough President
- Each of the 3 NYC Council Members
- Each of the 2 NY State Senators
- Each of the 4 NY State Assembly Members
- Each of the 2 US Senators
- The US Congressional Member

COMMUNITY REPRESENTATIVES:

- A representative from Community Board 1
- A representative from Community Board 2
- A representative from Community Board 3

The *Council* shall have two co-chairs. Each co-chair shall serve for one year terms, and will serve to coordinate schedule, tasks and general oversight of the group.

The *Council* may propose to the parties who have approved this plan changes that are necessary for the Plan to be supported and effective.

In addition the *Council*:

- Will be responsible for on-going public outreach and education on wildfire prevention awareness (See Section 4.3).
- Will pursue actions outlined under Section 4.8- Project Support that will enhance the effectiveness of the CWPP.
- Will be presented with implementation plans for funded projects by the Project Sponsors (see Section 5.0) and will verify that the proposed, funded project(s) reflects the highest priorities for actions identified by the CWPP and that the project(s) can be successfully implemented with the available funds.
- Will report on the implementation of the plan and the effectiveness of every project associated with the plan.
- Will explore how grants can play a significant role in implementing the recommendations of the CWPP, particularly in support of wildfire mitigation and fire prevention.
- Will seek to secure funding for any required environmental assessments of proposed projects.

Section 4.8 -Project Support

The recommended actions contained in this CWPP will require cooperation of various agencies that have regulatory and/or management responsibilities along the eastern shore of Staten Island. Studies, monitoring, and determination of legal jurisdictions are integral to many action items recommended in this CWPP. Although this may add complexity to implementation, it should not discourage pursuit of these projects.

Legislation and regulation: Legal options are needed that will provide the City and/or State with a mechanism to cope with absentee or uncooperative landowners within the CWPP who have stands of *Phragmites* on their property that either pose a threat to adjacent properties or make it impossible or costly to treat *Phragmites* adjacent to their

properties. Clarification is necessary to determine whether the proper legislation needs to occur on the state or city level. For a fuller discussion of the legal issues see Appendix 5- *Legal Issues Regarding Absentee Landowners*.

Public Land Planning: The National Park Service, New York State Department of Environmental Conservation, New York City Department of Environmental Protection, and New York City Department of Parks and Recreation, all either regulate or manage wetlands and the surrounding forested areas along the eastern shore of Staten Island. The CWPP development process is designed to facilitate dialog with these agencies and coordinate public and private wildland fire and natural resource management strategies. As the CWPP strategic plan is implemented, dialog and collaboration should be maintained with these agencies in order to coordinate strategies and treatments, and make adjustments if necessary. Where possible, strategic fuelbreak recommendations should be coordinated with planned treatment areas managed by the National Park Service, the planned Staten Island Bluebelt managed by the New York City Department of Environmental Protection, as well as any other natural resource management plans in development by the abovementioned agencies.

Data Collection and Analysis: Wildfire in urban areas can occur in patterns, which may be either temporal or spatial. National Park Service and FDNY, as the lead local fire fighting entities, will endeavor to improve and coordinate their record keeping and data sharing regarding the incidence of fire in the CWPP area. Long term GIS mapping of fire locations may reveal areas that are the most prone to burning, or points where ignition occurs most often. This data can be utilized by all CWPP entities, including the CWPP *Fire Council*, to prioritize (to a much finer scale than the zone map) fuels management, cleanups, restoration, fencing, or maintenance activities which reduce the incidence of fire. In addition, seasonal or daily patterns may suggest times when greater enforcement effort or prepositioning of equipment may be beneficial.

Section 5.0 -Implementation Timetable-

While the menu of immediate, intermediate, and long-term alternatives may be modified or enhanced further through time, there is sufficient information within the CWPP to create a flexible implementation plan of action crafted from each of these alternatives. At a minimum, therefore, once the CWPP is approved and signed, the action plan for immediate goals must be implemented as time-critical because with the ferocity, speed,

and endurance of the 2010 fires, the next *Phragmites* wildfire continues to be an everyday threat to property and lives within the East Shore community.

To that end, the Fire Council, as part of its public outreach, will solicit Project Sponsors to submit project plans for the implementation of the CWPP recommendations with regards to wildfire mitigation and fire prevention. The Project Sponsors will propose projects as funding is secured, based on the priorities outlined in the CWPP, but considering and scaled to the level of secured funding. NYC Parks has agreed to act as a Project Sponsor, in coordination with other key stakeholder agencies, and will present proposed funded projects that have funding available and accessible to the *Fire Council* for verification that the project reflects the highest priorities of the CWPP (See Section 4.7). Until such time as a Fire Council is established, NYC Parks, in coordination with other key stakeholder agencies will assume the role of primary Project Sponsor for any projects that are proposed and funded, and will verify with the key stakeholders that the project reflects the highest priorities of the CWPP.

Nothing in this section shall prevent any city, state or federal agency, or other individual or entity, from acting, at any time, as a Project Sponsor to present project plans and possible funding to the Fire Council, or to pursue on their own wildfire prevention initiatives.

Section 6.0 -Declaration of Agreement and Concurrence

The following partners in the development of this Community Wildfire Protection Plan have reviewed and mutually agree on its contents:

[FOR FDNY]

Salvatore Cassano 10/2/12

Signature *Date*

Salvatore J. Cassano, FDNY Fire Commissioner

Name, Title, Agency/Organization

[FOR NYCDEP]

Carter H. Strickland 10/9/12

Signature *Date*

Carter H. Strickland Jr. Commissioner NYC DEP

Name, Title, Agency/Organization

[FOR NYC Parks]

Veron M. White 9/28/12

Signature *Date*

Veronica M. White, Commissioner, NYC DPR

Name, Title, Agency/Organization

[FOR NYSDEC]

10.12.12

Signature *Date*

Venetia A. Lannon, Regional Director, NYSDEC

Name, Title, Agency/Organization

Section 7.0 -Appendices

Appendix 1 -Resource Contacts

Formal Associations

List the contact information for churches, civic groups, volunteer service organizations, etc.

Name	*Contact Person*	*Telephone Number*	*Other*	*Contact Information*
CIVIC ASSOCIATIONS				
South Beach Civic Association	Joseph McAllister	718-930-6603		24 Cambria Street Staten Island, NY 10305
Midland Beach Civic Association	Yasmin Ammirato			PO Box 60531 Staten Island, NY 10306
Ocean Breeze/Graham Beach Civic Association	Steve Elias			711 Oceanside Ave Staten Island, NY 10305
New Dorp Central Civic	Joseph Markowski	718-979-6011		168 New Dorp Plaza Staten Island, NY 10306
RELIGIOUS INSTITUTIONS				
Geller House School	Principal Matthew Rubenstien	718-442-7828		77 Chicago Ave 10305

Our Lady of Lourdes Roman Catholic Church	Pastor - Rev. William J. Damroth III	718-351-1093		Cedar Grove Ave 10306
Recovery House of Worship of Staten Island	Senior Pastor Raymond Ramos	718-273-9162		96 McClean Ave 10305
Holy Rosary Roman Catholic Church	Pastor – Father Robert Aufieri	718-727-5700		80 Jerome Ave, 100 Jerome) 10305
Oakwood Heights Community Church	Pastor – Rev. Larry Sallee	718-351-3667		345 Guyon Ave 10306
Iglesia Pentecostal Hermanos	Principal John Negron	718-667-1589		541 Midland Ave 10305
St. George Malankara Orthodox Church	Reverend Father Alex K. Joy	718-351-5585		75 Cedar Grove Ave 10305
St Margaret Mary's Roman Catholic Church	Reverend Erno Diaz, Administrator	718-351-2612		560 Lincoln Ave 10305
Grace Bible Church	Richard Dupont	718-667-7816		466 Mill Rd 10306
Seed Faith International Christian Center		718-727-6990		3065 Hylan Blvd 10306
Academy of St. Dorothy		718-351-0939		1305 Hylan Blvd
St John Villa Convent & Academy, High School & Convent				57 Cleveland Pl & 25 Landis Ave
St Joseph Hill Academy & Daughters of Divine Charity Convent		718-727-5700		850 Hylan Blvd 10305

Media Sources

List the contact information for local media and other outlets for public awareness.

TELEVISION

Name	*Call letters*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Website*
NY1			212-691-6397		NY1.com

RADIO

Name	*Call letters*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Website*
College of Staten Island WSIA	WSIA 88.9FM				http://www.csi.cuny.edu/currentstudents/studentlife/wsia.html

NEWSPAPER

Name	*Call letters*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Website*
Staten Island Advance		Caroline Diamond Harrison, Publisher	718-981-1234		*Silive.com*

OTHER

Name	*Call letters*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Website*
Silive.com					www.silive.com

Schools

List all schools within the planning area, a member of the school board or the school's superintendent can provide you with this information.

School	*Address*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Website*	*Shelter use (Y/N)*	*Shelter in place (Y/N)*
PS 39 Murphy Elementary School	71 Sand Lane 10305	Tracey Wright, Principal	718-447-4543				
PS 52	450 Buel Ave 10305	Jane McCord, Principal	718-351-5454				
IS 2 Egbert Intermediate School	333 Midland Ave 10305	Adrienne Stallone, Principal	718-987-5336				
New Dorp High School	465 New Dorp Lane 10306	Deirdre DeAngelis, Principal	718-667-8686				
Empire State College (SUNY)	500 Seaview Ave, Suite 230, 10305		718-667-7524				
PS 38 Cromwell Elementary School	421 Lincoln Ave 10306	Everlidys Robles, Principal					

Emergency Medical Facilities

List local medical and mass care facilities in the area

Medical Facility	*Address*	*Contact (Name/Title)*	*Phone/Fax #*	*Email address*	*Additional Info*	*Distance*
Staten Island University Hospital	475 Seaview Ave 10305		718-226-9000			

Funding Opportunities

Identify potential funding opportunities.

Source	*Type*	*Contact Name*	*Phone*	*Email*

Appendix 2 -Regulatory Considerations for the CWPP

Regulation of Freshwater Wetlands

The area along the Staten Island southern shore addressed by the CWPP is dominated by State-regulated freshwater wetlands. These habitats are protected under New York State Environmental Conservation Law (ECL Article 24) and activities within these wetlands are controlled pursuant to Freshwater Wetlands Regulations (NYCRR Part 663), as administered by the New York State Department of Environmental Conservation (NYSDEC). (Part 663 may be viewed in full at: http://www.dec.ny.gov/regs/4613.html). The boundaries of these wetland areas are generally depicted on Freshwater Wetland Inventory Maps (see attached). Freshwater wetlands can display a range of habitat types with varying degrees of vegetated cover ranging from fully vegetated to fully open water. The habitat types for the three major wetland areas on the southern shore of Staten Island (NA-7, NA-9 & NA-10) have been characterized as follows:

South Beach NA-7 Class I

90 acres Emergent Marsh (49%), Wet Meadow (38%), Open Water (13%)

Dongan Hills NA-9 Class I

118 acres Emergent Marsh (89%), Open Water (11%)

Oakwood Beach NA-10 Class I

242 acres Emergent Marsh (94%), Deciduous Swamp (4%), Open Water (2%)

The vegetation within these wetland areas is dominated by dense stands of *Phragmites*. *Phragmites* is an invasive perennial grass that is dramatically altering wetlands in North America. *Phragmites* often outcompetes all other plant species, establishing a monoculture, which lowers habitat diversity. The invasive subspecies of *Phragmites* is similar to a native species and it is imperative that a stand be identified as either invasive or native *Phragmites* before implementing a management activity. Though *Phragmites australis* is an invasive species, it nonetheless serves several of the functions that are valued in freshwater wetlands, and it is important to consider those functions when contemplating control measures.

Class I wetlands provide the most critical of the state's wetland benefits, reduction of which is acceptable only under special circumstances. A permit is issued only if it is determined that the proposed activity satisfies a compelling economic or social need that clearly and substantially outweighs the loss or detriment to the benefits of the Class I wetland.

