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# PERFORMANCE AUDIT OF THE CITY'S STREET PRESERVATION ORDINANCE

Opportunities Exist to Strengthen  
Compliance with Street Repair,  
Coordination in the Right-of-Way, and  
Tracking of Excavations for Street  
Damage Fees

**Office of the City  
Auditor**

**City of San Diego**



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## THE CITY OF SAN DIEGO

March 3, 2016

Honorable Mayor, City Council, and Audit Committee Members  
City of San Diego, California

Transmitted herewith is an audit report on the City of San Diego's Street Preservation Ordinance. This report was conducted in accordance with the City Auditor's Fiscal Year 2016 Audit Work Plan, and the report is presented in accordance with City Charter Section 39.2. The Results in Brief is presented on page 1. Audit Objectives, Scope, and Methodology are presented in Appendix B. Management's responses to our audit recommendations can be found after page 42 of the report.

We would like to thank staff from the Public Works, Transportation & Storm Water, Development Services, and Public Utilities Departments for their assistance and cooperation during this audit. All of their valuable time and efforts spent on providing us information are greatly appreciated. The audit staff responsible for this audit report are Rebecca Takahashi, Nicholas Ketter, Danielle Knighten, and Kyle Elser.

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## Results in Brief

The City of San Diego's (City) public right-of-way spans approximately 3,000 miles of streets and alleys, as well as infrastructure underneath the roadway surface. Mayor Kevin Faulconer established a goal of repairing 1,000 miles of City streets by 2020 while also addressing a backlog of deferred maintenance and needed capital improvements to City assets including buildings, pipelines, and other infrastructure. With the prioritization of infrastructure improvements and maintenance, the City can expect an increase in excavation activity and other impacts that will affect the public right-of-way and current street conditions.

In 2013, the City Council amended the Street Preservation Ordinance in an effort to minimize street damage by establishing street repair requirements, improving coordination and adjusting the Street Damage Fee. We found that City departments can improve their compliance with the Street Preservation Ordinance's requirements related to street repairs of emergency excavations, submission of street moratorium waivers, and resolving right-of-way project conflicts.

Specifically, we found that the Public Utilities Department and the Street Division are not repairing emergency water and sewer trenches as prescribed by the Street Preservation Ordinance due to not having the appropriate equipment for proper street repair. Improperly repaired street excavations can lead to water infiltration, which compromises the roadway and may cause it to break apart.

Also, City departments are responsible for demonstrating compliance with the Street Preservation Ordinance and ensuring all necessary documentation is submitted to the Transportation & Storm Water Department's Right-of-Way Coordination Division. We found that the Public Utilities Department has not consistently submitted street moratorium waivers for emergency trench repairs, and the Right-of-Way Coordination Division does not maintain a central repository for all the requirement documentation, which makes monitoring difficult.

Additionally, we found that City staff responsible for projects in the right-of-way are not always able to resolve project conflicts due to insufficient communication and unclear guidance. Without improved processes for resolving project conflicts, the City may not be able to prevent unneeded excavations in the right-of-way that will affect the integrity of the streets.

Lastly, we found that the City can enhance controls to assess, review and collect Street Damage Fees. The City does not have formal documented procedures that ensure City departments are properly assessing, collecting, reporting or paying Street Damage Fees. The City can ensure it is recouping and accounting for all Street Damage Fees with more effective tracking of excavations in the right-of-way.

We made a total of eight recommendations to address the issues we identified. Management agreed to implement all eight recommendations.

