

23. Appendix M: Pioneer Park and Engstrom Open Space Fire Management Plan

23.1. Introduction

Pioneer Park ~~is~~ and Engstrom Open Space are susceptible to forest fires of natural and human origin. The risk can be partially managed by planning for an occurrence and intervening to mitigate risk factors before such an occurrence. This plan does both within the constraint of preserving the native forest ~~in Pioneer Park~~ on Trust properties and using the resources currently available to the City of Mercer Island. The goal of this plan is to guide City departments to better protect Pioneer Park, Engstrom Open Space, and the surrounding neighborhood from fire. It begins by assessing current resources and proposes certain goals for fire management. ~~t~~ Then ~~it~~ describes actions for mitigation of risk factors and improving response to fire occurrences.

23.2. Resource Assessment

Forest Fire Occurrence

Fire ~~Department~~ fighting Resources

The Mercer Island Fire Department (~~MI Fire~~ MIFD) would be the first response to fire occurrence. ~~MI Fire~~ MIFD has seven fire-fighters stationed on the island at any one time. Three are located at Fire Station 92, which is located on the south side of SE 68th St, across ~~the street~~ from Pioneer Park's NW Quadrant. The remaining firefighters are located at Fire Station 91, located approximately 3 miles north of Pioneer Park. ~~However,~~ either station might respond to ~~the a~~ fire based on the battalion's availability. The incident Commander would make the decisions about fighting a fire based on the situation.

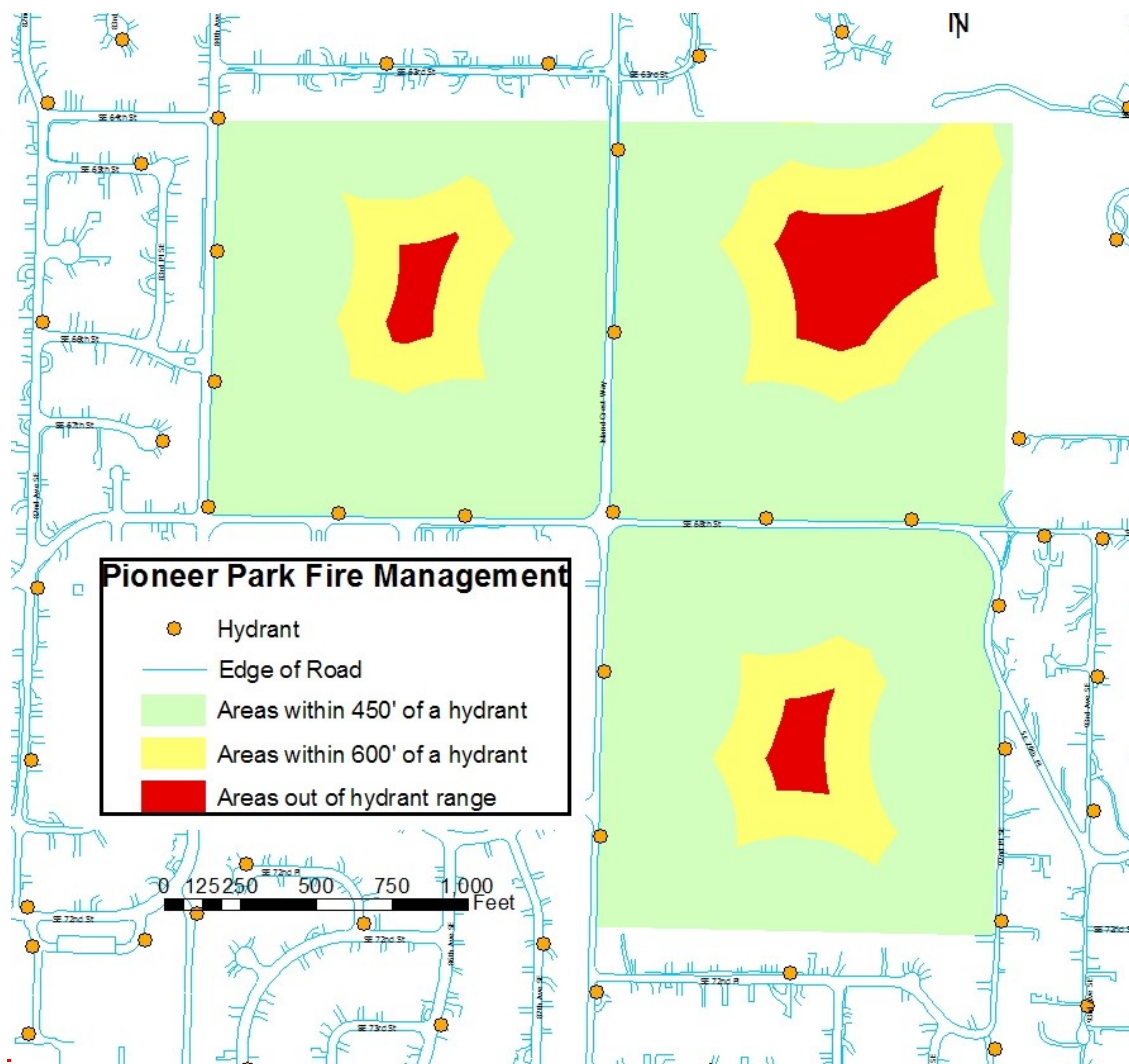
Washington State Department of Labor and Industries allows fire-fighters in structural protective clothing to work a maximum of one hour on a wildfire. (WAC 296-305). First response by on-duty staff could be followed by calling out for mutual aid from adjacent jurisdictions. ~~to insure coverage of the incident.~~ If required, off-duty staff could be called to report for duty as the incident Commander deems necessary, and dependent on the duration of the incident.