The permitting standards that must be met include a demonstration that the proposed activity is compatible with the public health and welfare, and is the only practicable alternative that accomplishes the applicant's objectives. Additionally, the proposed activity must minimize degradation to or loss of any part of the wetland or its adjacent area and must minimize impacts on the functions and benefits that the wetland provides

Phragmites **Control**

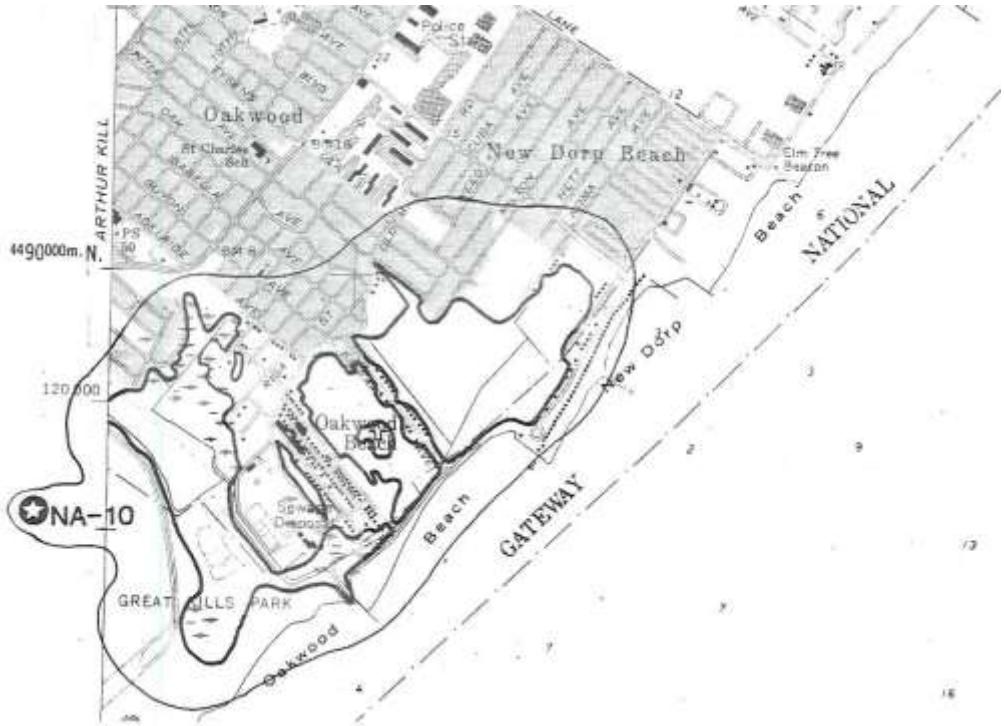
Management options for the control of *Phragmites* include excavation, cutting/mowing, flooding and herbicide application. Due to the extensive underground rhizome system created by *Phragmites* it is generally more effective to employ measures that address both the aboveground and belowground systems. Removal of only the aboveground biomass can actually result in an increase in the density and spread of a *Phragmites* stand, if the control measure is not applied correctly and persistently. **All of these types of controls will require the issuance of a Freshwater Wetland permit from the NYSDEC.** For the purposes of the CWPP, only cutting/mowing and herbicide application are discussed further.

Cutting/Mowing. Removal of a *Phragmites* stand can be performed using machines or by hand-cutting stems. Mowing does not directly affect the root system of *Phragmites*, consequently repeated cuts are needed. Mowing should be conducted in late July/early August when most of the carbohydrate reserves are in the upper portion of the plant (i.e. during seed production or flowering). Mowing is a relatively low cost method, and can be performed with minimal training. If motorized equipment is to be used, it is critical to select a type that can work in soft substrates without creating deep ruts or otherwise disturbing the substrate. A ground pressure rating of no more than 4 psi is generally acceptable. Minimizing disturbance of the substrate will facilitate re-establishment of desirable, native wetland plant species. The cut stems must be collected and removed from the site and all clothing, boots, and equipment should be cleaned on-site to avoid the dispersal of *Phragmites*.

Herbicide Application. An advantage to applying herbicide to *Phragmites* is that the approach generally targets the rhizomes as well as the stalks. However, non-target species can also be affected, thus it is critical that properly trained and certified applicators conduct the work and that all product label instructions be strictly followed. To be most successful, applications must occur for two to three consecutive years. Following each application stalks must be harvested in order to remove the hazardous fuel source.

Combining two or more management options is often the most effective way to eliminate *Phragmites*. Regardless of the option(s) used, it is critical to regularly monitor the treated area to gauge the effectiveness of the treatment and to identify when additional measures may be required. Ideally, a suite of native wetland plants would replace the *Phragmites*. While this could occur through natural processes, it is best to actively plant desirable species, providing an advantage against a re-invasion of *Phragmites*.

Maps 7 and 8 -Excerpts from NYS Freshwater Wetland Inventory Maps



Appendix 3 -Text of NYS Prescribed Burn Regulations

Part 194 – Forest Practices

(Statutory authority: Environmental Conservation Law, § 1-0101, 3-0301, 9-0105 and 9-1105)

Sec. 194.1 Definitions.

As used in this Part, the following terms shall have the indicated meanings:

(a) "Agriculture" shall mean the science, art and business of cultivating the soil, producing crops (including field crops, fruits, vegetables and horticultural specialties), growing livestock feed, and raising and maintaining livestock and livestock products (including cattle, sheep, hogs, goats, horses, poultry, fur bearing animals, milk, eggs and furs) useful to humans, commonly known as farming. Agriculture will not include the raising of crops, products, or livestock which are not primarily intended to be sold.

(b) "Commissioner" shall mean the commissioner of the Department of Environmental Conservation of the State of New York.

(c) "Department" shall mean the Department of Environmental Conservation of the State of New York, its officers and employees.

(d) "Fire unit" shall mean the land area to be treated using a prescribed fire or prescribed burn.

(e) "Forest land" shall mean land carrying forest growth or, if totally lacking it, bearing evidence of former forest and not now in other use. It includes not only lands which may be covered with tree growth but also lands best adapted to forests.

(f) "Management-ignited prescribed fire", "prescribed fire", or "prescribed burn" shall mean the intentional setting of forest land on fire under carefully controlled conditions to achieve a vegetative or wildlife management goal adhering to a written and approved prescribed fire plan.

(g) "Nondepartment lands" shall mean all lands not under the jurisdiction of the department, including but not limited to lands under the jurisdiction of other state agencies or public authorities, lands owned by counties, towns, villages, cities or other political subdivisions of the state, and privately owned lands.

(h) "Person" shall mean for the purposes of this Part an individual, organization, corporation, state agency other than the department, public authority, county, town, village, city, municipal agency or other private forest landowner.

(i) "Prescribed burn plan" or "prescribed burn management plan" shall mean a written design for the use of fire to accomplish management goals and incorporating all applicable requirements in Section 194.5 of this Part.

(j) "Prescribed fire plan" or "prescribed fire management plan" shall mean a written design for the use of fire to accomplish management goals and incorporating all applicable requirements in Section 194.3 of this Part.

(k) "Prescribed natural fire" shall mean a fire ignited by natural causes and allowed to continue to burn to predetermined containment points as long as the characteristics of the fire remain within a written and approved prescribed fire plan containing applicable requirements in Section 194.3 of this Part.

(l) "Regional land manager" shall mean the senior departmental program person to whom a given parcel is assigned for management in a departmental region; e.g., Regional Wildlife Manager, Regional Forester, Regional Forestry Manager, Chief of the Bureau of Marine Habitat Protection for department-owned tidal wetlands.

Sec. 194.2 Prescribed fires on state land under the jurisdiction of the department.

(a) The department is authorized to set management-ignited prescribed fires and manage naturally ignited prescribed fires for purposes including, but not limited to silviculture, wildlife management, habitat management, insect and/or disease control, forest fuel reduction, wildfire suppression or as an alternative action to mechanical or chemical control of vegetation.

(b) No prescribed fire, either intentionally or naturally ignited, shall be set or be allowed to burn on land constituting the Forest Preserve or on any State land within the Adirondack or Catskill Parks for any purpose other than fire suppression.

(c) Management-ignited prescribed fires shall not be set until a prescribed fire management plan is approved which contains provisions for notifying or waiving notification concerning such fire to local fire officials, airports, police agencies and health care facilities.

Sec. 194.3 Prescribed fire management plan for state land under the jurisdiction of the department.

No prescribed fire shall be set unless a prescribed fire management plan has been prepared in advance and approved in writing by the department. Prescribed fire plans shall address all the following requirements; except that prescribed fire plans for natural ignitions will not include cost estimates, preparation work descriptions, test fire

procedures and the ignition method or pattern. Additional requirements may be added to a prescribed fire plan as needed to achieve unique fire objectives or to meet local requirements.

(a) Fire unit description: a narrative description of the physical and biological features of the fire unit, including topography, fuels and vegetation.

(b) Vicinity map: a map at the appropriate scale showing the relationship of the fire unit to the surrounding area.

(c) Project map: a detailed map at the appropriate scale of the project area, showing project boundary (including distance between project and adjacent lands or property to be protected), topographic features, potential hazards, control lines, ignition pattern and other relevant information.

(d) Goals and objectives: a statement of the goals and objectives to be accomplished by the prescribed fire. It should include the purpose of the prescribed fire as well as measurable objectives such as tons of fuel to be consumed, percent of mineral soil to be exposed or percent of vegetative species controlled.

(e) Cost: an itemized estimate of the costs involved for each segment of the prescribed fire: planning, ignition or firing, mop-up, patrol and any other costs.

(f) Equipment and personnel: a list of equipment and personnel, including personnel duty titles, needed on site and on standby.

(g) Fire prescription: the description of the acceptable range of fire weather, fuel and soil moisture, fuel quantity and fire behavior conditions to achieve the desired effects.

(h) Weather information: an outline of prefire desired weather conditions and procedures for obtaining spot weather information during the prescribed fire and for smoke dispersal forecasts.

(i) Preparation work: a list of required activities required to take place prior to ignition, including but not limited to fire lines, special features to be protected and installation of monitoring equipment.

(j) Protection of special features: a list of instructions and actions to take to protect sensitive features within and adjacent to the prescribed fire project site. Such features include but are not limited to, historic and archeological sites, gas and oil wells, streams, habitats of threatened and endangered species that would be adversely impacted by the prescribed fire, adjacent structures and fragile soils.

(k) Smoke management: identify potential smoke affected areas and smoke management strategies to avoid such areas, and to reduce and/or disperse emissions to minimize any

adverse effect on the environment, including human health and welfare. Also describe procedures to comply with applicable State and local regulations.

(l) Prefire coordination and public involvement: where applicable, establish responsibility for preburn coordination with affected agencies, lessees and landowners. Assess the need for public involvement and media contacts in advance of the prescribed fire and take action where necessary.

(m) Fire day notification: establish responsibility for fire day contacts. List individuals, lessees, agencies and public groups to be contacted, how contacts will be accomplished and by whom.

(n) Public and personnel safety: a description of safety and emergency procedures. List pertinent names and means of contact. Identify emergency medical evacuation routes and facilities.

(o) Communications: a list of key communication contacts and telephone numbers.

(p) Briefing guidelines and "go" or "no go" checklist: a description of the project procedures which should be reviewed with those conducting the prescribed fire to make sure all involved personnel are familiar with them. The checklist must be completed prior to ignition and will describe the conditions beyond which the prescribed fire must not be ignited. Provide the name of the individual who has the authority to issue the "go" or "no go" command.

(q) Test fire: a list of procedures for conducting a test fire to determine whether the ground and atmospheric conditions meet the requirements established in the prescribed fire plan.

(r) Firing, containment, mop-up and patrol: a description of the method of ignition, ignition pattern, containment, mop-up and patrol procedures. Include personnel, equipment and standards for each action.

(s) Contingency: identify potential fire escapes and specify actions to be taken should such an event occur. Designate a person in charge of suppression action and identify the personnel and equipment available for suppression.

(t) Monitoring and evaluation: a description of the variables that will be monitored and evaluated to determine if project objectives have been met. Establish time frame guidelines and personnel and equipment requirements.

(u) Rehabilitation: a description of standards for site clean up and erosion control and for site restoration, if needed.

(v) Necessary support documentation: a listing of all documentation necessary to support (as applicable) all elements of the prescribed fire plan.

(w) Required signatures and approvals: The names and signature lines of the preparers of the prescribed fire plan and those who have the authority to review and approve the plan and modifications of the plan.

Sec. 194.4 Prescribed burns on nondepartment lands.

(a) No person shall ignite a prescribed burn without first receiving written authorization from the department. The department may authorize a person, state agency, public authority, county, town, village, city or municipal agency to use prescribed burns on public or private forest lands for purposes including, but not limited to silviculture, wildlife management, habitat management, insect and/or disease control, forest fuel reduction or as an alternative action to mechanical or chemical control of vegetation pursuant to a written prescribed burn management plan prepared by or for such landowner. The prescribed burn plan must be submitted for approval to the appropriate regional land manager of the department. The prescribed burn plan shall contain, but is not limited to the requirements in Section 194.5 of this Part.