## Background

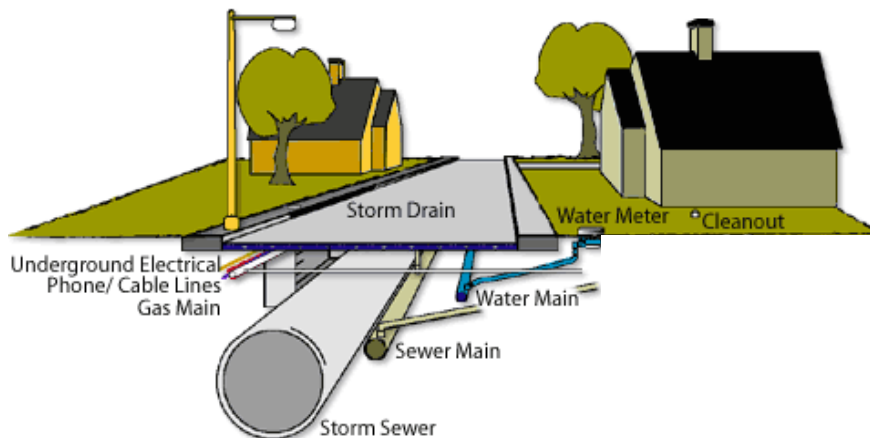
**Introduction** The City of San Diego (City) is currently addressing a backlog of deferred maintenance and needed capital improvements to City assets including streets, buildings, pipelines, and other infrastructure. Additionally, Mayor Kevin Faulconer established a goal of repairing 1,000 miles of City streets by 2020. Based on the City's infrastructure improvements and maintenance goals, the City can expect an increase in excavation activity and other projects that will affect the public right-of-way and the condition of City streets.

The Street Preservation Ordinance (SPO) regulates excavations in the public right-of-way while minimizing damage to public infrastructure. All excavators operating in the public-right-of-way are subject to the provisions of the SPO. Additionally, all excavators subject to the ordinance are required to pay a Street Damage Fee for the purpose of mitigating the long-term damage and degradation to City streets caused by excavations.

**Description of the Public Right-of-Way** The public right-of-way contains a network of approximately 3,000 miles of streets and alleys, as well as vital infrastructure underneath the roadway surface. In the context of the SPO, the public right-of-way includes public easements or properties used for streets, alleys, or other public purposes. Infrastructure assets under the roadway can include sewer, water and storm water pipelines, gas mains, and electrical and telecommunication lines. The diagram in **Exhibit 1** illustrates infrastructure that can exist under a City street.

### *Exhibit 1*

#### Examples of Infrastructure Assets Under the Right-of-Way



Source: San Antonio Water Service.



Other necessary elements and infrastructure facilities that provide water, wastewater, electric, and other services needed by citizens and businesses in the City may also exist within the right-of-way, but are not depicted in the previous diagram. **Appendix D** contains the San Diego Regional Drawings for the placement of utilities in the right-of-way.

**Street Preservation Ordinance Overview**

The San Diego City Council (City Council) established the current Street Preservation Ordinance in January 2013, after amending Municipal Code Chapter 6, Article 2, Divisions 11 and 12. The City Council revised the Municipal Code based on recommendations from a task force committee that included representatives from the Transportation & Storm Water Department (TWSW), the Public Works Department, the Public Utilities Department, the Development Services Department (DSD), and the Office of the City Attorney. This task force committee recommended revisions to the Trench Cut Ordinance in order to make the SPO easier to understand, implement, and enforce; to ensure alignment with proper engineering practices; to ensure it is legally defensible; and to ensure it is equitable across stakeholders.

The SPO includes the following key provisions:

- A requirement that all utilities coordinate planned infrastructure projects;
- A three year moratorium on excavations after a street is slurry sealed;<sup>1</sup>
- A five year moratorium on excavations after a street is resurfaced or reconstructed;<sup>2</sup>
- Guidelines for the proper resurfacing of excavated streets, with the inclusion of the area of influence for excavations conducted on streets under moratorium;
- Guidelines for granting waivers for streets under construction moratoriums; and
- An adjustment to the Street Damage Fee.

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<sup>1</sup> Slurry seal is a pavement preservation method applying asphalt emulsion, sand, and rock to the street surface at an average thickness of ¼ inch. Slurry seal provides a durable riding surface and addresses any existing surface distresses on streets in generally good condition.

<sup>2</sup> Asphalt resurfacing consists of installing a brand new layer of asphalt on top of the existing street surface at a thickness of one to three inches. Streets are ground down (milled) at the curb line before resurfacing so asphalt will not build up at the edge of the gutter.

