

**REIMBURSEMENT AGREEMENT NO. 17-015-A  
BETWEEN  
SEATTLE PUBLIC UTILITIES  
AND  
SHORELINE FIRE DEPARTMENT  
FOR  
Fire Hydrant Inspection in SPU Retail Service Area in Shoreline**

This REIMBURSEMENT AGREEMENT ("Agreement") is made by and between Seattle Public Utilities ("SPU") and Shoreline Fire Department ("Shoreline Fire"), with either referred to as the "Party," and both referred to as the "Parties."

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**1. PERIOD OF PERFORMANCE.**

The period of performance of this Agreement is April 1, 2017 and shall end on December 31, 2017, unless amended by written agreement or terminated earlier pursuant to the provisions hereof.

**2. PURPOSE OF AGREEMENT.**

Shoreline Fire will perform fire hydrant inspections of all SPU-owned fire hydrants (currently 966) within SPU's retail service area located within the City of Shoreline to test the physical integrity and mechanical operation of hydrants as outlined in Exhibit A, Scope of Work. Testing generally consists of charging a capped hydrant to line pressure by fully opening its main valve, and then securing the hydrant while observing that a tight shutdown has occurred and that the hydrant automatically drains as designed. The procedure includes ensuring that the ground gate (auxiliary valve) that supplies the hydrant is accessible and operable.

**2. INDEMNIFICATION**

Shoreline Fire shall defend, indemnify and hold City, SPU and all its employees harmless from any and all liabilities, claims, damages, costs or expenses (including reasonable attorneys' fees) arising from or relating to the work performed under this Agreement. Shoreline Fire waives, with respect to the City, its immunity under industrial insurance, Title 51 RCW, which waiver has been specifically negotiated by the parties. This indemnification shall survive the expiration or termination of this Contract.

**3. DUTY OF REPAIR AND MAINTENANCE.**

Scope of work performed during the inspection program shall be described in Exhibit A. Shoreline Fire shall not be held responsible for any damage to fire hydrants or system while performing the inspections as long as personnel are following the scope of work as defined.

**4. PAYMENT.**

SPU will reimburse Shoreline Fire for completion of fire hydrant inspections. Total compensation under this Agreement shall not exceed **Forty Seven Thousand Eight Hundred Forty-Five Dollars (\$47,845)** unless modified by a written amendment to this Agreement. The total compensation is based on overtime rates for 2 firefighters inspecting all 966 hydrants for an estimated 700 hours. The parties agree that the hourly rate of \$68.35 includes all direct, indirect, and fixed fees for the work. If the total number of hydrants differs from 966 then the payment amount will be increased or decreased appropriately.

Payments will be sent to: [bsiharath@shorelinefire.com](mailto:bsiharath@shorelinefire.com) (Phone: 206-533-6572)  
References: Shoreline Fire Department Reference #Hydrant Inspection Program

**5. BILLING.**

Shoreline Fire may submit invoices to SPU as frequently as once per month during progress of work, for partial payment for work completed to date. Payment shall be made by SPU to Shoreline Fire upon SPU's receipt of a properly prepared invoice containing the information listed below.

Deliver all invoices and invoice/billing notices under this Agreement to:

|   |
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| <b>Invoices shall be submitted to:</b>  |
| Seattle Public Utilities<br>Accounts Payable Department<br>PO Box 34018<br>Seattle WA 98124-4018  |
| <b>Invoices under this Contract shall clearly display the following information (sub-consultants' invoices shall also include this information):</b>  |
| a. Invoice Date and Invoice Number<br>b. SPU Project Manager Name: <b>Alex Chen</b><br>(Please do not put PM's name in the address portion of the invoice)<br>c. SPU Contract No.: Agreement No. <b>17-015-A</b><br>d. Contract Title: <b>SPU-Shoreline Fire Hydrant Inspection</b><br>e. Period covered by the invoice<br>f. All-inclusive hourly rate and # of hours worked<br>g. Itemization of direct, non-personnel costs<br>h. Cumulative costs for the total project |

**6. PROGRAM CONTACTS FOR AGREEMENT.**

All official notices under this Agreement shall be delivered to the following addresses (or such other addresses as either Party may designate in writing):

Alex Chen, Division Director  
Seattle Public Utilities  
700 5th Ave, Suite 4900  
PO Box 34018  
Seattle, WA 98124-4018  
Phone: 206- 684-7414

Matt Cowan, Fire Chief  
Shoreline Fire Department  
17525 Aurora Ave North  
Shoreline WA 98133  
Phone: 206-533-6510

**7. NO THIRD PARTY BENEFICIARIES.**

This Agreement is entered into solely for the mutual benefit of the parties hereto. This Agreement is not entered into with the intent that it shall benefit either party's agents, assigns, consultants or contractors, and no such other person or entity shall be a third party beneficiary of this Agreement.

**8. COMPLIANCE WITH LAW.**

The parties to this Agreement shall comply with all Federal, State, and local laws and ordinances.

