



# STAFF REPORT CITY OF SOLANA BEACH

**TO:** Honorable Mayor and City Councilmembers  
**FROM:** David Ott, City Manager  
**MEETING DATE:** October 26, 2011  
**ORIGINATING DEPT:** Public Safety MM  
**SUBJECT:** **Fire Hydrant Inspection and Maintenance Agreement with the Santa Fe Irrigation District**

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## **BACKGROUND:**

The Santa Fe Irrigation District (SFID) provides water service for the City of Solana Beach (City). SFID currently owns approximately 569 fire hydrants within the boundaries of the City.

Presently, the fire hydrants within the City are not annually inspected, tested, or maintained by the City or SFID. Fire hydrants are inspected by SFID only at the time of installation or when repair is needed.

This item is before the City Council to authorize the City Manager to execute an agreement with SFID for annual fire hydrant inspection, testing, and maintenance to be performed by the City's Fire Department personnel.

## **DISCUSSION:**

Operable and accessible fire hydrants are essential for firefighters in emergencies. It is important that fire hydrants are maintained in working condition, have important features present, are free of obstructions, and highly visible to fire crews. Annual inspection, functional testing, and routine maintenance of fire hydrants help to ensure that fire hydrants will not malfunction and will be visible during an emergency.

Under this agreement, SFID proposes to pay the City to provide for annual inspection, functional testing, and routine maintenance of fire hydrants by the City's Fire Department personnel. Painting of fire hydrants and guard posts will be the responsibility of SFID.

SFID will provide annual training on fire hydrant inspection, functional testing, and maintenance to the City's Fire Department personnel. In addition, SFID will purchase, for the City, the necessary supplies for the functional testing and routine maintenance of the fire hydrants, with the exception of the fire hydrant markers and adhesive.

CITY COUNCIL ACTION:

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**AGENDA ITEM**

**A.4.**

The City will provide SFID with a fire hydrant inspection report on an annual basis. In addition, the City will notify SFID of any immediate repairs or repainting requests, as needed.

Fire hydrant maintenance is one factor in the overall rating that the Insurance Services Organization (ISO) assigns a community. This rating affects the cost residents pay for homeowners insurance. During its recent review, the ISO determined that hydrant maintenance in Solana Beach was not being performed in accordance with recommended standards and assigned a lower than average score for this component of its review.

**CEQA COMPLIANCE STATEMENT:**

Not a project as defined by CEQA.

**FISCAL IMPACT:**

SFID agrees to pay the City \$5.00 per fire hydrant for inspection, functional testing, and routine maintenance. The City will receive approximately \$2,845 annually for services provided under this agreement.

This agreement will result in an increase in the City's Fire Department workload. The 569 fire hydrants will be divided into 6 Fire Management Zones. This results in each fire crew being responsible for inspecting, testing, and maintaining approximately 95 fire hydrants annually, which amounts to 1 every four days.

**WORKPLAN:**

N/A

**OPTIONS:**

- Approve Staff recommendation.
- Approve Staff recommendation with alternative amendments / modifications.
- Deny Staff recommendation – Provide any further direction.

**DEPARTMENT RECOMMENDATION:**

Staff recommends that the City Council:

1. Adopt Resolution 2011-150 authorizing the City Manager to sign an agreement with Santa Fe Irrigation District for fire hydrant inspection and maintenance.

**CITY MANAGER'S RECOMMENDATION:**

Approve Department Recommendation

  
\_\_\_\_\_  
David Ott, City Manager

Attachments:

1. Resolution 2011-150
2. Fire Hydrant Inspection & Maintenance Agreement

**RESOLUTION NO. 2011-150**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLANA BEACH, CALIFORNIA, AUTHORIZING THE CITY MANAGER TO ENTER INTO A FIRE HYDRANT INSPECTION AND MAINTENANCE AGREEMENT WITH THE SANTA FE IRRIGATION DISTRICT.**

**WHEREAS**, the City of Solana Beach places a priority on public safety and maintaining fire hydrants in working conditions and visible during emergencies; and,

**WHEREAS**, the City of Solana Beach Fire Department personnel, with training from Santa Fe Irrigation District, are capable of inspecting, testing, and maintaining fire hydrants on an annual basis; and,

**WHEREAS**, the City of Solana Beach and Santa Fe Irrigation District seek as a priority the annual inspection, functional testing, and routine maintenance of fire hydrants in the City of Solana Beach.

**NOW, THEREFORE**, the City Council of the City of Solana Beach, California, does resolve as follows:

1. That the foregoing recitations are true and correct.
2. That the City Council authorizes the City Manager to execute a Fire Hydrant Inspection and Maintenance Agreement with the Santa Fe Irrigation District.