(b) Those persons engaged in the practice of agriculture are exempt from the requirements of this Part.

Sec. 194.5 Prescribed burn plan for nondepartment lands.

The prescribed burn plan shall include, but not be limited to the following elements:

(a) Landowner or prescribed burn manager qualifications: a description of the landowner's or prescribed burn manager's training and expertise in conducting prescribed burn activities.

(b) Prescribed burn unit description: a map at the appropriate scale and a narrative description identifying the area or areas on which prescribed burn activities will be undertaken.

(c) Goals and objectives: a description of the ecological purposes and objectives of the prescribed burn, including an identification of the specific species or natural communities that are intended to be affected by the burn.

(d) Cover and fuel loads: a description of the vegetative cover and fuel loads on each area to be subjected to prescribed burning.

(e) Timing and weather conditions: a description of physical conditions, such as time of year, wind speed and direction, and air temperature and humidity, which must be met before a prescribed burn is initiated.

(f) Intensity and duration of burn: a description of the anticipated intensity and duration of the prescribed burn, such as flame length and rate of spread, given the fuel loads and physical prescriptions described.

(g) Logistics: a description of the logistics of the prescribed burn operation, number of personnel and description of duties, and fire management equipment that will be deployed to assure that the burn is restricted to the area or areas identified for prescribed burn management. This will include but not be limited to a description of the method of ignition, ignition pattern, containment, mop-up and patrol procedures.

(h) Suppression: a description of fire suppression activities to be immediately implemented should the prescribed burn threaten to escape, or actually escape, beyond the boundaries identified for such burn.

(i) Notification: a description of the procedures for notifying appropriate department forest protection and fire management staff, local fire officials, law enforcement personnel and adjoining landowners of the actual date, time and estimated duration of any prescribed burn.

(j) Communications: a list of key communication contacts and telephone numbers.

(k) Smoke management: identify potential smoke affected areas and smoke management strategies to avoid such areas, and to reduce and/or disperse emissions to minimize any adverse effect on the environment, including human health and welfare. Also note procedures for compliance with applicable State and local regulations.

(l) Required signatures and approvals: the names and signature lines of the preparers of the prescribed fire plan, and for those who have the authority to review and approve the plan and modifications of the plan.

Sec. 194.6 Review of prescribed burn management plans for nondepartment lands.

The prescribed burn plan shall be submitted to the appropriate regional land manager of the department no later than 60 working days prior to the proposed date of the burn. It shall be reviewed by the regional land manager and the regional forest protection and fire management staff as needed for conformance to the requirements of Section 194.5 of this Part and to the accepted conditions for prescribed burns. If necessary, an on-site review of the prescribed burn plan shall take place to refine or modify the prescribed burn plan. The appropriate regional land manager shall also provide the chief or other official in charge of the fire department or company within whose territorial jurisdiction the proposed prescribed burn is located an opportunity to review and comment on the written prescribed burn management plan.

Sec. 194.7 Approval of prescribed burn management plans for nondepartment lands.

The department shall have 30 working days to review and take action upon the prescribed burn management plan. Upon the determination that the plan conforms with the requirements of Section 194.5 of this Part and the necessary permits have been obtained, the regional land manager may approve the plan. Such approval shall be in writing and shall specify the area of land approved for burning, the person or organization authorized to conduct the burn and the dates for which the approval is valid. However, no plan shall be approved if the department determines that the landowner or landowner's agent for the burn has not demonstrated the necessary expertise to properly implement the prescribed burn plan.

Sec. 194.8 Protection of adjoining property.

For prescribed fires and prescribed burns, a minimum distance between the fire and property of adjacent landowners shall be maintained in order to protect such property. This distance shall be determined by analyzing the prescribed fire requirements (including weather information), calculated flame spread and the sensitivity of the adjacent property. Under normal circumstances prescribed fires shall not be set or allowed to burn within 75 feet of an adjacent property. A written waiver of this limitation by owner(s) of the adjacent property shall be included in the plan, where applicable. The department may also require an expansion of the 75 foot minimum buffer, if conditions so warrant. Prescribed fires and prescribed burns shall be contained within a predetermined area and shall be managed to the greatest extent possible to avoid damage to adjacent property.

Sec. 194.9 Permits.

Management ignited prescribed fires and prescribed burns for which authorization under this Part is granted will not be subject to the permit requirements of Article 19 of the Environmental Conservation Law and any duly promulgated regulations thereunder. Prescribed natural fires do not require a permit.

Sec. 194.10 Reporting.

Within 60 days of the final day of the period for which a prescribed fire or prescribed burn has been authorized, the person or organization conducting the prescribed fire or prescribed burn shall submit a report to the appropriate regional land manager describing: whether the prescribed fire or prescribed burn took place, including the actual days on which the action was conducted; and, if the action took place: the weather conditions that existed at the time of the action, how actual fire and smoke behavior correlated with predicted behavior, whether the objectives set forth in the prescribed fire plan or prescribed burn plan were achieved while having a minimal adverse impact on the environment, an assessment of the impact of the action on the environment including wildlife and their habitat and whether additional measures could be taken in the future to reduce this impact.

Sec. 194.11 Enforcement.

Violation of Sections 194.5, 194.6, 194.7 and 194.8 of this Part will be enforced under the penalty provisions provided by Environmental Conservation Law, Article 71, Title 7, section 71-0703.

Appendix 4 -Text of NYS *Phragmites* Law, Signed August 3, 2011.

S4377A-2011 Text

STATE OF NEW YORK

4377—A
Cal. No. 315
2011-2012 Regular Sessions
IN SENATE
March 31, 2011

Adds S19-a, General City Law; Amends SS9-1503 & 24-0701, Environmental Conservation Law

Introduced by Sen. LANZA-- read twice and ordered printed, and when printed to be committed to the Committee on Cities -- reported favorably from said committee, ordered to first and second report, ordered to a third reading, passed by Senate and delivered to the Assembly, recalled, vote reconsidered, restored to third reading, amended and ordered reprinted, retaining its place in the order of third reading.

AN ACT to authorize owners of residential real property in high risk brush fire areas in the borough of Staten Island to cut and remove reeds from their property; and providing for the repeal of such provisions upon expiration thereof

THE PEOPLE OF THE STATE OF NEW YORK, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. The department of environmental conservation shall establish a general residential firebreak permit for the borough of Staten Island, city of New York. Such no-cost permit shall be issued to the Staten Island borough president's office for the purpose of authorizing residential property owners, in areas designated by the department as high risk brush fire areas, to cut and remove *Phragmites* in order to establish a firebreak of up to 50 feet from their property line but no further than 100 feet from their homes. In order to receive such authorization, residential property owners, in areas designated by the department as high risk brush fire areas, shall submit their name and address to the Staten Island borough president's office. Such submission shall be via telephone or in person provided; however, if authorized by the borough president, such submission may be made via a website maintained by the borough president. Any approval issued by the borough president shall be conditioned on the eligible residential property owner's agreement that they shall only use such authorization to remove *Phragmites* and that any equipment utilized to remove the *Phragmites* must have a ground pressure of four pounds per square inch or less.

S 2. The department of environmental conservation shall post information regarding the availability of the Staten Island residential firebreak permit on its website, including a link to a website maintained by the borough president, if available.

S 3. This act shall take effect immediately and shall expire and be deemed repealed December 31, 2012.

Appendix 5 -Legal Issues Regarding Absentee Landowners

One of the goals for the CWPP is to begin public discussions on how to handle *Phragmites* on private properties under the control of absentee landowners. A line of investigation was undertaken, specifically, (1) with yearly wide-spread devastation, how is the state of California facing its constant battles from brush/wild fires, and (2) what, if anything, did that State do legislatively?

California summary

The State Legislature of California enacted a law codified under their Government Code Section 51175, in which the Legislature made a finding that ***"Wildfires are extremely costly, not only to property owners and residents, but also to local agencies … pose a serious threat to the preservation of the public peace, health, or safety. . ."***[7]**.** The Legislature further went on to find that ***"[t]he prevention of wildfires is not a municipal affair, as that term is used in Section 5 of Article XI of the California Constitution, but is instead, a matter of statewide concern."*** [8]

This law established that the State Director of Forestry and Fire Prevention would identify, using consistent statewide criteria, areas in the state as very high fire hazard severity zones.[9] Furthermore, persons who own, lease, control, operate or maintain an occupied dwelling or occupied structure in, upon, or adjoining a mountainous area, forest-covered land, brush covered land, grass covered land, or land that is covered with flammable material, which area is within the high fire hazard severity zone must then take required steps including:

1. Maintain a defensible space of 100 feet from each side and from the front and rear of the structure, ***but not beyond the property line. . .***
2. A greater distance than that required under (1) above may be required by state law, local ordinance, rule or regulation. ***Clearance beyond the property line may be required in the state law, local ordinance, rule or regulation, specifically, if findings indicate that the transmission of flame or heat may be sufficient to ignite***

[7] **California Codes, Government Code** Section 51175 (a).

[8] *Id*. at 51175(b).

[9] *Id*. at 51178.

the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wild fire to the structure. Clearance on adjacent property shall only be conducted following written consent by the adjacent landowner. [10]

It remains important to note/clarify that, for California, on the issue of adjoining property, Government Code Section 51182 (b) states: ***A person is not required under this section to manage fuels on land if that person does not have the legal right to manage fuels, nor is a person required to enter upon or to alter property that is owned by any other person without the consent of the owner of the property*** It should be noted that, for this provision, **fuels is defined as combustible materials, including petroleum-based products and wildland fuels**. [11]

The California Legislature also passed legislation, codified under the California Codes Public Resources Code Section 4291, which mirrors the Government Code sections except that it does not limit the subject lands to those within a very high hazard fire severity

In essence, then, California determined to address issues of wild fires protections through state legislation.

Staten Island Options

1. Potential State legislative actions

While the Community Wildfire Protection Plan could recommend that a bill, or bills, be submitted by our State Representatives to enact similar California-type legislation in New York State, the issue that would remain is what the California legislation did not fully come to terms with: it does not allow individuals to enter into adjacent lands to create the defensible space without the consent of that landowner.

Furthermore, and after legal consultations, the considered opinion is that any legislation which would allow, or require, an individual landowner to go upon adjacent lands not owned, operated or managed by them, without the consent to the landowner, would be invalid as a taking of the adjacent landowner's property rights under the New York and

[10] *Id*. at 51182 (a). (***Emphasis added***).

[11] *Id*. at 51177 (c).

United States Constitutions, and would therefore not be palatable to the legislators or the courts.

2. **Potential New York City legislative actions**

A review also addressed the possibility of passage of a local ordinance – via the New York City Council and signed by the Mayor - to address the issue of wild fire prevention on a local level. While California made a determination that wild fires are a statewide issue, **the California laws also leave explicit room for local ordinances, rules or regulations to exceed the state requirements.**

A cursory review of New York State Laws does not reveal a similar statute in place. A further review of the *State Municipal Home Rule Law Article 2, Section 10,* provides that local government (including a city) may adopt and amend local laws relating to: ***"… the protection and enhancement of its physical and visual environment. . . protection, order, conduct, safety, health, and well-being or persons or property therein."***[12] These powers granted to local governments to adopt such local laws are limited to those situations which are not in conflict with the New York State Constitution, New York State Laws, or where state law or federal law pre-empt the subject matter.

The present research thus did not disclose any provision of the New York State Constitution or State Law that would be violated by the passage of a local law by New York City to address the issues of **defensible space** surrounding structures in New York City. There may, however, be a question of state law pre-emption of the issue, as New York State Law has granted authority in this area to the New York State Department of Environmental Conservation (DEC). And while a recently enacted state law has codified the DEC's permitting authority in regard to wildfires, the Staten Island community believes that the law remains short and weak on specifics.

Two considerations:

1. **Immediate goal:** it may be prudent to examine existing laws and local ordinances to determine if these may afford certain New York City agencies and departments the

[12] **N.Y. Municipal Home Rule Law Section** 10. 1.(ii) a. (11) and (12).

right to enter onto lands owned by other individuals to address an imminent risk of danger to the community, namely, *Phragmites* brush fires. As an example, a preliminary discussion could be initiated with the New York City Fire Department and their counsel to ascertain if that department has the authority to address an imminent risk of fire on vacant or abandoned lands and thus utilize their staff or designees to cut down the *Phragmites* on the vacant property when adjacent structures are at risk of fire.