Mutual aid agreements with other jurisdictions allow ~~MI Fire~~ MIFD to request fire units from other fire departments. Bellevue, Kirkland, Woodinville, Redmond, Seattle and Eastside Fire and Rescue (~~EF&R~~) have resources that would be useful for wildland ~~forest~~ fire fighting; these Departments have firefighters who are wildland firefighting certified, ("Red Card"), to fight this type of fire, and who would respond under a mutual aid request. ~~For example, Eastside Fire and Rescue has personnel trained in fighting wildland fires.~~ These resources ~~might~~ would likely be needed depending on the extent of a fire.

Washington State Department of Natural Resources (DNR) [also](#) has [the](#) capability to fight wildland fires. They may be called in, if necessary, when local and mutual aid resources are exhausted. [This resource is limited and should not be considered an adequate resource.](#) However, they offer many resources most fire departments do not have, such as inmate crews, wildland engines, and experienced overhead (aerial) support. Eastside Fire and Rescue currently houses and operates a CO-OP ~~H5S~~ engine owned by DNR ~~-(BR662)~~. Response time is expected to be less than two hours. The main office is located in Enumclaw. The City would be responsible for the cost of any resources utilized. ~~This, includes including~~ logistical support, ~~such as~~ food, restrooms, lodging, etc.

Hydrants and ~~Trail~~ [Hose](#) Access

Pioneer Park [and Engstrom Open Space](#) ~~have~~s fire hydrants along ~~all of~~ the perimeter roads ([See figure 1](#)). [O](#)



~~Figure 1: map showing hydrant locations and coverage in Pioneer Park.~~

~~Other boundaries also have hydrants available through private property. Only the very center of each quadrant and some parts of the ravine in the Northeast quadrant are more than 600~~

~~Realistically~~However, topography and trail access reduce the actual distance that water can be conveyed into the park by fire hose. ~~Realistically, A distance of 450-500~~ feet is the maximum ~~extent distance~~ that water can be reliably conveyed into the park. Figure 1 illustrates that center of each quadrant and some parts of the ravine in the Northeast quadrant are more than 500 feet from an available hydrant, leaving ~~This leaves~~ significant areas of the park without access to water in case of a fire.