**9. TERMINATION.**

Neither Party may terminate this Agreement without the concurrence of the other Party. Termination shall be in writing and signed by both Parties. If this Agreement is terminated prior to the fulfillment of terms stated herein, SPU shall reimburse Shoreline Fire for actual costs incurred up to the date of termination, as well as the costs of non-cancelable obligations.

**10. SEVERABILITY.**

If any provision of this Agreement or any provision of any law, rule or document incorporated by reference into this Agreement shall be held invalid, such invalidity shall not affect the other provisions of this Agreement which legally can be given effect without the invalid provision. To this end, the provisions of this Agreement are declared to be severable.



## Hydrant Inspection Procedures

Fire hydrant inspection allows a city to test the physical integrity and mechanical operation of each of its hydrants. Testing consists of charging a capped hydrant to line pressure by fully opening its main valve, and then securing the hydrant while observing that a tight shutdown has occurred and that the hydrant automatically drains as designed. The procedure includes ensuring that the ground gate (auxiliary valve) that supplies the hydrant is accessible and operable.

The inspection work for each hydrant should be recorded on the attached spreadsheet form. The final form should be shared with SPU after the hydrant inspections are completed.

If there are questions about the procedure, contact Charles Jackson from SPU at 206-386-1827 and [charles.jackson@seattle.gov](mailto:charles.jackson@seattle.gov).

### 1. Ground Gate Survey

Verifying that the hydrant can be shut off at a ground gate provides the hydrant inspector with a safety net in the event that a hydrant component should fail during the inspection process.

- Locate the foot valve (ground gate) and close it six (6) turns.
- Open the foot valve completely and then back it off one-half (1/2) turn in the closing direction.

#### Note on Ground Gate Stem Seals

Exercising the hydrant's ground gate as described above can sometimes initiate a packing leak around the valve's operating stem. If water begins to collect in a ground gate access case from a ground gate packing leak, report the leakage as a defect. Rather than leaving the valve open with a quarter-turn of remaining play, open the ground gate fully until it reaches a hard stop. This action will halt or greatly slow the release of water. Resolution will require SPU to repack the valve stem or replace its O-ring. Allowing a ground gate to continue leaking during the remaining hydrant inspection could mask more serious leakage that the inspection is intended to uncover.

### 2. Charging the Hydrant

- Before charging the hydrant, check its general condition and alignment. Be alert to indications of low speed traffic impacts to the hydrant. If a hydrant shows signs of being pushed out of alignment, do not charge the hydrant; report the damage to SPU's 24-hour dispatch center for immediate follow up by phone: 206-386-1800 and the inspection form.
- Check the hydrant's operating nut and cap nuts for excess rounding of their five-point edge.
- Ensure that caps are snug on their respective discharge nozzles, and that discharge nozzles are securely attached to the main body of the hydrant.
- Ensure that any Storz adaptor is securely attached to the engine port discharge nozzle, and that the Storz cap is securely attached to the adaptor.
- Attach a hydrant gate to one of the hose ports and crack it open to release air while the hydrant is filling.
- When charging a hydrant for inspection personnel should, whenever possible, stand behind the hydrant, away from the capped discharge ports, and should avoid leaning over the hydrant during operation. Failure to do so can result in serious injury if concealed damage allows parts of the hydrant separate under pressure.

**Caution**

If a hydrant is seriously misaligned or shows other obvious signs of impact, or has missing bolts, report the circumstances to SPU's 24-hour dispatch center for immediate follow up by phone: 206-386-1800 and on the inspection form by phone. Do not proceed with inspecting the hydrant.

- Fill the capped hydrant by opening the mainstem just enough to initiate flow. Once the hydrant is filled\*, resume opening it at normal speed until fully open. On the inspection form, note the number of turns required to open. The hydrant should open easily with the leverage afforded by a Galvin wrench. If a hydrant's position in the right-of-way does not provide the necessary clearance for a Galvin wrench, then that hydrant must operate easily with the torque produced with a Corey wrench.

**\* Important**

Filling a hydrant too quickly can create a brief spike in water main velocity. Once suspended into the water, very fine sediments can discolor domestic water delivery for hours. Not opening the capped hydrant fully may allow damage to mainstem threads to go undetected, and may allow the hydrant's drain valve discharge to mask underground damage.

**3. Integrity Inspection**

With the capped hydrant in the fully open position, its drain valve should be fully closed. Thus the hydrant should not be producing visible or audible signs of significant water escape.