2. **Intermediate goal:** a review of the just passed State law should be performed to better understand how to legislatively strengthen it so that the law could be applied to homeowners in general throughout New York State while also addressing specific Staten Island concerns in combating and preventing *Phragmites* wildfires. The issues of defining what is a defensible space, if California's model is insufficient/inefficient, and if wildfires from *Phragmites* require a different defensible approach, are certainly topics that need a thorough public discussion.

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[1] **California Codes, Government Code** Section 51175 (a).
[1] *Id.* at 51175(b).
[1] *Id.* at 51178.
[1] *Id.* at 51182 (a). (***Emphasis added***).
[1] *Id.* at 51177 (c).
[1] **N.Y. Municipal Home Rule Law Section** 10. 1.(ii) a. (11) and (12).

Appendix 6 -What is the National Fire Danger Rating System?

The National Fire Danger Rating System (NFDRS) is a system that allows land agencies to estimate today's or tomorrow's fire danger **for a given area**. It integrates the effects of existing and expected states of selected fire danger factors into one or more qualitative or numeric indices that reflect an area's fire protection needs. It links an organization's readiness level (or pre-planned fire suppression actions) to the potential fire problems of the day.

The symbols and adjectives shown below are to alert the public of fire danger levels, using adjectives and colors based on criteria established by the National Fire Danger Rating System.

The goal is to encourage the public to adapt their behavior and obey restrictions based on their knowledge of these levels.

IGNITION: A rating of the probability that a firebrand will cause an actionable fire.

SPREAD: A rating of the forward rate of spread of the head of a fire.

SPOTTING: Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

CONTROL: The completion of control line around a fire, any spot fires therefrom, and any interior islands to be saved; burned out any unburned area adjacent to the fire side of the control lines; and cool down all hot spots that are immediate threats to the control line, until the lines can reasonably be expected to hold under the foreseeable conditions.

IGNITION:

Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or dry rotted wood.

SPREAD:

Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers.

SPOTTING:

There is little danger of spotting.

CONTROL: Easy

	IGNITION: Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. SPREAD: Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. SPOTTING: Short-distance spotting may occur, but is not persistent. CONTROL: Fires are not likely to become serious and control is relatively easy.
	IGNITION: All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. SPREAD: Fires spread rapidly. High-intensity burning may develop on slopes or in concentrations of fine fuels. SPOTTING: Short-distance spotting is common. CONTROL: Fires may become serious and their control difficult unless they are attacked successfully while small.
	IGNITION: Fires start easily from all causes. SPREAD: Immediately after ignition, spread rapidly and increase quickly in intensity. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels. SPOTTING: Spot fires are a constant danger; long distance spotting likely. CONTROL:
	IGNITION: Fires start quickly and burn intensely. All fires are potentially serious. SPREAD: Furious spread likely, along with intense burning. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. SPOTTING:

	Spot fires are a constant danger; long distance spotting occurs easily. CONTROL: Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

During periods of high fire activity and when fire weather conditions are favorable for prolonged periods, Gateway National Recreation Area may request step-up or severity funding, providing emergency funding to bring in additional personnel and resources from any part of the country. Gateway National Recreation Area currently notifies US Park Police and FDNY of the number of resources available during these periods.

Gateway National Recreation Area, the FDNY, and the NYS DEC currently do not have any formal agreements in place for interagency cooperation for wildland fire management activities, although the agencies are in the process of formulating them.

Guide to Landscaping

The primary goal for Firewise landscaping is fuel reduction — limiting the level of flammable vegetation and materials surrounding the home and increasing the moisture content of remaining vegetation. This includes the entire 'home ignition zone' which extends up to 200 feet in high hazard areas.

Use the Zone Concept

Zone 1 is the 30 feet adjacent to the home and its attachments; **Zone 2** is 30 to 100 feet from the home; **Zone 3** is 100 to 200 feet from the home.

Zone 1 (All Hazard Areas) *This well-irrigated area encircles the structure and all its attachments*

(wooden decks, fences, and boardwalks) for at least 30 feet on all sides.

1) Plants should be carefully spaced, low-growing and free of resins, oils and waxes that burn easily.
2) Mow the lawn regularly. Prune trees up six to ten feet from the ground.
3) Space conifer trees 30 feet between crowns. Trim back trees that overhang the house.
4) Create a 'fire-free' area within five feet of the home, using non-flammable landscaping materials and/or high-moisture-content annuals and perennials.
5) Remove dead vegetation from under deck and within 10 feet of house.
6) Consider fire-resistant material for patio furniture, swing sets, etc.
7) Firewood stacks and propane tanks should not be located in this zone.
8) Water plants, trees and mulch regularly.
9) Consider xeriscaping if you are affected by water-use restrictions.

Zone 2 (Moderate and High Hazard Areas) Plants in this zone should be low-growing, wellirrigated,

and less flammable.

1) Leave 30 feet between clusters of two to three trees, or 20 feet between individual trees.
2) Encourage a mixture of deciduous and coniferous trees.
3) Create 'fuel breaks', like driveways, gravel walkways and lawns.
4) Prune trees up six to ten feet from the ground.

Zone 3 (High Hazard Areas) Thin this area, although less space is required than in **Zone 2**. Remove
smaller conifers that are growing between taller trees. Remove heavy accumulation of woody debris. Reduce the density of tall trees so canopies are not touching.

Maintaining the Firewise Landscape

- Keep trees and shrubs pruned six to ten feet from the ground.
- Remove leaf clutter and dead and overhanging branches.
- Mow the lawn regularly and dispose of cutting and debris promptly.
- Store firewood away from the house.
- Maintain the irrigation system regularly.
- Familiarize yourself with local regulations regarding vegetative clearance,

debris disposal, and fire safety requirements for equipment.

Part 2

Guide to Construction

"When considering improvements to reduce wildfire vulnerability, the key is to consider the home in relation
to its immediate surroundings. The home's vulnerability is determined by the exposure of its external materials
and design to flames and firebrands during extreme wildfires. The higher the fire intensities near the home, the greater the need for nonflammable construction materials and a resistant building design." – Jack Cohen,
USDA-Forest Service

Use Rated Roofing Material. Roofing material with a Class A, B or C rating is fire resistant and
will help keep the flame from spreading. Examples:

- Composition shingle
- Metal
- Clay
- Cement tile

Use Fire-Resistant Building Materials on Exterior Walls. Examples include:

- Cement

 Plaster
 Stucco
 Masonry (concrete, stone, brick or block)

While vinyl is difficult to ignite, it can fall away or melt when exposed to extreme heat.

Use Double-Paned or Tempered Glass. Double-pane glass can help reduce the risk of fracture or collapse during an extreme wildfire. Tempered glass is the most effective. For skylights, glass is a better choice than plastic or fiberglass.

Enclose Eaves, Fascias, Soffits and Vents. 'Box' eaves, fascias, soffits and vents, or enclose them with metal screens. Vent openings should be covered with 1/8" metal screen.

Protect Overhangs and Other Attachments. Remove all vegetation and other fuels from around overhangs and other attachments (room additions, bay windows, decks, porches, carports and fences). Box in the undersides of overhangs, decks and balconies with noncombustible or fireresistant materials. Fences constructed of flammable materials like wood should not be attached directly to the house.

Anything attached to the house (decks, porches, fences and outbuildings) should be considered part of the house. These act as fuel bridges, particularly if constructed from flammable materials.

1) If a wood fence is attached to the house, separate the fence from the house with a masonry or metal barrier.

2) Decks and elevated porches should be kept free of combustible materials and debris.

3) Elevated wooden decks should not be located at the top of a hill. Consider a terrace.

Part 3

NY FIREWISE HOME ASSESSMENT WORKSHEET AND MITIGATION GUIDE

Homeowner/ Resident's Name(s):_____

Address:_____

_____

Fire Department Jurisdiction:_____

Date Evaluated:_____ Evaluator:_____

***Your Wildfire Risk Rating**:_____

Risk Rating System:

(1) Low Risk: The chances of your home surviving a wildfire are excellent; little to no improvements need to be made to help protect your home.

(2) Moderate Risk: The chances of your home surviving a wildfire are good; some minor improvements can help make your property fire resistant.

(3) High Risk: The chances of your home surviving a wildfire are fair, improvements and mitigation techniques are recommended in areas that will benefit your property.

(4) Very High Risk: The chances of your home surviving a wildfire are not good, improvement to your property, and/or your home is highly recommended.

(5) Extreme Risk: The chances of your home surviving a wildfire are poor, if a wildfire passes through your area, the property landscaping and/or home construction dominates the likelihood that you could lose your home.

*** The wildfire risk rating is an estimate and is only intended to inform and assist homeowners in making decisions about mitigating hazards around their home and property that may reduce the likelihood of loosing property in the event of a wildfire. No home is completely safe or a total loss in the event of a wildfire, the following suggested mitigation techniques can potentially increase the survivability of your home.**

Overview of Surroundings and Site:

Assessment Items	Observations and Mitigation Recommendations
Topographic Features	Position Relative to Slope
Surrounding Fuel Type	Density: Potential for Severe Fire Behavior:
Access for Emergency Vehicles	
Nearby Structures and Proximity to Neighboring Properties	

Notes:

_____

_____

_____

_____

_____

Firewise Home Construction:

Roofing Materials and Condition	Materials: Condition (Shingles missing, gaps, etc.)
Chimney to Eaves (blowing ember risks)	Vents: Gutters: Debris on Roof:
Eaves to Foundation	Siding Windows Foundation
Attached Structures (Porches, Decks, Fences, etc.)	

Firewise Landscaping (lean, clean and green)

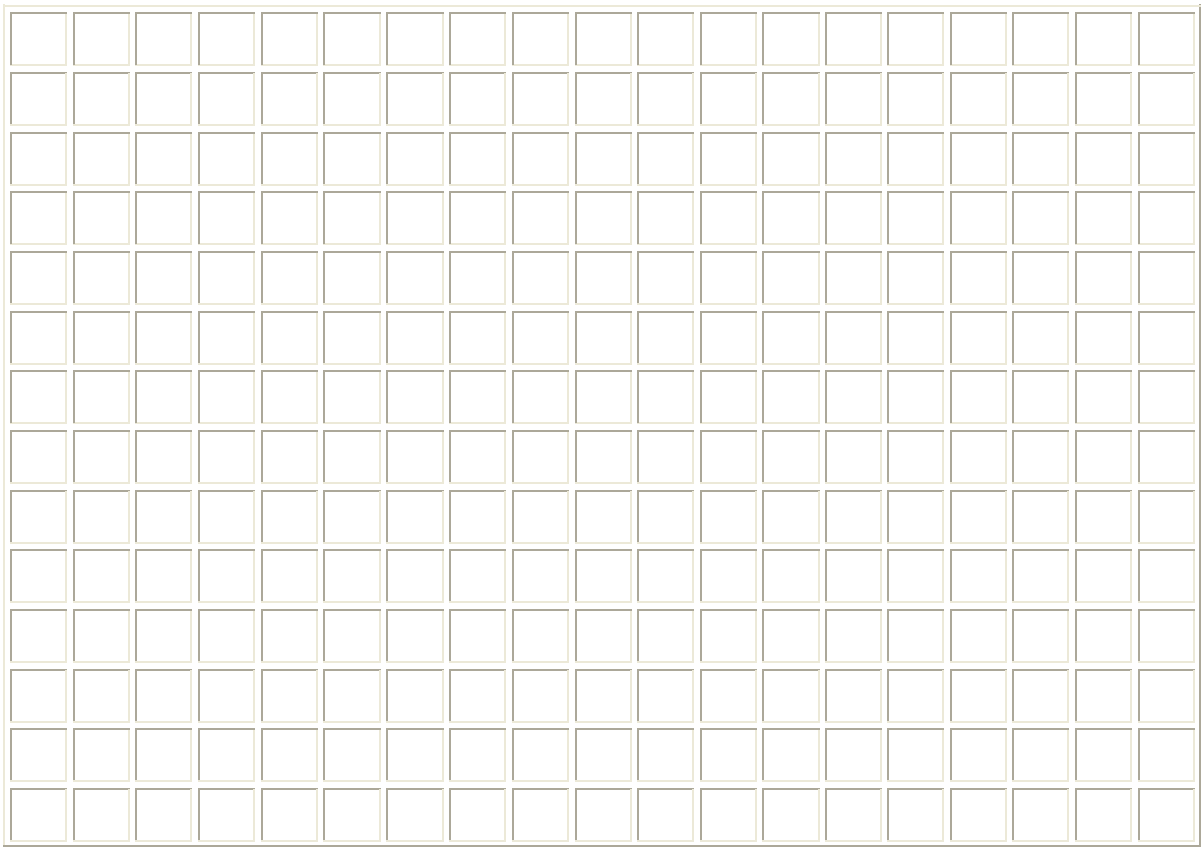
(Accumulation	

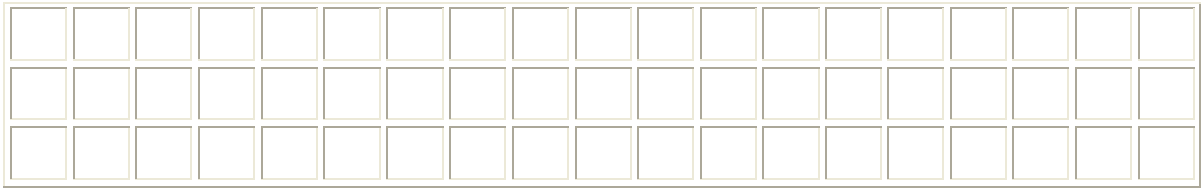
of leaves/ debris on or near home)	
Landscaping (Managed) vegetation	
Firewood/Fuel Storage	
Home Ignition Zone 1 (The home and its surroundings up to 30 ft. away)	
Home Ignition Zone 2 (30-100 ft away from home)	
Home Ignition Zone 3 (100-200 ft. away from home)	