23.3. Goals and Priorities

The goals of the Pioneer Park Forest Management Plan are directed toward maintaining a diverse native forest with dense vegetation buffering the edges of the park and abundant deadwood for wildlife habitat. -The generally accepted principles of fire management along wildland interfaces run counter to these goals. -Prescriptions for reducing risk to adjacent properties include removing trees to increase distances between trees, extensive pruning of trees and shrubs to reduce ladder fuels and clearing the ground layer of woody debris to reduce fuel loads.

These two goals can be partially reconciled to achieve dense vegetation along park edges while achieving some reduction of ladder fuels and fuel loads along residential portions of the park perimeter. Furthermore, the size ~~and~~ location ~~of the~~ ~~and~~ hydrant system surrounding the park, as well as the immediate availability of a highly ~~-~~trained, well ~~-~~equipped firefighting staff, make this situation distinct from typical wildland fire situations. Prescriptions for wildland fire scenarios assume lower levels of immediate response than we might expect on Mercer Island. ~~N~~Nevertheless, any response to fire in the park will be limited.

The priorities for ~~MI Fire~~ MIFD response in any situation are (in priority order) life, property, and incident stabilization. Protecting forest vegetation would fall into the third priority. Protecting lives and adjacent homes would be the overriding concern of the ~~I~~ncident ~~C~~ommander in a forest fire situation. A large fire in the park would burn sizable portions of the park before it could be brought under control. There is also the risk of fire extending outside the park boundaries leading to a potential conflagration. Additional risk is assumed if a fire in the park reaches the crowns of a cluster of trees, particularly in warm, dry weather, in which case, providing a defensive line of fire crews to protect fire from reaching homes on the park perimeter would be a top priority.

23.4. Evaluation

Pioneer Park and Engstrom Open Space ~~are~~ is susceptible to fire primarily from human behavior. Historical incidents ~~s~~ of encampments ~~s~~ (with fire) and fireworks use in the park are ~~particular~~ concerns. The forest is particularly prone to drought because the soils are well drained. Woody debris and organic “duff” have built up in the park, increasing fuel loading. Houses back up to the park, with minimal distances between structures and stands of dense vegetation. The interior of the park is not accessible to fire vehicles because the trails are too narrow for ~~them~~ large fire apparatus to traverse.

However, the size of the park and the cooler, moister climate of Western Washington reduce risk in comparison to Eastern Washington forest landscapes. The quadrants are surrounded by a network of fire hydrants that can supply water to the park perimeter and significant portions of the interior. Fire Station 92 is located across the street from the park. The staff of ~~MI Fire~~ ~~MIFD~~ the MIFD is highly trained and experienced in incident response. Furthermore, mutual aid agreements with other cities and the availability of DNR crews would enable the City to ~~sustain a response~~ respond and initiate mitigation and control measures, and provide specialized capabilities as conditions warrant.

Limitations in response include the difficulty of conveying water to the center portion of a quadrant, ~~difficult terrain in parts of the wooded areas~~ certain areas of the park, and limited firefighting resources. For certain hydrants, vegetation poses a barrier to ready trail access, while other hydrants have no trails that lead into the park. City firefighters have not received training specific to the situation in Pioneer Park and Engstrom Open Space. These limitations are certainly addressable (See [section 23.6 Action Items](#), ~~below, in 23.6~~).

In most fire scenarios within the wooded areas, MIFD will likely lay hose lines into the interior of the park and wait for the fire to reach their location. One advantage here is that the park trail system provides reasonable access, except in the NE corner of the NE quadrant, where the terrain is untenable.

	Safety Factors	Risk Factors
Fire Occurrence	<ul style="list-style-type: none"> Well-developed trail system Extensive fire hydrant network around park perimeter Nearby location of Fire Station 92 Trained and coordinated firefighters Mutual aid agreements with other cities Availability of DNR resources Standard incident Incident Management protocols are expected to work for all possible fire scenarios (NIMS) 	<ul style="list-style-type: none"> Narrow trail widths Some hydrant locations are not close to trail access points Lack of water conveyance to the interior of the park Lack of firefighter training specific to Trust properties Pioneer Park (MM1)(MM2) Limited initial firefighting resources Hilly terrain and underbrush shrubby understory vegetation growth in certain quadrants reduces ability to lay hose lines close to the seat of a fire
Fire Mitigation	<ul style="list-style-type: none"> Street buffers Low summer temperatures Winter rainfall Low summer wind speeds Small land area 	<ul style="list-style-type: none"> Seasonal low rainfall Well-drained, D drought-prone soils Woody debris and “duff” (ground fuel load) Encampment activity Fireworks use in the park Minimal backyard buffers