TSWD's Right-of-Way Coordination Division is the entity that monitors excavator compliance with the SPO. The Division is responsible for providing centralized policies and ensuring that the City reviews, permits, and inspects work performed in the right-of-way. The Division is also responsible for ensuring City departments and private utilities coordinate right-of-way excavation activities. The Division's compliance and monitoring activities seek to minimize trenching on newly resurfaced streets.

**Street Moratorium  
Waivers**

The SPO allows the City Engineer and his or her designees to grant moratorium waivers to excavators under certain circumstances. According to the SPO, the City Engineer may grant a waiver to excavators under the following circumstances:

1. In the event of an emergency that endangers the health, safety, or property of citizens;<sup>3</sup>
2. When new service to a location cannot be provided through an existing conduit, use of trenchless technology, or through service from another location;
3. For the installation or relocation of facilities by a non-government owned public utility as a requirement of a city, county, state, or federal entity; or
4. When an excavator will only make a non-linear excavation or exploratory excavation.

The City Engineer formally delegated the authority to approve street moratorium waivers to engineers within DSD and the Public Works Departments.

**Excavation Repair  
Requirements**

*Excavations on Streets That Are Under Moratorium*

Generally, when an excavator receives a waiver to conduct work on a street under moratorium, the excavator must repair and resurface the length and width of the excavation area, and the excavation influence area. For streets under moratorium, the Street Preservation Ordinance also requires excavators to resurface the street from curb to curb, or from curb to raised center median, for the length of the excavation, plus the excavation influence area.

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<sup>3</sup> In the event of an emergency, municipal and private utilities can excavate on a moratorium street prior to obtaining a waiver; however, the excavators must submit waiver documentation after making repairs.

*Excavations on Streets That Are Not Under Moratorium*

Generally, when a street is not under moratorium, the excavator must repair and resurface the length and width of the excavation area, and the area extending six inches around the perimeter of the excavation. The patched area in **Exhibit 2** shows how excavators properly repair trenches when they resurface beyond the area directly over the excavation.

**Exhibit 2****Example of a Proper Excavation Patch**

Source: Pavement Interactive.<sup>4</sup>

*City Standards Require Milling the Trench Edge Area Prior to Resurfacing (definition)*

The SPO requires excavators to adhere to the City's Standard Drawings<sup>5</sup> for trench repair. According to the Public Works Department, when an excavator repairs a trench, they cap the excavation with an initial layer of asphalt. City Standard Drawings require excavators to return to the site after at least 30 days have passed to mill and pave the excavated area. Per staff in the Public Works Department, waiting at least 30 days to complete the restoration allows the initial asphalt layer to settle and become more compact. Milling is the process by which crews use a machine to grind down the initial asphalt patch used to repair an excavation. As shown in **Appendix C**, City Standard Drawings for trench repair require excavators to mill the initial asphalt patch, and the edge area around the trench, which allows the excavator to place a final layer of pavement that is flush with the existing road.

According to the Public Works Department, failure to mill and resurface a trench 30 days after crews lay the initial asphalt patch can have a

<sup>4</sup> Pavement Interactive is an information resource for the pavement community. Its partners include the Pavement Tools Consortium and several state transportation departments.

<sup>5</sup> City Standard Drawings are drawings unique to public work construction in the City of San Diego.

detrimental impact on how the restored area wears over time. The trench can sink and develop an uneven surface, causing the roadway to break apart at an accelerated rate compared to the rest of the street. Furthermore, milling the initial asphalt patch prior to final resurfacing allows the excavator to properly cap and seal the trench. Failure to mill, cap, and seal a trench can lead to water infiltration, which compromises the roadway and causes it to break apart.

**The Public Works  
Department Inspects  
Capital Improvements  
Program Projects and  
Private Entity  
Excavations**

Municipal Code Chapter 12, Article 9, Division 7, requires the City Engineer, who is the Public Works Department Director, to inspect all work in the public right-of-way. In practice, engineers from the Public Works Department's Construction Management & Field Services Division to inspect Development Services Department-permitted work in the public right-of-way. According to the Department, engineers from the Construction Management & Field Services Division also inspect City Capital Improvements Program (CIP) projects in the public right-of-way.