Comments and Additional Recommendations:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Property Sketch:





Remember wildfires have the potential to affect those of us that choose to live in the Wildland/Residential Interface areas of New York. Wildfire's can and do occur in nearly all of New York's natural vegetation types, and you can follow the Firewise concepts to help ensure the safety of your home.

The evaluator will assign your property a wildfire risk rating for your property based on their observations of your home and surrounding landscape. Please review the recommendations to mitigate the risk factors that affect your homes ignition potential in the event of a wildfire. We realize that all recommendations may not be feasible right away due to time constraints, financial issues, and labor needed to accomplish the mitigation suggestions; however every step you take to help protect your property increases the survivability of your home.

Be a Firewise Advocate, talk to your neighbors about wildfire safety. Discuss how your neighborhood can work together to prevent a wildfire disaster. Remember that if your neighbors home is close enough to your home it can affect the ignition potential of your home.

If you would like more information on wildfire risk reduction or related community projects, contact your local DEC Forest Ranger, Fire Department, or visit the following websites: www.newyorkfirewise.org or www.firewise.org

Appendix 8 -*Firewise* Brochure for Homeowners

BE FIREWISE™ AROUND YOUR HOME

Use these tips to prepare your home and protect your family and pets.

FIREFIGHTERS NEED YOUR HELP!

REMINDERS FOR FIREWISE™ LANDSCAPING

When designing and installing a Firewise landscape, consider the following:
Local area fire history • Site location and overall terrain • Prevailing winds and seasonal weather • Property contours and boundaries • Native vegetation • Plant characteristics and placement (flammability, water and salt retention ability, aromatic oils, fuel load per area, and size) • Irrigation requirements • Give yourself added protection with "fuel breaks" like driveways, gravel walkways, and lawns •

To create a Firewise landscape, the primary goal is fuel reduction. To this end, initiate the zone concept. Zone 1 is closest to the structure; Zone 2-4 move progressively further away.
Zone 1: This well-irrigated area encircles the structure for at least 30 feet on all sides, providing space for fire suppression equipment in the event of an emergency. Plantings should be limited to carefully spaced low flammability species.
Zone 2: Low flammability plant materials should be used here. Plants should be low-growing and the irrigation system should extend into this section.
Zone 3: Place low-growing plants and well-spaced trees in this area, remembering to keep the volume of vegetation (fuel) low.
Zone 4: This furthest zone from the structure is a natural area. Selectively prune and thin all plants and remove highly flammable vegetation.

When maintaining a landscape:
- Mow the lawn regularly, and dispose of cuttings and debris promptly, according to local regulations.
- Be sure the irrigation system is well maintained.
- Use care when refueling garden equipment; maintain equipment regularly; store flammable liquids properly.
- Become familiar with local regulations regarding vegetation clearance, disposal of debris, and fire safety requirements for equipment.

REMINDERS FOR FIREWISE™ CONSTRUCTION

When constructing, renovating, or adding to a Firewise home, consider the following:
- Choose a Firewise location.
- Design and build a Firewise structure with fire resistant materials.
- Employ Firewise landscaping and maintenance.

To select a Firewise location, observe the following:
- Slope of terrain; be sure to build on the most level portion of the land, since fire spreads more rapidly on even minor slopes.
- Set your one-story structure at least 30 feet back from any ridge or cliff; increase distance if your home will be higher than one story.

In designing and building your Firewise structure, the primary goals are fuel and exposure reduction. Therefore:
- Use construction materials that are fire-resistant or non-combustible wherever possible.
- For roof construction, consider using materials such as Class A asphalt shingles, slate or clay tile, metal, cement and concrete products, or treated wood shingles. A fire-resistant sub-roof can also add protection.
- On exterior wall facing, fire-resistive stucco or masonry may be much better choices than vinyl, which can soften and melt.
- Window materials and size are important. Smaller panes hold up better in their frames than larger ones. Double pane glass and tempered glass are more reliable and effective heat barriers than single pane glass. Plastic skylights can melt.
- Install non-flammable shutters on windows and skylights.
- To prevent sparks from entering your home through vents, cover exterior attic and underfloor vents with wire screening no larger than 1/8-inch mesh.
- Provide at least two ground-level doors for easy and safe exit, and at least two means of escape (i.e., doors or windows) in each room so that everyone has a way out.

Any structures attached to the house, such as decks, porches, fences, and outbuildings should be considered part of the house. These structures can act as fuel bridges, particularly if constructed from flammable materials. Therefore, consider the following:
- If you wish to attach an all-wood fence to your house, use masonry or metal as protective barriers between the fence and house.
- Use metal when constructing a trellis and cover it with high-moisture, low flammability vegetation.
- Prevent combustible materials and debris from accumulating beneath patio decks or elevated porches. Screen or box-in areas below patios and decks with wire screening no larger than 1/8-inch mesh.
- Make sure an elevated wooden deck is not located at the top of a hill where it will be in direct line of a fire moving up-slope. Consider a terrace instead.

Firewise website visitors can view streaming video and also download checklists, school educational materials, and other information. Visitors can browse an extensive list of helpful links and use a searchable library of national, state, and local documents on a wide range of wildland safety issues. Visitors can also find their state Firewise Communities liaison to contact for assistance in hazard mitigation and planning.

FIREWISE COMMUNITY

For more information contact:
FIREWISE COMMUNITY
1 Batterymarch Park
Quincy, MA 02169
www.firewise.org

FWC-100-01

Appendix 9 -*Firewise* Brochure for Civic Leaders

Firewise is a project of the National Fire Protection Association FONT SIZE A A

HOME | ABOUT FIREWISE | CONTACT | EVENTS | FOR MEDIA SEARCH

Firewise Communities | Courses and Training | Information and Resources | Firewise Blog | Catalog | Connect with Others

Information and Resources > Civic Leaders

HOMEOWNERS
FIREFIGHTERS
DESIGNERS/DEVELOPERS
CIVIC LEADERS
EDUCATORS

Civic Leaders

This section has been developed with you, the civic leader, in mind. Leadership is an important link in addressing wildland fire risk, and your understanding of the issues can effectively guide your community to be prepared and stay safe.

To save you time, we've highlighted resources we think are particularly helpful – information on our Firewise Communities/USA Recognition program, the "Firewise Getting Started" Kits for a complete program overview, success stories to promote Firewise concepts, and media outreach tools.

Firewise Communities/USA Recognition Program
If you aren't familiar with our Firewise Communities/USA Recognition program, this section provides information about an easy way for your community to take action and become a recognized Firewise community!

"Getting Started With Firewise" Kit
If you are looking for a helpful package of materials to get started with Firewise, look no further. This sample of Firewise products is effective for educating groups about protecting property and natural resources from the threat of wildfire. Order your Kit for FREE today!

Success Stories
Highlighting success stories can effectively show community members how easy it is to employ Firewise principles. Look through some of our best examples.

Press Room
Our press room provides information and resources to help you communicate with the media, including story ideas for your local newspapers.

There's always more to learn about Firewise
Check out our pages on grants & resources and our online catalog for ways to get assistance and free materials to help in your wildfire safety efforts.

Planning a Firewise event? Use the events page to submit your event. You can look at the calendar to see what's happening around the country and the world with Firewise-related activities.

To keep posted on Firewise activities, join our e-mail list. You'll get monthly and quarterly notices of our newsletters and more.

Want to join online conversations with others interested in wildfire safety? The Firewise Communities program is using Facebook, Twitter, LinkedIn and YouTube to help inspire and educate. Use the connect with others area to find our social media pages or subscribe to our blog.

More Firewise around the Web: facebook

Privacy Policy | Terms and Conditions

Appendix 10 Recommended Plant Lists for Re-vegetation of *Phragmites* Eradication Sites in Freshwater Wetlands- East Shore, Staten Island Community Wildfire Protection Plan.

All of the following species are grown by the NYC Department of Parks & Recreation's Greenbelt Native Plant Center (GNPC) at their nursery on Staten Island. These species are excellent choices for re-vegetation following *Phragmites* eradication within the CWPP. Those species marked with an (S) are also being developed as bulk seed for seeding operations by the GNPC. Plants marked (1) are restricted to brackish water. Plants marked (2) are restricted to drier conditions. All of the conditions listed here (Emergent Marsh, Wet Meadow, and Deciduous Swamp Forest) are encountered within the CWPP.

Emergent Marsh

Graminoids:

Scirpus tabernaemontanii

Scirpus cyperinus (S)

Scirpus atrovirens

Juncus effuses (S)

Scirpus pungens

Leersia oryzoides

Spartina pectinata

Carex vulpinoidea

Carex lurida

Tripsacum dactyloides

Scirpus robustus (1)

Distichlis spicata (1)

Spartina patens (1)

Herbaceous:

Peltandra virginicus

Sparganium eurycarpum

Hibiscus moscheutos

Shrubs:

Baccharis halimifolia
Cephalanthus occidentalis
Rosa palustris

Wet Meadow

Graminoids:
Panicum virgatum (S)
Carex scoparia
Carex lurida
Carex vulpinoidea/annectens
Juncus effuses (S)
Juncus acuminatus
Scirpus cyperinus (S)
Dichanthelium clandestinum (S)
Herbaceous:
Eupatorium maculatum
Eupatorium fistulosum (S)
Eupatorium perfoliatum
Euthamina graminifolia (S)
Symphyotrichum pilosum (S)
Asclepias incarnate (S)
Helianthus giganteus
Verbena hastata
Solidago sempervirens
Solidago rugosa (S)
Shrubs:
Sambucus Canadensis
Baccharis halimifolia
Viburnum dentatum
Cornus amomum
Rhus copallina (2)
Rosa virginica/Carolina (2)
Myrica pennsylvanica (2)

Rubus pensylvanicus (2)

Deciduous Swamp Forest

Trees:

Acer saccharinum

Acer rubrum

Populus deltoides

Fraxinus pensylvannicus

Ulmus Americana

Quercus palustris

Shrubs:

Lindera benzoin

Herbaceous:

Eupatorium rugosum (S)

Polygonum virginianum (S)

Parthenocissus quinquefolia

Appendix 11 Submitted Comments from Elected Officials & the Public

[SEE SECTION 1.0]

COMMUNITY WILDFIRE PROTECTION PLAN
PUBLIC COMMENTS RECEIVED FROM JAN 10 - FEB 3, 2012

NAME	ORGANIZATION/AFFILIATION	DATE RECEIVED	RECEIVED VIA	SUMMARY	ATTACHMENT
Leticia Remauro	Chair, Community Board 1	1/10/2012	face-to-face conversation with Mike Schnall	requested that CB1 be added to the Fire Council	no
Jason Razefsky	Borough President's office	1/12/2012	phone call with Mike Schnall	requested that all elected officials be added to Fire Council	no
John C. Rooney	member of the public	1/18/2012	email	issues with notification process	yes
John C. Rooney	member of the public	1/18/2012	email	issue with NPS unaware of draft plan	yes
John C. Rooney	member of the public	1/18/2012	email	issue with notification process	yes
Michael Coppotelli	Assembly Member Tobacco's office	1/18/2012	email	requested that Assembly Member Tobacco be added to the Fire Council	yes
Paul Marrone	Assemby Member Nicole Malliotakis' office	2/1/2012	email	supportive of CWPP and asks for a 150 foot perimeter	yes
John C. Rooney	member of the public	2/3/2012	email	detailed comments and various edits to the documents	yes
Anthony Reinhart	State Senator Andrew Lanza's office	2/3/2012	email	letter of support	yes
John C. Rooney	member of the public	2/7/2012	email	enforcemsent and dumping	yes

Diane J. Savino	New York State Senator	7/31/2012	letter	Letter of support	yes
Michael G. Grimm	U.S. Representative	8/7/2012	letter	Letter of support	yes
James S. Oddo	New York City Council Member	8/16/2012	letter	Letter of support	yes
Kirsten E. Gillibrand	U.S. Senator	8/17/2012	letter	Letter of support	yes
Vincent M. Ignizio	New York City Council Member	8/23/2012	letter	Letter of support	Yes
Charles E. Schumer	U.S. Senator	8/29/2012	letter	Letter of support	yes

From: John C. Rooney
To: Staten Island Parks & Recreation
Cc: John Warren; Long, Adena
Subject: CWPP
Date: Wednesday, January 18, 2012 9:26:06 AM

Pursuant to an email this morning from John Warren of NPS, I went to the web page http://www.nycgovparks.org/about/community-wildfire-protection-plan

I tried to open the pdf file of the CWPP several times, and got the following message:

"The file is damaged and could not be repaired Local\EWHn-&a1i+e"

This is the damaged file: http://www.nycgovparks.org/pagefiles/47/CWPP.pdf

I also notice that the first two presentation dates have already passed.