Figure 2: Case-specific factors in Fire Occurrence and Fire Mitigation at Pioneer Park [and Engstrom Open Space](#)

23.5. *Vegetation Management Plan*

Neighbor partnerships will be sought to “adopt” areas of the park for fire mitigation (and also habitat improvement, as described in the Pioneer Park Forest Management Plan). Participating neighbors, under the direction of City staff, would restore and maintain the portion of the park behind their houses within a certain distance of the residence depending on the terrain and the vegetation found there. City staff would recommend ways the forest edge should be managed to meet forest management and fire management goals. The neighbors and City staff would develop a work plan cooperatively. The following describe some examples of these activities. Neighbor partners would foster dense, low-growing evergreen shrubs in the understory and periodically thin tall shrubs and dead branches to inhibit a ground fire from climbing into the canopy. Neighbors also would work to eliminate firewood and debris piles along property boundaries. City staff would support these activities with debris pickup, tool lending, and technical assistance. The City would also remove the wood from trees that they cut down in these areas, instead of leaving branches and logs to decompose.



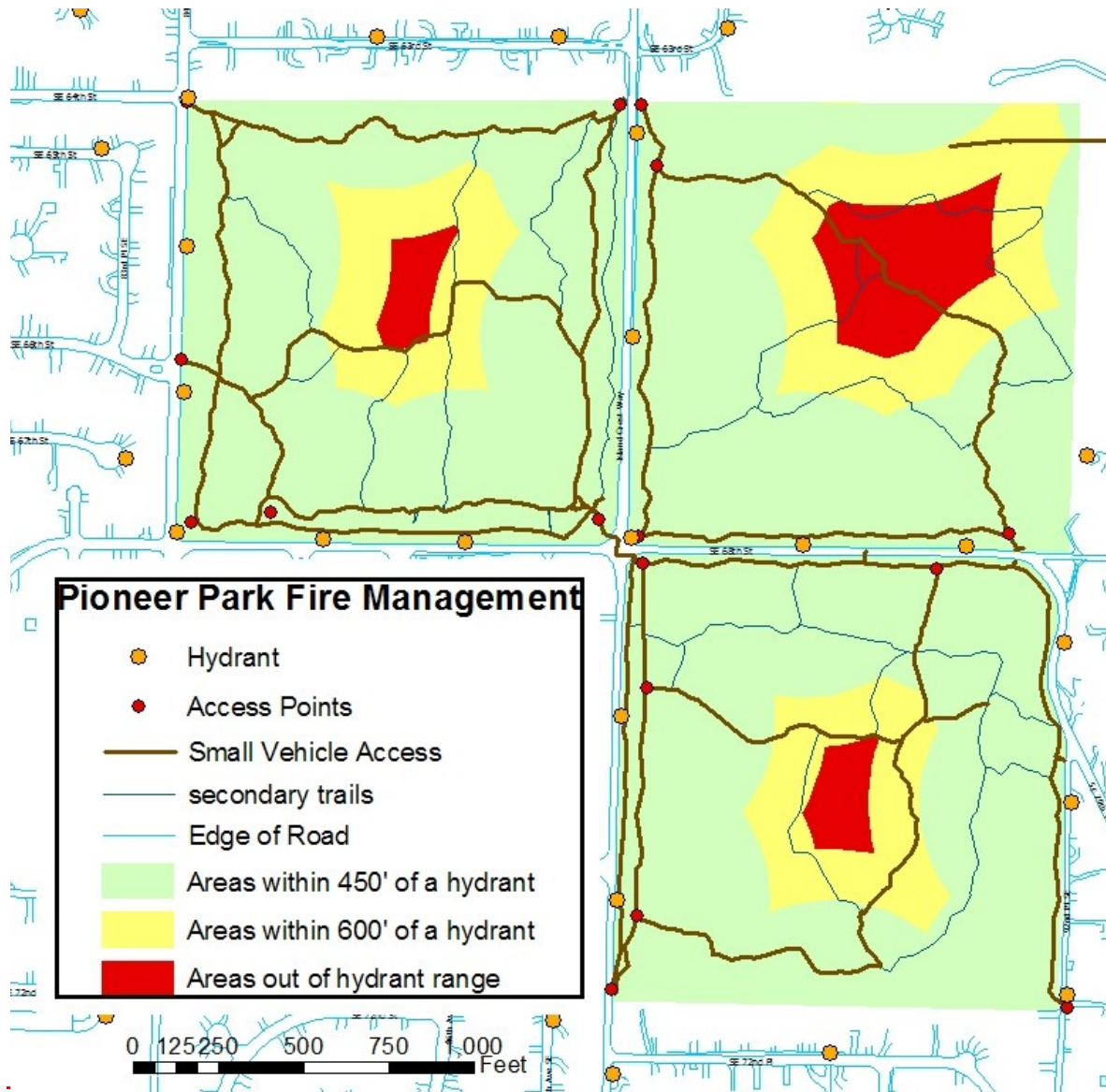


Figure 3: Fire ~~o~~Occurrence ~~r~~Resources, including small vehicle access, entry points, hydrant locations and secondary trails (see Appendix for larger version)

23.6. Action Items

Fire Occurrence

1. ~~MI Fire~~MIFD will offer training for Station 92 staff pertinent to the Pioneer Park and Engstrom Open Space situation. The DNR Western Washington Interagency Training Committee provides standard training on wild-fire situations. However, such training and the resulting certification ("Red Card") is far more extensive than needed for the situation on Mercer Island and maintaining such certification is burdensome for the City. Therefore, MI FireMIFD will seek other training situations for its firefighters that would be relevant to this situation. ~~If existing training is not adequate or pertinent to the Pioneer situation, MI Fire will propose specialized training and a budget for that.~~