**PASSED AND ADOPTED** this 26<sup>th</sup> day of October 2011, at a regularly scheduled meeting of the City Council of the City of Solana Beach, California, by the following vote:

AYES: Councilmembers –  
NOES: Councilmembers –  
ABSENT: Councilmembers –  
ABSTAIN: Councilmembers –

\_\_\_\_\_  
LESA HEEBNER, Mayor

APPROVED AS TO FORM:

ATTEST:

\_\_\_\_\_  
JOHANNA N. CANLAS, City Attorney

\_\_\_\_\_  
ANGELA IVEY, City Clerk

## **FIRE HYDRANT INSPECTION & MAINTENANCE AGREEMENT**

This Agreement (“Agreement”) is entered into by and between the Santa Fe Irrigation District, an irrigation district organized and operating under the Irrigation District Law, Water Code Section 20500 *et seq.* (hereinafter “SFID”) and the City of Solana Beach (“City”), a municipal corporation. SFID and City are at times referred to herein, individually, as “Party” and, collectively, as the “Parties.”

### **RECITALS**

A. SFID is a public agency organized and operating pursuant to Water Code Sections 20500 *et seq.*, providing water service within its boundaries as generally depicted in Exhibit “A” to this Agreement.

B. The City’s Fire Department is one of several entities providing fire protection services within SFID’s boundaries, as generally depicted in Exhibit “A” to this Agreement (“Service Area”).

C. SFID owns fire hydrants within its jurisdictional boundaries, which are in need of ongoing inspection, functional testing, maintenance and painting.

D. SFID desires that entities providing fire protection services within its boundaries provide all ongoing inspection, functional testing, and routine maintenance of fire hydrants.

E. The Parties desire by this Agreement to establish the procedures that the City shall use for ongoing inspection, functional testing, and routine maintenance of fire hydrants.

### **AGREEMENT**

1. **Definitions.** The following words and phrases have meanings noted in this Agreement.

- (a) “Fire Hydrant” means the entire Fire Hydrant service including the connection to SFID’s mains, service lateral, control valve, bury elbow, Fire Hydrant head, and all necessary fittings, together with surface improvements appurtenant to the Fire Hydrant including protection posts, concrete protection pad, and structures necessary to provide clearance around Fire Hydrant head. Fire Hydrants are located in public rights of way and easements maintained by SFID. Fire Hydrants are owned by SFID and deemed part of SFID’s water system. Currently, SFID’s distribution system contains approximately 1,253 Fire Hydrants. Within SFID’s service area, approximately 684 Fire Hydrants are located in Rancho Santa Fe Fire Protection District Service Area and 569 are located in City of Solana Beach Fire Service Area. The term “Fire Hydrant” does not include Private Fire Protection Systems of Private Fire Hydrants.
- (b) “Private Fire Protection Systems and Private Fire Hydrants” refer to systems located on individual customer premises that are owned and operated by the water customer and connected to SFID’s water system. This Agreement does not apply to Private Fire Protection Systems or Private Fire Hydrants.
- (c) “Fire Flow Test” refers to SFID’s testing of its water system fire protection systems to evaluate system capabilities and calibrate hydraulic models.

- (d) "Functional Test" refers to the operation of a Fire Hydrant to verify that it is in working condition.
2. Services to be Performed. The City agrees to perform all work and services in strict accordance with the scope of work described in the Exhibit "B" attached hereto and incorporated herein by reference ("Services"). Notwithstanding Section 4 of this Agreement, the Services shall be performed on all Fire Hydrants within the overlapping Service Area of SFID and City, the locations of which are shown in Exhibit "A" attached hereto and incorporated herein by this reference.
  3. Installation of Fire Hydrants On Existing Mains. The Parties agree that additional Fire Hydrants may be added to the Service Area after the execution of this Agreement and that such Fire Hydrants shall be subject to this Agreement.
  4. Defective Work. All Services performed by the City shall be subject to review and approval by SFID. The City agrees to correct all labor or materials found materially defective by SFID at City's sole cost and expense. All Services found materially defective by SFID shall be corrected within a reasonable time after written notice to the City. If City actions results in damage to person or property, the City shall be solely responsible for any and all resulting liability. In the event of an emergency, the City shall immediately contact SFID main offices at 858-756-2424 and shall take immediate action to avoid or minimize any threat or damage to person or property.
  5. Payment for Services. The City agrees to perform all Services described in Exhibit "B" at a price of \$5.00 per Fire Hydrant for inspection, functional testing, and routine maintenance. The City shall bill SFID quarterly for all Services that were performed within the previous quarter. All bills from the City shall be paid by SFID within thirty (30) days from receipt. SFID agrees to purchase all materials, supplies and traffic control needed to inspect, test, and maintain Fire Hydrants.
  6. Standard of Service. The City agrees to perform all Services required by this Agreement in a reasonable manner and shall comply with all applicable laws, ordinances, codes and regulations of the federal, state and local government, including, but not limited to all applicable state and federal storm water compliance laws, Water Agency Standards ("WAS") and American Water Works Association ("AWWA") standards.
  7. Time for Performance. In accordance with the procedures set forth in Exhibit "B," the City shall: (a) conduct inspections and Functional Tests of all Fire Hydrants and prepare a report to SFID on an annual basis; and (b) perform routine maintenance and report any repairs, replacements, and repainting needs to SFID. City reporting shall be able to be directly inputted into the District Computerized Maintenance/Management System.
  8. Fire Flow Tests. SFID shall be responsible for all Fire Flow Tests within the District. SFID shall provide seven day prior notice to the City before performing a Fire Flow Test. Such notice shall either be by prior written notice or by prior mutual oral agreement followed by written confirmation to ensure that City staff can witness tests and review testing results.