The Construction Management & Field Services Division's Resident Engineers also inspect excavation restorations in accordance with the Department's *Resident Engineer Manual*, which serves as the standard operating manual for inspection work. Section 10, "Street Surface Improvements," specifies steps the Resident Engineer should take when reviewing street resurfacing work. In addition to the engineering guidance in the *Resident Engineer Manual*, Field Engineers utilize a daily inspection checklist for asphalt overlay and slurry seal projects. This checklist covers inspection procedures including, but not limited to, the following:

- Verification of the correct work location;
- Verification of the correct resurfacing materials and work methods per the City Standard Drawings and the Green Book;<sup>6</sup> and
- Verification of site cleanup.

According to the Public Works Department, Resident Engineers record their quality control work in Daily Inspection Reports. The Construction Management & Field Services Division retains these records.

**Coordination of  
Excavation Projects**

Several City departments either manage capital projects in the public right-of-way, or issue permits to private utilities and private developers requesting permission to operate in the public right-of-way. These

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<sup>6</sup> The Green Book is the *Standard Specifications for Public Works Construction*, a publication of Public Works Standards Inc. The Public Works Department also provides supplemental guidelines not included in the Green Book that address the unique conditions in the City of San Diego.

departments include Public Works, Public Utilities, TSWD, DSD, and the Office of Special Events. The roles and responsibilities of these Departments and their relation to right-of-way project management are summarized below:

- DSD provides review, permit, and code enforcement services for private and public development projects throughout the City. This includes permitting authority for projects in the public right-of-way performed by private utility companies, and other private parties such as developers and homeowners requesting permission to operate within the right-of-way.
- The Public Works Department provides engineering and project management services to City departments, and is responsible for the planning, design, project management, and construction management of public improvement projects. This includes management of projects to rebuild and expand the City's water and sewer pipeline infrastructure. City CIP projects approved by City Council and managed by Public Works do not require DSD permits to conduct excavations in the right-of-way.
- The Public Utilities Department operates and maintains the City's clean water and wastewater system assets. This includes the potable water treatment and distribution system, and wastewater treatment and disposal operations. Public Works manages water and sewer pipeline CIP projects on behalf of the Public Utilities Department.
- TSWD is responsible for maintaining streets, sidewalks, and storm drains. Within TSWD, the Street Division manages the Street Resurfacing Program, which has the long-term goal of repairing 1,000 miles of road over the next five years.
- The Office of Special Events is responsible for permitting and coordinating events and filmmaking that take place on public property. The types of events that can take place in the public right-of-way include major sporting events such as marathons and community festivals.

*Interactive Mapping  
Coordination Action  
Tool*

According to TSWD, in Fiscal Year (FY) 2012 the Public Works Department developed and implemented a GIS-based tool called the Interactive Mapping and Coordination Tool (IMCAT) to track and identify right-of-way projects. The system, which receives its data from the project management systems of various City departments, maps projects to identify where and when the location and schedule of two planned projects conflict, or when a