I only found out about this because I looked for a link to the CWPP, and sent an inquiry to Wrobleski and Hanley of the Advance, who wrote the only story/editorial about the issue that I could find. They had no link to the draft plan.

I sent an inquiry to NPS, because they didn't have a link on their web page, and with further inquiry, John Warren found your page and forwarded it to me this evening. I did not see any earlier public notice of your page's existence, or of the public presentation schedule. Very poor public notice, and even poorer coordination.

Therefore, I request that you extend the public comment period by a month, to March 3.

Respectfully submitted,

John Rooney

From: John C. Rooney
To: Staten Island Parks & Recreation
Cc: John Warren; Long, Adena; Benepe, Adrian
Subject: Re: CWPP
Date: Wednesday, January 18, 2012 9:33:52 AM

As of yesterday, Mr. Warren of NPS, their public affairs specialist, was unaware that the draft plan had been released by NYCDPR.

Wonderful coordination.

> ----- Original Message -----
> **From:** John C. Rooney
> **To:** Staten Island Parks & Recreation
> **Cc:** John Warren ; Adena Long
> **Sent:** Wednesday, January 18, 2012 9:26 AM
> **Subject:** CWPP
>
> Pursuant to an email this morning from John Warren of NPS, I went to the web page http://www.nycgovparks.org/about/community-wildfire-protection-plan
>
> I tried to open the pdf file of the CWPP several times, and got the following message:
>
> "The file is damaged and could not be repaired Local\EWHn-&a1i+e"
>
> This is the damaged file: http://www.nycgovparks.org/pagefiles/47/CWPP.pdf
>
> I also notice that the first two presentation dates have already passed.
>
> I only found out about this because I looked for a link to the CWPP, and sent an inquiry to Wrobleski and Hanley of the Advance, who wrote the only story/editorial about the issue that I could find. They had no link to the draft plan.
>
> I sent an inquiry to NPS, because they didn't have a link on their web page, and with further inquiry, John Warren found your page and forwarded it to me this evening. I did not see any earlier public notice of your page's existence, or of the public presentation schedule. Very poor public notice, and even poorer coordination.
>
> Therefore, I request that you extend the public comment period by a month, to March 3.
>
> Respectfully submitted,
>
> John Rooney

From:	John C. Rooney
To:	Staten Island Parks & Recreation; Long, Adena
Cc:	Benepe, Adrian
Subject:	Staten Island brush fire strategy to be aired | SILive.com
Date:	Wednesday, January 18, 2012 9:40:33 AM

One day is not "notice":

http://www.silive.com/eastshore/index.ssf/2012/01/staten_island_brush_fire_strat.html

Not an acceptable procedure.

From: Michael Coppotelli
To: Schnall, Michael
Subject: CWPP
Date: Wednesday, January 18, 2012 1:52:41 PM

Michael,

We would like to respectfully request that Assemblyman Tobacco have an appointee to the CWPP fire council.

Thank You
Michael

Michael J. Coppotelli
Chief of Staff

==========
Hon. Louis R. Tobacco
New York State Assembly
62 District
4062 Amboy Road
Staten Island, NY 10308
P:718.967.5194
F:718.967.5282
C:347.723.3145

Capital Office:
722 Legislative Office Building
Albany, NY 12248
P:518.455.4495
F:518-455-4501

Lou Tobacco was first elected to the New York State Assembly on March 27, 2007. Lou serves as the Ranking Member of the Health Committee. He also serves on the Ways and Means, Codes, Cities, Corporations, Authorities and Commissions, and the Transportation committees. Lou is the vice chair of the Assembly Republican Sex Offender Watch Task Force and is a member of the MTA Capital Program Review Board.

From: Paul Marrone
To: Schnall, Michael
Subject: CWPP comments from Assemblywoman Malliotakis
Date: Wednesday, February 01, 2012 2:32:02 PM
Attachments: Statement.CWPP.011912.doc

Hi Mike,

Attached are our comments for the CWPP.

Thanks for your help today,
Paul

--
Paul Marrone | Chief of Staff
Assemblywoman Nicole Malliotakis
60th District | Brooklyn, Staten Island
P: 718.987.0197
F: 718.987.0863

Statement from Assemblywoman Nicole Malliotakis, with regard to the Community Wildfire Protection Plan for the East Shore of Staten Island:

As the State Assembly representative for the East Shore, my district has fallen victim to brushfires caused by phragmites. The creation of the Community Wildfire Protection Plan is truly a welcome development and I commend all of the agencies, as well as my colleagues in elected office, for their hard work and cooperation in getting this program off the ground. It is proof that government works best when entities from multiple levels and branches of government come together to find real solutions to a problem.

The residents in these at-risk areas have grown weary of sleepless nights, fearing the next flare-up that could destroy their property or injure their family or neighbors. Some had come to believe that their government had abandoned them. It is my hope that this plan will restore their lost faith.

While I am pleased with the plan, overall, there is one glaring oversight that I must bring to everyone's attention. On page 54 of its most recent draft, the CWPP states, "In areas where Phragmites are growing along the edge of a street and there are no structures present, it is recommended that for firefighter safety, any mechanical treatment to be conducted on these streets be between 50 and 150 feet on either side of the street." …It is my opinion that any barrier <u>less</u> than 150 feet would be simply unacceptable.

One only needs to drive down streets like Kissam Avenue, Tarlton Street, or Fox Lane to discover just how overwhelmed by phragmites they have become. With flame-lengths having been measured at 83 feet, I fear that an unfortunate gust of wind could lead to the residents of these streets, as well as our first responders, becoming trapped. The radiant heat alone has been enough to melt the siding off of houses. In a tragic situation where Kissam Avenue, a street bounded by phragmites on both sides, could become engulfed in flames from all angles.

The CWPP must provide sufficient protection for the means of egress from these high-risk areas. I respectfully recommend that the CWPP be amended to implement the removal of phragmites within <u>at least</u> 150 feet of any road.

Thank you.

From:	John C. Rooney
To:	Staten Island Parks & Recreation; Long, Adena
Cc:	Judith Enck; Carl Alderson; Lisa Baron; Michael Vissichelli; Craig S. Spitz; Gumb Jr., Dana; Rossi, James; Venetia A. Lannon; John Cryan; Harold Dickey; John Warren; Brian Feeney; Tom Wrobleski; Hillel Lofaso; Kerry Sullivan; James Scarcella; Clifford Hagen; atjacob@gw.dec.state.ny.us; Nick Dmytryszyn; marronm@fdny.nyc.gov; Tomas_Liogys@nps.gov; mark_musitano@nps.gov; Brauman, Robert; timothy_regan@nps.gov; lfarrell@dep.nyc.gov; Steve Zahn; Carter Strickland; Linda Canzanelli; Benepe, Adrian; Toth, Edward; Becker, Karen; Greenfeld, Jennifer; Wenskus, Tim; Oddo, James; Ignizio, Vincent; Derrico, Debra; Wagner, Charlene; Johnson, Christine; Rose, Deborah; Matteo, Steven; jborelli@council.nyc.gov; Burke, Ed; marronp@assembly.state.ny.us; bauerc@assembly.state.ny.us; Michael Coppotelli; lissg@assembly.state.ny.us; Bill.J.Smith@mail.house.gov; jturoski@nysenate.gov; reinhart@senate.state.ny.us; robert.cataldo7@gmail.com; mdarvanites@gmail.com; Gunther, Bram; Kavanagh, Liam; Seth Wollney; Richard Lynch; PPOW; Joseph Pane; Luis A. Hernandez; Richard K. Shaw; JAMES MIRAGLIA; KIRSTI JUTILA; LEN GARCIA-DURAN; Lt. Brian Waite; Richmond Engine Company No. 1
Subject:	Comments on the Draft Community Wildfire Protection Plan for the East Shore of Staten Island
Date:	Friday, February 03, 2012 4:57:10 PM

Re: http://www.nycgovparks.org/pagefiles/47/CWPP.pdf

Community Wildfire Protection Plan for the East Shore of Staten Island (CWPP)

These are my informal comments. They are informal because of the lack of adequate notice.

In general, this report could be classified as a pre-scope for a scoping document for a plan. As a plan, it is not ready for prime time.

In order to get to the next stage, the Fire Threat maps need much greater detail (e.g. in Gateway/Great Kills the area west of Fire Road, which contains a watercourse, is moderate risk, certainly not high risk. Other areas, such as the mugwort/andropogon/panic grass fields to the southwest of the Education Center at Great Kills is moderate risk, not low risk. It is just across the street from a phragmites area, for goodness sakes!)

For remediation planning purposes, impact review, or any permit applications, there needs to be a topographic survey, an entitation, a soil survey, and a groundwater survey.
Chemical treatment should not even be on the table unless the above surveys have been done.

Chemical treatment should not be considered as an intermediate approach, or the tendency will be to repeat application over time. If it is used at all, it should only be considered for one-time use as a part of a long-term project of native plant re-vegetation with maintenance guaranteed and funded IN PERPETUITY pursuant to an Order on Consent or NYSDEC/EPA/Corps of Engineers permit with enforceable terms.

My non-expert preference for the process is: 1. Debris removal; 2. Mow; 3: Prescribed Burn; 4: Plant natives; 5. Maintain IN PERPETUITY. I don't see a place for herbicides in the long term.

Funding for maintenance in perpetuity is not really mentioned. How about considering a Special Tax District (like a B.I.D.), with legislation allowing dedicated funding from a small percentage of the existing real estate tax? The best managed

park systems in the country have dedicated funding.

There is no mention of NYPD or the Fire Marshall or U.S. Park Police that I could find in my initial scan. Who has been setting all these fires?

Expand the working group to include an advisory group from NYCDOB, NYCDCP, etc. We may want to incorporate some of the recommendations of the CWPP in the Building Codes and/or Zoning Resolution. Are we looking at the need for a zoning overlay special district tied to special building fire codes?

I didn't pick up any analysis of the adequacy of fire equipment, just a list of inventory. I assume it is adequate, because FDNY sure has plenty of experience.

Federal Wetlands

There is no mention of Federal (NWI) wetlands in the report. State wetland law and Federal wetland law emphasize different values and have different standards. The Federal standards emphasize soils and hydrology, as well as to a lesser extent vegetation, whereas the State law emphasizes vegetation and hydrology (habitat).

See the 1998 National Wetland Inventory (NWI) Wetland Mapper:
http://www.fws.gov/wetlands/

Here is a link to the NYSDEC freshwater wetland mapping information page, including the Environmental Resource Mapper :
http://www.dec.ny.gov/lands/5124.html
[Be sure and enable wetlands in the mapping layer options boxes. Nota Bene: These tools are just guides. They are not the actual legal maps.]