SFID reserves the right to determine when and if such tests can be made. In general, fire flow tests may be made only in low water use months when there is no drought or other reasons to curtail water use. Only qualified SFID or City personnel shall operate Fire Hydrants for Fire Flow Tests.

9. Testing - Flushing - Construction Water. SFID shall have the right to use Fire Hydrants for testing, flushing its distribution system, providing temporary water service, and delivering construction water. SFID shall exercise reasonable precaution to keep one outlet accessible at all times to City.
10. Cooperation. The Parties shall cooperate so that the purpose of this Agreement may be met. City shall aid SFID in identifying and seeking recompense from persons who may be responsible for unauthorized use of water or for damages to Fire Hydrants.
11. Independent Contractor. Individuals performing Services pursuant to this Agreement on behalf of City shall not be deemed employees of SFID but shall maintain the status of a City employee while performing pursuant to this Agreement.
12. Subcontracting. Subcontracts which delegate any portion of this Agreement shall contain a provision making any subcontractor subject to all provisions stipulated in this Agreement and shall name SFID as a third party beneficiary in such subcontract. A copy of all contracts between City and any subcontractor(s) shall be kept on file with the City and be made available to SFID for inspection upon request at any time during the duration of this Agreement and for a period of three (3) years after the termination of this Agreement. City shall remain solely responsible for any subcontractor's performance of any and all obligations under this Agreement at all times during the term of the Agreement, including, but not limited to, the timely and satisfactory performance of the Services. City shall require that each subcontractor procure and maintain the types and limits of insurance required by this Agreement prior to performing any Services hereunder and name SFID as an additional insured on all required insurance policies. City shall require and verify that each subcontractor maintains insurance meeting all requirements of this Agreement throughout the performance of any work relating to the Services by such subcontractor. Upon request of SFID, the City shall provide proof to SFID that each subcontractor has in place the insurance required by this Agreement.
13. Indemnification by the City. City agrees to protect, save, defend and hold harmless SFID, its Board of Directors and each member thereof, its officers, agents and employees from any and all claims, liabilities, expenses or damages of any nature, including attorneys fees, for injury or death of any person, or damage to property, or interference with use of property, arising out of or in any way connected with the negligent acts, errors or omissions or willful misconduct by City, City's agents, officers, employees, sub-consultants, or independent contractors hired by City under this Agreement. The only exception to City's responsibility to protect, save, defend and hold harmless SFID is due to the sole negligence, willful misconduct or active negligence of SFID. This hold harmless Agreement shall apply to all liability regardless of whether any insurance policies are applicable. The policy limits do not act as a limitation upon the amount of indemnification to be provided by City.

14. Insurance. The City shall maintain during the term of this Agreement insurance for Commercial General Liability (Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 0001) or equivalent) and automobile liability from an insurance company authorized to do business in the State of California. Insurance coverage shall be in an insurable amount of not less than \$2,500,000 per occurrence/\$5,000,000 aggregate for bodily injury, personal injury and property damage for Commercial General Liability and \$1,000,000 per occurrence for bodily injury and property damage for automobile liability. Such insurance may be maintained as part of or in conjunction with any other insurance coverage carried by the City, and may be maintained in whole or in part in the form of the participation by the City in a joint powers authority or other program providing pooled insurance. All such policies shall name the Santa Fe Irrigation District, the Board of Directors and each member thereof, its officers, agents and employees as additional insureds under the policy. The insurance shall provide that the policies shall remain in full force during the life of this Agreement and shall not be canceled, terminated or allowed to expire without thirty (30) days prior written notice to SFID. Prior to work commencing under this Agreement, the City shall provide SFID with Certificates of Insurance demonstrating the required insurance has been procured. Prior to execution of the Agreement, the City shall file with SFID evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. All evidence of insurance shall be signed by a properly authorized officer, agent or qualified representative of the insurer and shall certify the names of the insured, any additional primary insureds, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, and the expiration date of such insurance.