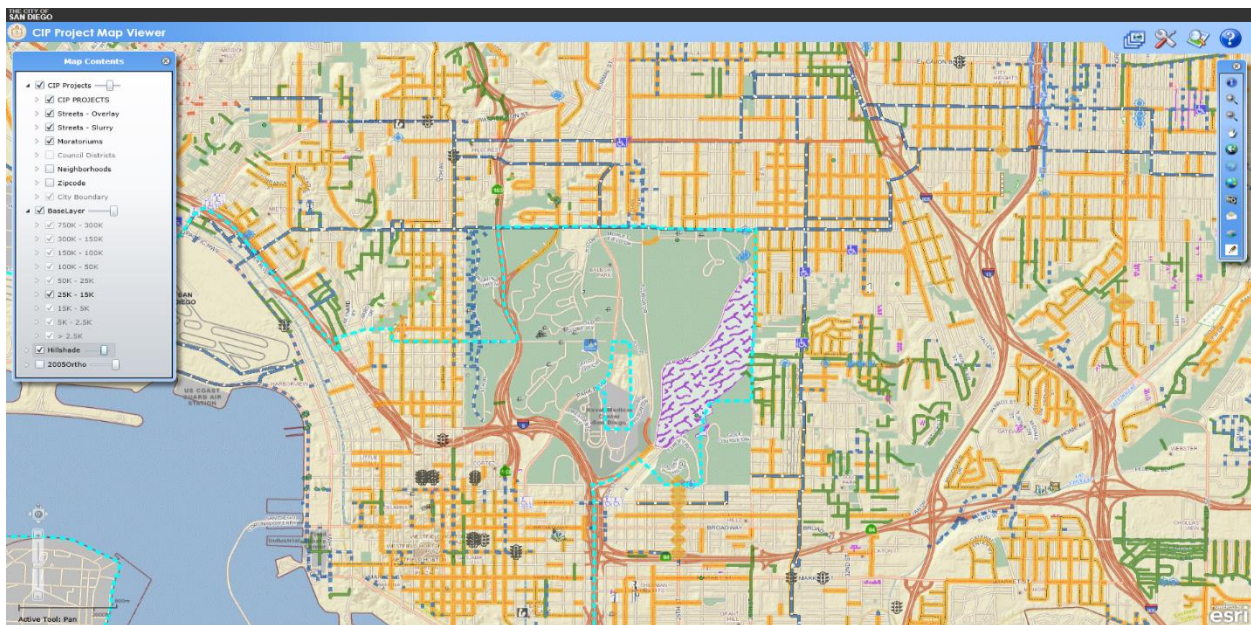


planned project conflicts with a street excavation moratorium. Project managers use this information to resolve project conflicts and scheduling concerns.

DSD, the Public Works Department, TSWD, and the Office of Special Events each maintain their own project management systems to plan, organize, and track the progress of a construction project or permitted event. Project and permit data from the Departments' project management systems populate the IMCAT application, which maps the data and then generates reports identifying project conflicts.<sup>7</sup> **Exhibit 3** contains a screenshot of the CIP Project Map Viewer, which is the publicly available version of IMCAT. City staff access IMCAT via the City intranet to identify and resolve conflicts.

### Exhibit 3

#### Screenshot of the Project Map Viewer



Source: Capital Improvements Program Project Viewer Map.

Administrative Regulation 1.40 governs the project conflict resolution process and project manager use of the IMCAT application citywide. This Administrative Regulation documents the City's standard policies related to the use and maintenance of IMCAT. In addition to the IMCAT application,

<sup>7</sup> During our survey of IMCAT users issues of data reliability related to IMCAT and the individual systems used to manage and coordinate right-of-way projects were noted. OCA will issue a separate communication addressing these issues in more depth this fiscal year.

there is an interdepartmental committee known as the IMCAT Executive Committee that regularly meets to discuss any IMCAT or project coordination-related issues.

The City is currently in the process of replacing IMCAT with a new project coordination system called Envista. TSWD is managing the implementation of Envista, and expects the system to go live by the end of 2016.

**Street Damage Fees  
for Excavations on  
City Streets**

Even with high quality trench repairs, an excavator cannot restore a street to its original condition, as weakened pavement near the patched area will deteriorate at a faster rate than areas not affected by trenching. The City assesses Street Damage Fees on all private and public entities to offset the impact of excavations on City streets. The purpose of the Street Damage Fee is to reimburse the City for increased life cycle costs incurred as the result of excavations. Select City Council-approved San Diego Gas & Electric's (SDG&E) Utilities Undergrounding projects are exempt from street construction moratoriums, but are still subject to the Street Damage Fees. According to the Right-of-Way Coordination Division, as SDG&E incurs Street Damage Fees, the City transfers those fees from SDG&E franchise revenue to the Street Damage Fee Fund.

According to the Office of the City Attorney, Street Damage Fees must relate to the overall cost of the damage to the street and can fund resurfacing in excavated areas citywide. The City is not required to use Street Damage Fee funds to improve the specific site or location of the excavation. The City budgets Street Damage Fees for asphalt and slurry seal projects within the CIP budget.