- Check for indications of hazardous loss of hydrant integrity: Water surfacing through the ground around the hydrant or leakage from a flanged connection between the hydrant's major components is unacceptable. Report such leakage by phone to SPU's 24-hour dispatch center for immediate follow-up: 206-386-1800 and note it on the inspection form.
- Bolts associated with the hydrant's flanged connections can display signs of deterioration or damage prior to allowing any leakage at the flanges' gasket. Note the condition of bolts – especially those exposed to lawn fertilizer or road deicer. Report missing or badly corroded bolts as a defect on the inspection form.
- Evaluate for nuisance leaks: minor leakage from conventional packing around the mainstem is not abnormal, nor is minor dripping at port cap gaskets. Report leakage as a defect on the inspection form if it exceeds typical tolerances.
- Check for audible signs of underground leakage. Even a small volume of water escaping from an underground leak will generate a telltale noise, which will telegraph through the iron body of the hydrant and be evident to the inspector. Report audible signs of leakage as a defect on the inspection form. If a leak noise is accompanied by water surfacing through the ground, assume that safe operation of the hydrant has been compromised; report the condition by phone to SPU's 24-hour dispatch center for immediate follow-up: 206-386-1800 and note it on the inspection form.

**4. Shutdown Inspection**

- Close the hydrant the same number of turns as were required to open it. As the mainstem approaches its fully closed position, the internal drain valve will open and remain open. Elastic resistance to further mainstem closure indicates that the inlet valve's rubber seat ring has made contact with the inlet orifice. Additional closing torque will compress the rubber seat ring to seal off the inlet.\* When the hydrant's inlet valve achieves a seal, the

hydrant's drain valve discharge should decrease and become silent as the hydrant's captured water is slowly released into an underground sump.

**\* Closing Torque on "Center Stem" Hydrants**

Hydrants with their main stems positioned at the center of their bonnets have a much more straightforward inlet valve sealing mechanism. Much like a clapper valve, a "center stem" hydrant inlet valve seals with hydraulic force, not mechanical force. The mainstem on a Kennedy, Mueller, or other center stem model simply brings the seat ring into contact with the inlet orifice. Water pressure from the water main then takes over to compress the two surfaces and maintain a seal. Application of additional closing torque will not improve the inlet seal. When closure is reached on a center stem hydrant, reverse the rotation of the mainstem to allow the operating nut to spin freely.

- Evaluate the seal achieved by the inlet valve by opening the previously installed hose port valve. If air is drawn into the hydrant when the valve is first cracked open, the hydrant is draining well; if water sprays out, the inlet valve seal is not complete, and incoming water is overwhelming the drain valve's discharge capacity.
- If the closed hydrant inlet valve is still allowing water to enter the hydrant, reverse the mainstem's direction of rotation to back the inlet valve slightly away from the fully closed position. This will allow a small volume of water to spray past the perimeter of the inlet valve's seat ring. Then reclose the inlet valve against the incoming flow until discharge from the hose port valve ceases and the drain begins to draw down the standing water level in the hydrant.

**Note on Above-Ground Drain Outlets**

Hydrants drain slowly into sumps that have varying capacities. The drains on some hydrants are fitted with a supplemental outlet at ground level. These 3/4" outlets display the drain valves' operating phases to the hydrant operator and make any failure of the drain valve obvious. They also provide more rapid draining of the above-ground portion of the hydrant. If a hydrant's main inlet valve is not effectively sealed, water entering the hydrant will immediately drain to the sump. If inlet valve leak-by is more than a drip, the sump will eventually become saturated and water will begin trickling from the ground level drain outlet.

**5. Securing the Hydrant**

- While the hydrant is draining, remove the tester's 2-1/2" hydrant valve and the caps from the hydrant's other discharge nozzles. Check that the cap threads and nozzle threads fully engage but do not bind. If threads are gummy or sticky, clean the threads with a wire brush. Do not apply lubricants to cap threads.
- Check for cap gaskets and the condition of each, recalling how they performed while the hydrant was charged.
- Reattach caps snugly enough to prevent their removal by hand.
- If the hydrant drain is equipped with a ground level outlet, verify that no water is issuing from it. Water dribbling from the outlet indicates that the inlet valve has not achieved an effective seal. If this is the case, jog the mainstem in the opening direction to initiate a small volume of water flow around the perimeter of the inlet valve's seat ring. The hydrant will refill, and drain valve outlet discharge will increase. Then reclose the inlet valve against the incoming flow and let the drain outlet empty the hydrant. If water runs continuously from the drain valve outlet after the above-ground contents of the hydrant have finished draining, then the hydrant inlet valve is still leaking by. Cavitation of the inlet valve's rubber

seat ring and bronze orifice is likely to occur. Report this condition to SPU's 24-hour dispatch center, for immediate follow-up: 206-386-1800 and note it on the inspection form.

**6. Addressing Access to the Hydrant**

- Note obstructions to hydrant operation, connection, and visibility - including access to the hydrant's ground gate on the inspection form. A 3' radius around the hydrant is to be kept clear.
- Note vegetation overgrowth, structures, pavement, mulch, or grade changes that interfere with hydrant visibility, access, or operation on the inspection form.
- Report obstructions to the right-of-way management division to the City of Shoreline with a copy to SPU and note it on the inspection form. Short of formal enforcement by the public right of way agency, owners of property abutting the ROW are often more willing to take corrective action if simply asked by a uniformed member of the fire service.