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In general, State and Federal wetlands overlap, and while Federal standards are stricter in the sense that they sometimes result in smaller delineations, very small wetlands are regulated under Federal law, whereas generally under State law only larger wetlands are regulated.

For any proposed action, both or either State and Federal wetland permit may be required.

Some Detailed Observations

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p 44. Historical Assets: Item 2: Gateway:
All of Miller Field is on the National Register of Historic Places ("Miller Army Air Field Historic District")

Regards,

John Rooney

From: reinhart@nysenate.gov
To: Staten Island Parks & Recreation
Subject: CWPP Comments
Date: Friday, February 03, 2012 5:20:11 PM
Attachments: ATTANJG0.pdf

Comments from Senator Lanza's office are attached.

Best,

Anthony Reinhart
District Operations Director
Senator Andrew J. Lanza
Phone: 718-984-4073
Fax: 718-984-4455

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CO-CHAIR
LEGISLATIVE ETHICS COMMISSION
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February 3, 2012

NYC Parks and Recreation
Attention: CWPP
1150 Clove Road
Staten Island, NY 10301

Re: Community Wildfire Protection Program

I write today in strong support of the proposed Community Wildfire Protection Program (CWPP). This is a vital step forward in addressing the growing issue of brush fires, which have plagued sections of Staten Island for many years. Being that this will be the first CWPP in the State of New York, this proposal has the potential to serve as a precedent-setting advancement in addressing similar issues in other sections of Staten Island and across the State.

The East Shore communities of Staten Island have experienced an increase in the number of dangerous fires in recent years. These fires spread with a high level of veracity, fueled by the overgrowth of phragmites, an invasive weed that should be eradicated. The proposed CWPP will directly benefit more than 50,000 people who live among the 5.6 square miles this plan encompasses.

The CWPP correctly highlights that State legislation regarding phragmites removal is set to expire at the end of 2012. I have submitted legislation that will extend this permit for another year; I will work closely with my colleagues in Albany to ensure passage of this legislation.

Ensuring that the City, State and Federal levels of government work as a team will be vital to the success of this plan's implementation. Of the more than 3,500 acres of land within the scope of the CWPP, more than 1,500 acres are publicly owned, either at the City or Federal levels of government. Furthermore, given the existence of wetlands across significant portions of this land, the State Department of Environmental Conservation's (DEC) participation will be vital to successfully implementing the CWPP. I call on all agencies involved to maintain open communications at every step of this implementation and to ensure that red tape does not tie up the ultimate success of this process. Regulations that prohibit timely implementation will ultimately put residents, emergency responders, and property in greater danger, and will do more harm to the surrounding area.

It is my understanding that in recent trials of machinery that may be used to clear phragmites, it was realized that areas within the CWPP have fallen prey to illegal garbage dumping over time. It is apparent that removal of this garbage will be vital to successfully removing the phragmites. I respectfully request that DEC and other appropriate agencies do everything in their power to ensure this moves forward as seamlessly as possible.

This plan lays out short, medium and long-term goals for enhanced fire safety. Immediate removal of the dangerous fuel source is, as it should be, a top priority. Regarding intermediate steps, I look forward to further discussions on the pros and cons of chemical treatments of vegetation, possible prescribed burning of designated areas, and other suggestions which may come forward.

Ultimately, with proper support, it is the community that will reap the greatest rewards from a properly implemented CWPP. Their input will be vital to this effort. With this in mind, I request that future meetings on this topic be held within the confines of the CWPP area, to make accessibility as convenient as possible for those who have directly suffered from these wildfires.

I look forward to continued participation with the community and all levels of government to facilitate the implementation of this program. With brush fire season around the corner, time is of the essence.

Sincerely,

Andrew Lanza

ANDREW J. LANZA
Senator, 24th Dist.

Alt/ar

From:	John C. Rooney
To:	Staten Island Parks & Recreation; Long, Adena
Cc:	Judith Enck; Carl Alderson; Lisa Baron; Michael Vissichelli; Craig S. Soltz; Gumb Jr., Dana; Rossi, James; Venetia A. Lannon; John Cryan; Harold Dickey; John Warren; Brian Feeney; Tom Wrobleski; Hillel Lofaso; Kerry Sullivan; James Scarcella; Clifford Hagen; atjacob@gw.dec.state.ny.us; Nick Dmytryszyn; marronm@fdny.nyc.gov; Tomas_Liogys@nps.gov; mark_musitano@nps.gov; Brauman, Robert; timothy_regan@nps.gov; lfarrell@dep.nyc.gov; Steve Zahn; Carter Strickland; Linda Canzanelli; Benepe, Adrian; Toth, Edward; Becker, Karen; Greenfeld, Jennifer; Wenskus, Tim; Oddo, James; Ignizio, Vincent; Derrico, Debra; Wagner, Charlene; Johnson, Christine; Rose, Deborah; Matteo, Steven; jborelli@council.nyc.gov; Burke, Ed; marronp@assembly.state.ny.us; bauerc@assembly.state.ny.us; Michael Coppotelli; lissg@assembly.state.ny.us; Bill.J.Smith@mail.house.gov; jturoski@nysenate.gov; reinhart@senate.state.ny.us; robert.cataldo7@gmail.com; mdarvanites@gmail.com; Gunther, Bram; Kavanagh, Liam; Seth Wollney; Richard Lynch; PPOW; Joseph Pane; Luis A. Hernandez; Richard K. Shaw; JAMES MIRAGLIA; KIRSTI JUTILA; LEN GARCIA-DURAN; Lt. Brian Waite; Richmond Engine Company No. 1; Glenn Phillips; Holly Leicht; Alyson Beha; Dave Lutz; Rodriguez, Edwin
Subject:	ADDENDUM: Re: Comments on the Draft Community Wildfire Protection Plan for the East Shore of Staten Island
Date:	Tuesday, February 07, 2012 10:42:18 AM

An addendum to my comments on the Community Wildfire Protection Plan for the East Shore of Staten Island (CWPP):

I wrote:

"There is no mention of NYPD or the Fire Marshall or U.S. Park Police that I could find in my initial scan. Who has been setting all these fires?"

I should have included NYCDPR's Parks Enforcement Police, as grossly understaffed as they are on Staten Island.

Ditto the DSNY Sanitation Police. All the police agencies should be on the advisory group for their investigatory and law enforcement/prevention roles.

My 25 years experience tells me littering and dumping begets more dumping, and areas repeatedly dumped on are prime targets for arson, because I suspect that when the arsonists see all the dumping, they think the area is not under control or surveillance, and out come the matches.

Also, having been a park volunteer using a walk-behind field and brush mower on Staten Island park road edges, you have to remove large debris each time before mowing, or when it hits a piece of concrete, log, metal, or large debris of any kind, watch out!

If you keep cleaning an area, over time you tend to see less dumping and less littering. That is my experience. I believe this is a corollary of the broken windows theory.

Not only do you need the debris cleanup, but a little simultaneous law enforcement will go a long way towards preventing the dumping and the arson.

> ----- Original Message -----
> **From:** John C. Rooney

To: Staten Island Parks & Recreation ; Adena Long
Cc: Judith Enck ; Carl Alderson ; Lisa Baron ; Michael Vissichelli ; Craig S. Spitz ; Gumb Jr., Dana ; Rossi, James ; Venetia A. Lannon ; John Cryan ; Harold Dickey ; John Warren ; Brian Feeney ; Tom Wrobleski ; Hillel Lofaso ; Kerry Sullivan ; James Scarcella ; Clifford Hagen ; atjacob@gw.dec.state.ny.us ; Nick Dmytryszyn ; marronm@fdny.nyc.gov ; Tomas_Liogys@nps.gov ; mark_musitano@nps.gov ; Brauman, Robert ; timothy_regan@nps.gov ; lfarrell@dep.nyc.gov ; Steve Zahn ; Carter Strickland ; Linda Canzanelli ; Benepe, Adrian ; Toth, Edward ; Becker, Karen ; Greenfeld, Jennifer ; Wenskus, Tim ; Oddo, James ; Ignizio, Vincent ; Derrico, Debra ; Wagner, Charlene ; Johnson, Christine ; Rose, Deborah ; Matteo, Steven ; jborelli@council.nyc.gov ; Burke, Ed ; marronp@assembly.state.ny.us ; bauerc@assembly.state.ny.us ; Michael Coppotelli ; lissg@assembly.state.ny.us ; Bill.J.Smith@mail.house.gov ; jturoski@nysenate.gov ; reinhart@senate.state.ny.us ; robert.cataldo7@gmail.com ; mdarvanites@gmail.com ; Gunther, Bram ; Kavanagh, Liam ; Seth Wollney ; Richard Lynch ; PPOW ; Joseph Pane ; Luis A. Hernandez ; Richard K. Shaw ; James Miraglia ; Kirsti C. Jutila ; Leonard Garcia-Duran ; Lt. Brian Waite ; Richmond Engine Company No. 1
Sent: Friday, February 03, 2012 4:56 PM
Subject: Comments on the Draft Community Wildfire Protection Plan for the East Shore of Staten Island

Re: http://www.nycgovparks.org/pagefiles/47/CWPP.pdf

Community Wildfire Protection Plan for the East Shore of Staten Island (CWPP)

These are my informal comments. They are informal because of the lack of adequate notice.

In general, this report could be classified as a pre-scope for a scoping document for a plan. As a plan, it is not ready for prime time.

In order to get to the next stage, the Fire Threat maps need much greater detail (e.g. in Gateway/Great Kills the area west of Fire Road, which contains a watercourse, is moderate risk, certainly not high risk. Other areas, such as the mugwort/andropogon/panic grass fields to the southwest of the Education Center at Great Kills is moderate risk, not low risk. It is just across the street from a phragmites area, for goodness sakes!)

For remediation planning purposes, impact review, or any permit applications, there needs to be a topographic survey, an entitation, a soil survey, and a groundwater survey.
Chemical treatment should not even be on the table unless the above surveys have been done.

Chemical treatment should not be considered as an intermediate approach, or the tendency will be to repeat application over time. If it is used at all, it should only be considered for one-time use as a part of a long-term project of native plant re-vegetation with maintenance guaranteed and funded IN PERPETUITY pursuant to an Order on Consent or NYSDEC/EPA/Corps of Engineers permit with enforceable terms.

My non-expert preference for the process is: 1. Debris removal; 2. Mow; 3:

Prescribed Burn; 4: Plant natives; 5. Maintain IN PERPETUITY. I don't see a place for herbicides in the long term.

Funding for maintenance in perpetuity is not really mentioned. How about considering a Special Tax District (like a B.I.D.), with legislation allowing dedicated funding from a small percentage of the existing real estate tax? The best managed park systems in the country have dedicated funding.

There is no mention of NYPD or the Fire Marshall or U.S. Park Police that I could find in my initial scan. Who has been setting all these fires?

Expand the working group to include an advisory group from NYCDOB, NYCDCP, etc. We may want to incorporate some of the recommendations of the CWPP in the Building Codes and/or Zoning Resolution. Are we looking at the need for a zoning overlay special district tied to special building fire codes?

I didn't pick up any analysis of the adequacy of fire equipment, just a list of inventory. I assume it is adequate, because FDNY sure has plenty of experience.

Federal Wetlands

There is no mention of Federal (NWI) wetlands in the report. State wetland law and Federal wetland law emphasize different values and have different standards. The Federal standards emphasize soils and hydrology, as well as to a lesser extent vegetation, whereas the State law emphasizes vegetation and hydrology (habitat).

See the 1998 National Wetland Inventory (NWI) Wetland Mapper:
http://www.fws.gov/wetlands/

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All of Miller Field is on the National Register of Historic Places ("Miller Army Air Field Historic District")

Regards,

John Rooney

CHAIR
CHILDREN AND FAMILIES

COMMITTEE MEMBER
CIVIL SERVICE AND PENSIONS
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DIANE J. SAVINO
SENATOR, 23 RD DISTRICT

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July 31, 2012

New York City Department of Parks and Recreation
Staten Island Headquarters
Stonehenge, Clove Lakes Park
Staten Island, NY 10301

To Whom it May Concern:

I have recently perused the draft version of the Community Wildfire Protection Plan (CWPP) for the East Shore of Staten Island composed by New York City Parks, with contributions from National Park Service (NPS), NYC Department of Environmental Protection, FDNY, NYS Department of Environment Conservation and the Staten Island Borough President's office. I thank these agencies for composing this Plan, and working together to find a consensus solution to solve a serious problem than could affect many Staten Islanders if it were to become a reality. As we have seen in Colorado and other parts of this country this summer, wildfire is a serious problem and can immediately become a major crisis under certain circumstances.