Notwithstanding the above insurance requirements, City may self-insure itself for the work under this Agreement in the same manner and to the same extent that City self-insures for similar risks with respect to its operations, equipment, and property. The manner in which such self-insurance is provided and the extent of such self-insurance shall be set forth in a Certificate of Self Insurance, delivered to SFID and signed by an authorized representative of City, which fully describes the self-insurance program and how the program covers the work under this Agreement. Insurance provided by a joint powers agency insurance pool shall be considered self-insurance for the purposes of this Section. If, at any time during the term of this Agreement, City elects not to self-insure, City shall comply with all applicable provisions of this Section to the extent that City does not so self-insure.

15. Governing Law. This Agreement shall be governed by California Law.
16. Jurisdiction and Venue. In the event of any legal or equitable proceeding to enforce or interpret the terms and conditions of this Agreement, the parties agree that jurisdiction and venue shall lie only in the state courts in the County of San Diego, State of California.
17. Modification. This Agreement may not be altered in whole or in part except by written modification approved by the Board of Directors of SFID and City and executed by all Parties to this Agreement.
18. Entire Agreement. This Agreement, together with all exhibits attached hereto, contains all representations and the entire understanding between the Parties with respect to the subject matter of this Agreement. Any prior correspondence, memoranda, or agreements, whether or not such correspondence, memoranda or agreements are in conflict with this Agreement, are intended to be replaced in total by this Agreement and its exhibits.

19. Binding Effect. This Agreement shall inure to the benefit of and be binding upon the Parties and on their respective purchasers, successors, heirs and assigns.
20. Unenforceable Provisions. The terms, conditions, and covenants of this Agreement shall be construed whenever possible as consistent with all applicable laws and regulations. To the extent that any provision of this Agreement, as so interpreted, is held to violate any applicable law or regulation, the remaining provisions shall nevertheless be carried into full force and effect and remain enforceable.
21. Representation of Capacity to Contract. Each Party to this Agreement represents and warrants that he or she has the authority to execute this Agreement on behalf of the entity represented by that individual. This representation is a material term of this Agreement.
22. Opportunity to be Represented by Independent Counsel. Each of the Parties to this Agreement warrants and represents that it has been advised to consult independent counsel of its own choosing and has had a reasonable opportunity to do so prior to executing this Agreement.
23. Interpretation. The terms of this Agreement have been negotiated by the Parties hereto and the language used in this Agreement shall be deemed to be the language chosen by the Parties hereto to express their mutual intent. This Agreement shall be construed without regard to any presumption or rule requiring construction against the Party causing such instrument or any portion thereof to be drafted, or in favor of the Party receiving a particular benefit under the Agreement. No rule of strict construction will be applied against either Party.
24. Termination of Agreement. This Agreement may be terminated by either Party upon the giving of four (4) months written notice to the other Party. Prior to the four (4) months following such notice, the City shall, assemble any remaining materials and supplies furnished by SFID and return same to SFID. SFID shall compensate City for work performed up to date of termination of work pursuant to this Agreement within thirty (30) days of receipt of the final written invoice.
25. Notices. All letters, statements, or notices required pursuant to this Agreement shall be deemed effective upon receipt when personally served, transmitted by facsimile machine, or sent certified mail, return receipt requested, to the following addresses or facsimile numbers:

**Santa Fe Irrigation District**

Santa Fe Irrigation District  
P.O. Box 409  
Rancho Santa Fe, CA 92067-0409  
Attn: Operations Manager

**City of Solana Beach**

City of Solana Beach  
635 S. Highway 101  
Solana Beach, CA 92075  
Attn: City Manager

26. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement shall not be effective until the execution and delivery between each of the Parties of at least one set of counterparts. The Parties authorize each other to detach and combine original signature pages and consolidate them into a single



identical original. Any one of such completely executed counterparts shall be sufficient proof of this Agreement.

27. Effective Date. The effective date of this Agreement shall be the date upon which it is fully executed.

IN WITNESS WHEREOF, the Parties have executed this Agreement as the \_\_\_\_\_ day of \_\_\_\_\_, 2011.