2. MI Parks will give ~~Pioneer Park~~ trails access information to ~~MI Fire~~[MIFD](#) in formats most useful to ~~MI Fire~~[MIFD](#) staff.
3. ~~MI Fire~~[MIFD](#) will familiarize staff with Pioneer Park [and Engstrom Open Space](#) and evaluate its existing equipment for anticipated incidents in the park.
4. MI Parks and ~~MI Fire~~[MIFD](#) will develop a list of desirable basic fire-fighting hand tools to be stored in fire caches at Station 91 and 92.
5. Both departments will further research the availability of DNR for fire response and determine what conditions may warrant their involvement. [If DNR resources are unavailable or inadequate, ~~MI Fire~~MIFD staff will research and propose additional solutions](#)^[MM3].

Forest Fire Mitigation

1. MI Parks will approach park neighbors and work with them to reduce fire potential and improve habitat value along the residential perimeter of the park.
2. MI Parks will conduct an educational campaign about fire-wise landscaping with adjacent property owners using existing educational materials.
3. MI Parks will patrol remote locations of the park during summer months to discourage encampment activity.
4. MI Parks will conduct an educational campaign with citizens about fire risk in Pioneer Park [and Engstrom Open Space](#).
5. MI Parks and ~~MI Fire~~[MIFD](#) will develop a plan to improve trail access into the park for a narrow vehicle and create access points where the trail system does not connect well with existing hydrant locations.

23.7. Costs

This plan is intended to work within the existing resources as much as ~~practical~~[possible](#). Certain items proposed above may be purchased within existing budgets, while others may represent new costs. Budget planning is beyond the scope of this plan. Items that may represent new purchases include:

- Training for MI staff
- Public education materials and events
- [Tool caches for Fire Stations 91 and 92](#)
- [Additional firefighting resources](#)



Pioneer Park
Hydrant Coverage-F