The plan that has been crafted is extremely detailed and well formulated, with many contingencies considered and taken into account. This plan is well laid out and presented, and extremely informative to community leaders, elected officials, and interested citizens alike. This plan could literally be a lifesaver one day. Thank you again

Sincerely,

Diane Savino

Diane J. Savino,
New York State Senator, 23rd District

MICHAEL G. GRIMM
13TH DISTRICT, NEW YORK

COMMITTEE ON FINANCIAL SERVICES

ASSISTANT WHIP

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House of Representatives
Washington, DC 20515–3213

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BROOKLYN, NY 11228
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August 7, 2012

The Hon. Adena Long
Borough Commissioner
NYC Department of Parks and Recreation
Stonehenge, Clove Lakes Park
1150 Clove Road
Staten Island, NY 10301

Commissioner Long,

I am writing to you to express my strong support for the Community Wildfire Protection Plan (CWPP) that your agency has drafted in collaboration with your federal, state, and city partners. In particular, I would like to thank the National Parks Service for stepping up and offering this program as solution for a problem that has long plagued our Island's East Shore for years. I also want to commend the New York City Department of Parks and Recreation and all of you sister agencies for be willing collaborators and leaders in this initiative.

Brush fires along the East Shore of the Island have cast a specter of fear over the lives of the residents of that area. The stories I have heard about the blazes that have occurred over the last several years have been chilling. There are days in the summer where some of my constituents go to sleep wondering whether their property and their families are safe; that is a state of affairs that no one should long endure.

The threat posed by phragmites is self-evident, and this is clearly a common sense solution to this longstanding problem. I strongly endorse the CWPP and promise to do all I can to advance it to its completion.

Sincerely,

Michael G. Grimm
Member of Congress

MG/dc

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STATEN ISLAND, NY 10314
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FAX (718) 980-1051

THE COUNCIL OF
THE CITY OF NEW YORK

JAMES S. ODDO
MINORITY LEADER
COUNCIL MEMBER - 50TH DISTRICT
STATEN ISLAND - BROOKLYN

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NEW YORK, NY 10007
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joddo@council.nyc.gov

August 16, 2012

Ms. Adena Long
Borough Commissioner
NYC Department of Parks and Recreation
1150 Clove Road
Staten Island, NY 10301

Re: Community Wildfire Protection Plan

Dear Borough Commissioner Long:

I write to express my full support for the Community Wildfire Protection Plan.

I believe that it is a comprehensive plan to address the dangers of brushfires that have plagued these areas of Staten Island for decades, and which have become increasingly more dangerous and costly in recent years.

With more than fifty thousand people living within these targeted zones and millions of dollars of personal and public property at risk, full cooperation of all parties to this Plan is vital. It is imperative that government meets its responsibilities and protects the property and the lives of those who live there, and I am committed to working to help eliminate the causes and damaging effects of brushfires on Staten Island.

I thank you for your time, courtesy, and consideration. Please do not hesitate to contact me if I could be of further assistance.

Very truly yours,

James S. Oddo
Council Member, 50th District

JSO:fs

KIRSTEN E. GILLIBRAND
NEW YORK
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SPECIAL COMMITTEE ON AGING

United States Senate

WASHINGTON, DC 20510-3205

August 17, 2012

Honorable Adena Long
Borough Commissioner
New York City Department of Parks and Recreation
Staten Island Headquarters
Stonehenge, Clove Lakes Park
Staten Island, NY 10301

Dear Borough Commissioner Long,

I write in support of the Community Wildlife Protection Plan (CWPP) that your agency has drafted in collaboration with NYCDEP, NYFD, NYSDEC, the National Parks Service and the Staten Island Borough President's Office. This consensus solution better prepares our communities in the event of a dangerous wildfire, which can have devastating effects as we have recently witnessed in places such as Colorado and California.

This multifaceted CWPP comprehensively addresses the causes of potential wildfires on the Eastern Shore of Long Island by improving wildfire prevention techniques, increasing the FDNY's ability to contain and extinguish fires, and cultivating community understanding of the nature of these destructive events. Furthermore, this plan will combat the invasive grass known as phragmites, which has been linked to 103 serious brush fires within Eastern Shore communities just in the past fifteen years. We must take all necessary steps, including addressing root causes, to eliminate damage and destruction to property and our valuable natural resources.

I support this solution to the longstanding problem that affects Staten Island's Eastern Shore. If you have any questions, or desire further information, please do not hesitate to contact my staff member Jordan Baugh at (202) 224-4451.

Sincerely,

Kirsten E. Gillibrand

Kirsten E. Gillibrand
United States Senator

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THE COUNCIL OF
THE CITY OF NEW YORK

VINCENT M. IGNIZIO
COUNCIL MEMBER, 51ST DISTRICT, STATEN ISLAND

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LAND USE

SUBCOMMITTEE
ZONING AND FRANCHISES

August 23, 2012

Adena Long
Borough Commissioner
NYC Department of Parks and Recreation
1150 Clove Road
Staten Island, NY 10301

RE: Community Wildlife Protection Plan

Dear Commissioner Long:

I write you today to convey my support for the Community Wildlife Protection Plan.

Wildfires have long been a fear of the residents of the East Shore of Staten Island. I strongly support a comprehensive plan for multiple agencies to work in collaboration to combat this dangerous situation. The government must take an active role in addressing this matter to ensure the safety of the thousands of residents who live in the immediate area. I strongly support the Community Wildlife Protection Plan and all actions that will aid in the prevention of the brushfires.

Thank you for your time and attention to this matter.

Excelsior,

Vincent M. Ignizio
Member of Council
51st District

CHARLES E. SCHUMER
NEW YORK

United States Senate

WASHINGTON, DC 20510

COMMITTEES:
BANKING
FINANCE
JUDICIARY
RULES

August 29, 2012

The Honorable Adena Long
Borough Commissioner
New York City Department of Parks and Recreation
Staten Island Headquarters
Stonehenge, Clove Lakes Park
Staten Island, NY 10301

Dear Borough Commissioner Long,

I write to express my support for the Staten Island Community Wildfire Protection Plan (CWPP). The CWPP has been a true collaborative effort with participation by NPS, DEC, DPR, DEP and FDNY, and is sorely needed to protect Staten Island residents and homeowners from the longstanding threat of brushfires.

Over the past 14 years there have been 7,389 reported brush fires on Staten Island with some of the most severe incidents occurring in the past couple years. About a year ago I helped Gateway National Recreation Area secure a Hazardous Fuel Reduction Grant from the Department of the Interior. However, without the CWPP in place there was a limit to how these funds could be used. Having an approved CWPP is not only important for coordination purposes, but will increase the ways in which funding can be used to protect Staten Islanders.

I applaud all the agencies involved in drafting the CWPP, an essential tool to reduce the abundance of brushfire-causing phragmites that pose a serious risk to Staten Island residents, as well as its property and land.

Sincerely,

Charles Schumer

Charles E. Schumer
United States Senate

Appendix 12-Glossary

A

Agency: Any federal, state, county or city organization participating with jurisdictional responsibilities.

Aspect: Direction toward which a slope faces.

B

Brush: A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

Brush Fire: A fire burning in vegetation that is predominantly shrubs, brush and scrub growth.

Buffer Zones: An area of reduced vegetation that separates wildland fuels from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, parks, or golf courses.

Burning Conditions: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

C

Chain: A unit of linear measurement equal to 66 feet.

Command Staff: The command staff consists of the information officer, safety officer and liaison officer. They report directly to the incident commander and may have assistants.

Complex: Two or more individual incidents located in the same general area which are assigned to a single incident commander or unified command.

Crown Fire (Crowning): The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

D

Dead Fuels: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Defensible Space: An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between

an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Detection: The act or system of discovering and locating fires.

Dozer: Any tracked vehicle with a front-mounted blade used for exposing mineral soil.

Dozer Line: Fire line constructed by the front blade of a dozer.

Drought Index: A number representing net effect of evaporation, transpiration, and precipitation in producing cumulative moisture depletion in deep duff or upper soil.

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves immediately above the mineral soil.

E

Engine: Any ground vehicle providing specified levels of pumping, water and hose capacity.

Engine Crew: Firefighters assigned to an engine. The Fireline Handbook defines the minimum crew makeup by engine type.

Environmental Assessment (EA): EA's were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

Environmental Impact Statement (EIS): EISs were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, EISs are written for large-scale actions or geographical areas.

Extreme Fire Behavior: "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

F

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather and topography.

Fire Behavior Forecast: Prediction of probable fire behavior usually prepared by a Fire Behavior Officer, in support of fire suppression or prescribed burning operations.

Fire Break: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Intensity: A general term relating to the heat energy released by a fire.

Fire Line: A linear fire barrier that is scraped or dug to mineral soil.

Fire Management Plan (FMP): A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Fire Perimeter: The entire outer edge or boundary of a fire

Fire Season: 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affects resource values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities are regulated by state or local authority.

Fire Weather: Weather conditions that influence fire ignition, behavior and suppression.

Fire Weather Watch: A term used by fire weather forecasters to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

Firefighting Resources: All people and major items of equipment that can or potentially could be assigned to fires.

Flame Height: The average maximum vertical extension of flames at the leading edge of the fire front. Occasional flashes that rise about the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind of slope.

Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

Flare-up: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

Flash Fuels: Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash, that ignite readily and are consumed rapidly when dry. Also called fine fuels.

Forbs: Plants with a soft, rather than permanent woody stem, that is not a grass or grass-like plant.

Fuel: Combustible material. This includes, vegetation, such as grass, leaves, ground litter, plants shrubs and trees, which feed a fire.

Fuel Bed: An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also, commonly used to describe the fuel composition in natural settings.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Model: Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model has been specified

Fuel Moisture (Fuel Moisture Content): The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit

Fuel Reduction: Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

Fuel Type: An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

G

Geographic Area: A political boundary designated by the wildland fire protection agencies where these agencies work together in the coordination and effective utilization.

H

Hazard Reduction: Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

Head of a Fire: The side of the fire having the fastest rate of spread.

Heavy Fuels: Fuels of large diameter such as snags, logs, large limb wood, that ignite and are consumed more slowly than flash fuels.

I

Incident: A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Incident Action Plan (IAP): Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period.

The plan may be oral or written. When written, the plan may have a number of attachments, including but not limited to: incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, and incident map.

Incident Commander: Individual responsible for the management of all incident operations at the incident site.

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

J

K

L

Litter: Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Live Fuels: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms rather than by external weather influences.

M

Mineral Soil: Soil layers below the predominantly organic horizons; soil with little combustible material.

Mobilization: The process and procedures used by all organizations, federal, state and local for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

Mop-up: To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags, or moving logs so they won't roll downhill.

N

National Environmental Policy Act (NEPA): NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

O

Overhead: People assigned to supervisory positions, including incident commanders, command staff, general staff, directors, supervisors, and unit leaders.

P

Preparedness: Condition or degree of being ready to cope with a potential fire situation.

Prescribed Fire: Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan (Burn Plan): This document provides the prescribed fire burn boss information needed to implement an individual prescribed fire project.

Prescription: Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Prevention: Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.

R

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

Rehabilitation: The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

Relative Humidity (Rh): The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

Remote Automatic Weather Station (RAWS): An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

Resources: 1) Personnel, equipment, services and supplies available, or potentially available, for assignment to incidents. 2) The natural resources of an area, such as timber, crass, watershed values, recreation values, and wildlife habitat.

Run (of a fire): The rapid advance of the head of a fire with a marked change in fire line intensity and rate of spread from that noted before and after the advance.

S

Safety Zone: An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

Single Resource: An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

Slash: Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps and broken understory trees or brush.

Smoke Management: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spot Fire: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Spotting: Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

Strategy: The science and art of command as applied to the overall planning and conduct of an incident.

Suppressant: An agent, such as water or foam, used to extinguish the flaming and glowing phases of combustion when direction applied to burning fuels.

Suppression: All the work of extinguishing or containing a fire, beginning with its discovery.

Surface Fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

T

Tactics: Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

Torching: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

Type: The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability due to power, size, or capacity.

U

V

W

Water Tender: A ground vehicle capable of transporting specified quantities of water.

Wildland Fire: Any nonstructural fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Use: The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

Wildland Urban Interface: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.