**SANTA FE IRRIGATION DISTRICT**

**CITY OF SOLANA BEACH**

By: \_\_\_\_\_  
Michael J. Bardin  
General Manager

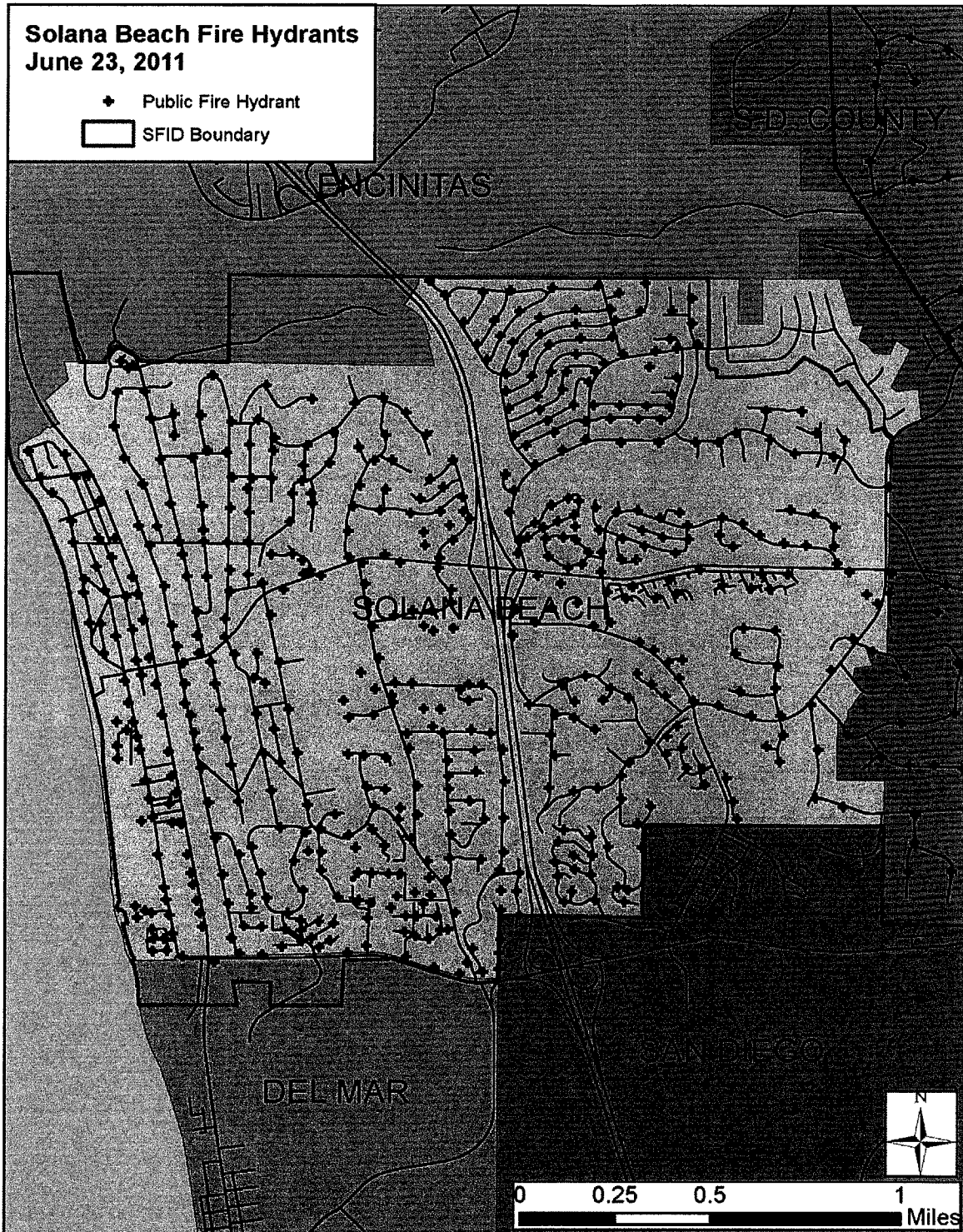
By: \_\_\_\_\_  
David Ott  
City Manager

Date: \_\_\_\_\_

Date: \_\_\_\_\_

# EXHIBIT A

## SERVICE AREA BOUNDARIES AND HYDRANT LOCATIONS



# EXHIBIT B

## **FIRE HYDRANT INSPECTION, FUNCTIONAL TESTING, AND ROUTINE MAINTENANCE PROCEDURES**

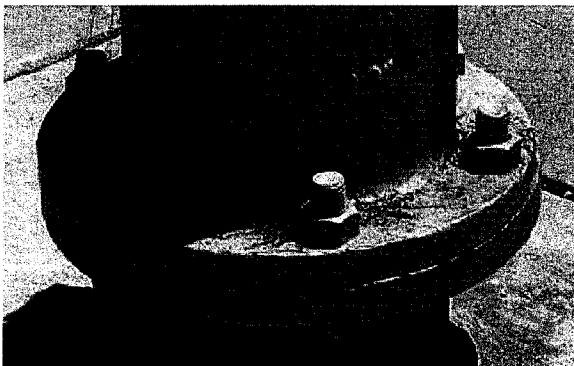
The City's Fire Hydrant maintenance personnel shall follow the following procedures when conducting an inspection/Functional Test of each Fire Hydrant. SFID will provide annual training to maintenance personnel. Only authorized District trained maintenance personnel will be allowed to maintain District Hydrants. SFID will provide the City with their point of contacts and phone numbers for ordering supplies, reporting repair/painting needs, and the operations division. *It is important to follow these procedures completely to protect the safety of maintenance personnel and ensure that property or environmental damage does not occur.*

### **PART 1: VISUAL INSPECTION**

The visual inspection of a Fire Hydrant is designed to gather information related to the Fire Hydrant without actually operating the Fire Hydrant. This information is important for documenting that all important features of the Fire Hydrant are present as well as evaluate the appearance of the Fire Hydrant.

NOTE: Maintenance personnel shall have and use all needed traffic control devices and ensure that enough people are made available to monitor/control traffic while conducting maintenance/inspection services.

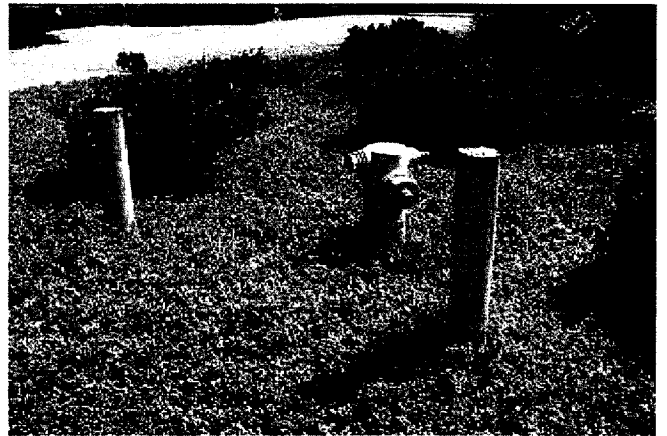
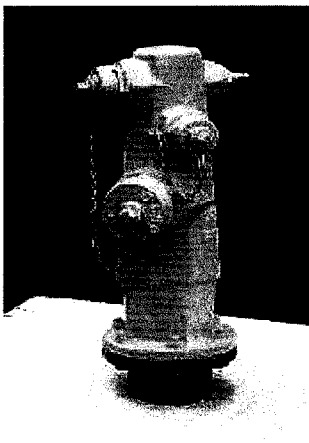
- 1.1 **Unauthorized Use(s)**- Only District approved construction meters with backflow prevention device and/or pressure recorders should be attached to a Fire Hydrant. Immediately notify District staff if Fire Hydrants are used to supply water without an approved construction meter or other devices are attached to the Fire Hydrant. Notify the District if water trucks or other mobile equipment are using water from Fire Hydrants without an approved construction meter. Note: The Rancho Santa Fe Association Irrigation truck has a water meter attached to the fill point on the truck and is the only watering truck that has been approved by the District to directly connect to a Fire Hydrant.
- 1.2 **Inspection of Fire Hydrant Flange and Bolts** — Verify that the flange bolts are not excessively rusted (i.e. mushroomed out) and that the water is not seeping from the flange gasket area.



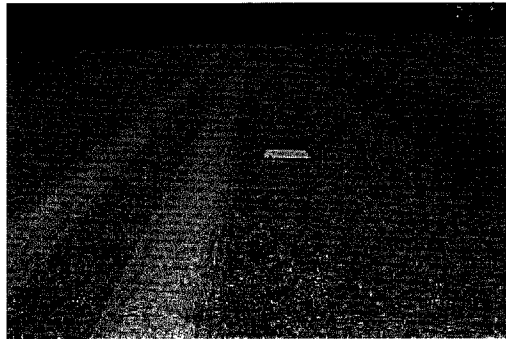
- 1.3 **Fire Hydrant operating stem** — Verify that operating stem is not rounded, bent, or damaged in any way that would prevent proper contact with spanner wrench. Ensure that a metal cap is on the outlet, and then open the valve stem fully. Clean the stem of all grease and dirt then close the valve stem completely to ensure operation. Notify the District of any difficulty operating valve stems.



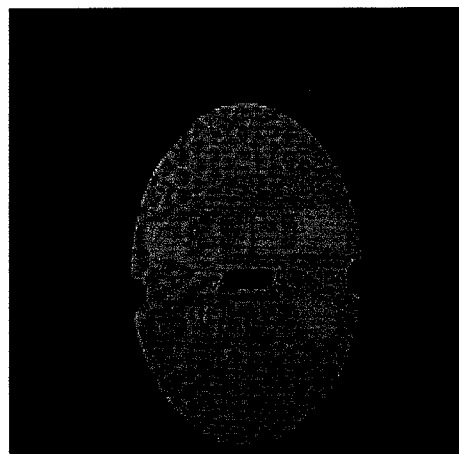
- 1.4 **Paint** — One of the defining characteristics of a Fire Hydrant is its high visibility. The yellow color of the Fire Hydrants and Fire Hydrant guard posts is a standard that is nearly ubiquitous in this area. The simple reason for this standardization is the need to quickly locate the Fire Hydrants in the event of a fire. Inspect the Fire Hydrants and any associated guard posts paint for blemishes, peeling, excessive grime, or other defects. The color of the Fire Hydrant should be uniform in order to ensure maximum visibility. Paint shall be Amteco Zero Rust Paint — Color: OSHA Safety Yellow or a color specifically approved by the Fire Chief. Notify the District if a Fire Hydrant or Fire Hydrant guard post is in need of repainting.



- 1.5 **Outlet caps** — Check each outlet to ensure that the required caps are in place and are functional. Fire Hydrant maintenance personnel shall replace caps that are missing or damaged. The District shall provide any needed caps. Remove the caps and look into the valve and make note of any unusual conditions inside. Verify that no large nicks are observed on the hose gasket seating surface and that the threads are not damaged. Clean threads with a wire brush as needed. Properly re-install outlet caps.
- 1.6 **Fire Hydrant marker** — Check roadway to determine whether or not a blue Fire Hydrant marker is properly located in the roadway. If not, Fire Hydrant maintenance personnel will properly glue down markers. Fire Hydrant markers are the sole responsibility of the City. The District will not be required to reimburse the City for marker installation/replacement.



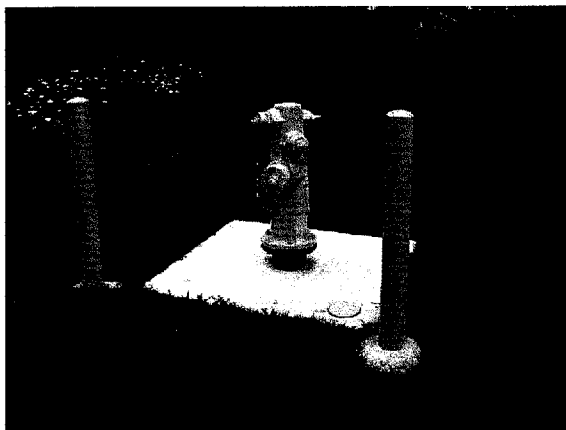
- 1.7 **Fire Hydrant control valve** — Locate the Fire Hydrant control valve and ensure that the valve can lid has not been covered by paving or other obstructions. Observe if water is leaking from the valve can. Fire Hydrant maintenance personnel should not remove/paint the lid and operate this valve as part of this program. Notify District Operations staff of leaks or valve cans that cannot be located. Note if the control valve can lid needs to be repainted, is damaged, or is loose and can be dislodged by a vehicle. City maintenance staff needs to immediately notify the District of any dislodged valve can covers that pose a vehicle safety hazard. Usually, Fire Hydrant control valves are located in the paved roadway, within 10 feet of the Fire Hydrant.



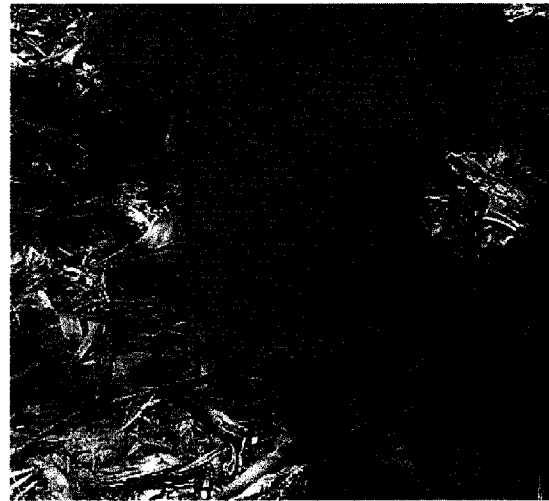
- 1.8 **Fire Hydrant clearance** — Verify that there are no obstructions near the Fire Hydrant that would prevent convenient operation of the valves or obstruct fully charged hoses as they are connected to the Fire Hydrants. Examples of obstructions include vegetation, retaining walls, utility poles, guard posts, and other manmade objects. The Fire Hydrant should be visible from the street. A 3-foot clear space shall be maintained around the circumference of the Fire Hydrant. A 4-foot vertical clearance above the top of the Fire Hydrant shall be maintained within the 3-foot circumference. If vegetation removal is needed, Fire Hydrant maintenance personnel should attempt to contact and advise the adjacent property owner before clearing. Vegetation removal and disposal shall be the responsibility of the Fire Hydrant maintenance personnel.



- 1.9 **Fire Hydrant guard posts (if applicable)** — Verify that guard posts are in good condition and have not been damaged by impact. Guard posts should be painted at the same time as the Fire Hydrant. Notify SFID if a particular Fire Hydrant appears to be especially vulnerable, note that it is a candidate for guard posts and an evaluation of the particular Fire Hydrant will be made to determine by SFID if they will be installed or the Fire Hydrant will be re-located.



- 1.10 **Fire Hydrant height** — Verify that the Fire Hydrant is high enough to allow proper operation of the Fire Hydrant. Changes in grade around Fire Hydrants sometimes make it impossible to make a full revolution of the spanner wrench. The finished grade of the soil and any groundcover should not be higher than the base flange of the Fire Hydrant and a 3-foot clear space shall be maintained around the circumference of the Fire Hydrant.



## 2.0. **FUNCTIONAL TESTING**

The Functional Test of a hydrant requires strict adherence to operating procedures. There are significant pressures and forces contained in the water distribution system that must be managed carefully during this process. ***FAILURE TO FOLLOW THESE PROCEDURES COMPLETELY CAN RESULT IN INJURY AND/OR DAMAGE TO THE WATER SYSTEM.*** SFID will provide annual training to maintenance personnel.

An important concept to understand is that the reaction of the water system to a large demand, such as an open Fire Hydrant, is not instantaneous. The District operates numerous pressure regulating stations in its service area to prevent over-pressurization of low-lying areas. These stations restrict flow during periods of low demand and open up in response to large demands. It takes about 5 to 10 seconds for a pressure-regulating valve to stroke open in response to a Fire Hydrant being opened.

Another critically important factor is that Fire Hydrants must be opened and closed very slowly. Opening or closing Fire Hydrant valves quickly will not get water to the fire any faster; in fact, the opposite is true. The rapid operation of Fire Hydrant valves is among the leading causes of water main breaks. A Fire Hydrant that is shut too quickly can send a water hammer pressure surge of thousands of pounds per square inch racing down a pipeline designed to handle a fraction of that pressure. If a Fire Hydrant is operated incorrectly, no water will be available for any use if the main has failed under a water hammer. Testing should not be conducted between the hours of 0600 and 0900 to avoid peak district flows and minimize district operational costs with providing additional water to supply these demands.

Finally, when operating Fire Hydrants, special precautions must be made to avoid damage to environmentally sensitive areas. Even though the water from the Fire Hydrants is potable, the small amount of residual chlorine can damage sensitive aquatic habitats. A special dechlorinating diffuser must be used to neutralize the chlorine before it is discharged into the storm drain system. Fire Hydrant maintenance personnel shall comply with local Municipal Separate Storm Sewer Systems (MS4) permitting requirements.

The following procedures must be followed when performing the annual Functional Test of all Fire Hydrants:

- 2.1 **Discharge Area Inspection:** Inspect Fire Hydrant discharge area and ensure that flowing water has an appropriate path to a drainage system and away from the traffic areas. Flowing water can damage certain landscaping materials so the selection of the discharge area should be based on the type of surface onto which the water will flow during the test. If there is no appropriate discharge point immediately adjacent to the Fire Hydrant, hose may be used to extend the discharge point to an acceptable area.

In addition, ensure that the Fire Hydrant discharge area will not include traffic lanes. Large quantities of water in traffic lanes can pose a serious hazard. Normally, the velocity of the water out of the diffuser is low enough to keep the water from spraying into the street. Set up perimeter barricades as needed to prevent pedestrians or traffic from entering the discharge area. Sweep and remove any excessive debris that can be washed into the storm drain system to comply with local stormwater permitting requirements.

- 2.2 **Dechlorination and Stormwater Best Management Practices (BMPs):** Install the dechlorinating diffuser on the Fire Hydrant in accordance with the manufacturer's recommendations. Check to make sure that a sufficient quantity of the dechlorinating tablets are in the unit and install BAIN as needed to control erosion. The District shall provide the City with dechlorinating diffuser and dechlorinating tablets.
- 2.3 **Opening Fire Hydrant:** Begin to open the Fire Hydrant valve. It should take a full 15 seconds to open the valve fully. **DO NOT RUSH!** Avoid standing directly behind the valve stem. The stem can exit the body of the Fire Hydrant and cause severe harm to the operator. Verify discharged water does not contain a disinfectant residual and note this in maintenance records (this is needed for stormwater permit compliance).
- 2.4 **Test Duration:** Once the valve is fully open, monitor the flow until the peak flow rate is reached. This generally takes up to 15 seconds for the valves in the pressure regulating stations to react.
- 2.5 **Close Fire Hydrant:** **SLOWLY** close the valve. It should take a full 30 seconds to close the valve fully. Closing the valve any quicker may cause significant damage to the distribution system and damage the seating surface of the valve. A record of the estimated amount of water used during the operational test must be maintained and provided to the District. Water loss information is used to estimate distribution system losses and regulatory compliance.
- 2.6 **Site Clean Up:** Remove the dechlorinating diffuser, replace the Fire Hydrant cap, and return the site to its original condition.