From FY 2013-FY 2016<sup>8</sup>, the City collected approximately \$2.5 million in Street Damage Fees. According to TSWD, the City expects to collect an additional \$1.5 million in FY 2016. In December 2012, the City Council approved a fee schedule that established a gradual increase which allowed for 25 percent cost recovery beginning July 2013, and 50 percent cost recovery beginning in FY 2015. **Appendix F** contains a memorandum explaining the current fee structure. TSWD plans to propose to the City Council an update to the Street Damage Fee.

To assess Street Damage Fees, City departments use a City Engineer approved template, which automatically calculates Street Damage Fees. The template requires excavators to input the details of the excavation site, including trench dimensions, trench location, and the trench influence area. Excavators or permit reviewers assessing fees must also identify the street

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<sup>8</sup> As of September 2015.

classification and age of the street by referring to the City's street asphalt overlay history document. Once a department employee inputs the information, the template automatically calculates the fee owed. The Deputy City Engineer or their designee must approve template calculations. This template can be found in **Appendix G** of this report. According to the TSWD Right-of-Way Coordination Division, City staff sends approved Street Damage Fee data to the Right-of-Way Coordination Division via email, which then reviews fee information and generates an invoice for payment. The Street Damage Fee assessment and collection process is illustrated in **Appendix H**.

**Planned Updates to the Street Preservation Ordinance** During the course of the audit, TSWD's Right-of-Way Coordination Division advised that they plan to propose several revisions of the SPO to the City Council for consideration and possible approval. The Right-of-Way Coordination Division's proposed updates will include clarifications to Ordinance requirements.



## Audit Results

### ***Finding 1: City Departments Can Improve Their Compliance with the Street Preservation Ordinance's Street Repair, Moratorium Waiver, and Project Coordination Requirements***

The Street Preservation Ordinance (SPO) provides policies and procedures to facilitate excavations in the public right-of-way while minimizing damage to public infrastructure. Our audit objectives were to determine if municipal and other excavators are adhering to the SPO, including ordinance requirements related to the submission of street moratorium waivers and the restoration of excavations. In addition, to we sought to determine whether excavators are coordinating projects to reduce damage to the streets.

Based on our review, we found that:

- The Public Utilities Department (PUD) and the Transportation & Storm Water Department's (TSWD) Street Division are not repairing emergency water and sewer trenches in accordance with the SPO;
- PUD has not consistently submitted street moratorium waivers for emergency trench repairs to the TSWD Right-of-Way Coordination Division;
- The TSWD Right-of-Way Coordination Division does not maintain SPO Compliance Documentation in a centralized location; and
- City of San Diego (City) staff are not always able to effectively resolve right-of-way project conflicts.

Although the TSWD Right-of-Way Coordination Division is the entity charged with monitoring department compliance with the SPO, individual departments are ultimately responsible for demonstrating their compliance with the SPO. However, the City's current policies and procedures related to excavations in the right-of-way do not adequately ensure that departments consistently adhere to and enforce SPO requirements. Improvements to current policies and operations would provide additional assurance that the City is minimizing damage to streets caused by excavations.

**The Public Utilities Department and the Street Division Are Not Repairing Emergency Water and Sewer Trenches in Accordance With the Street Preservation Ordinance**

To test whether excavators are complying with SPO and Standard Drawing repair requirements, we selected 12 excavations throughout the City to review whether excavation repairs complied with City requirements. The PUD’s Water Construction and Maintenance Division performed five of these excavations as the result of a water emergency. According to the Water Construction and Maintenance Division, for the five emergency excavations selected, PUD placed a temporary patch over the trench, while the Street Division was responsible for the final restoration and pavement. Four of the five trenches we reviewed did not meet SPO and Standard Drawing requirements. The Street Division did not resurface from curb-to-curb when required, and did not mill and resurface the trenches in accordance with the City’s Standard Drawing. The site visit results for water emergency trenches are listed in **Exhibit 4**. **Exhibit 5** shows an example of a trench repair due to a water emergency.

**Exhibit 4**

**Results of Water Emergency Excavation Site Visits**

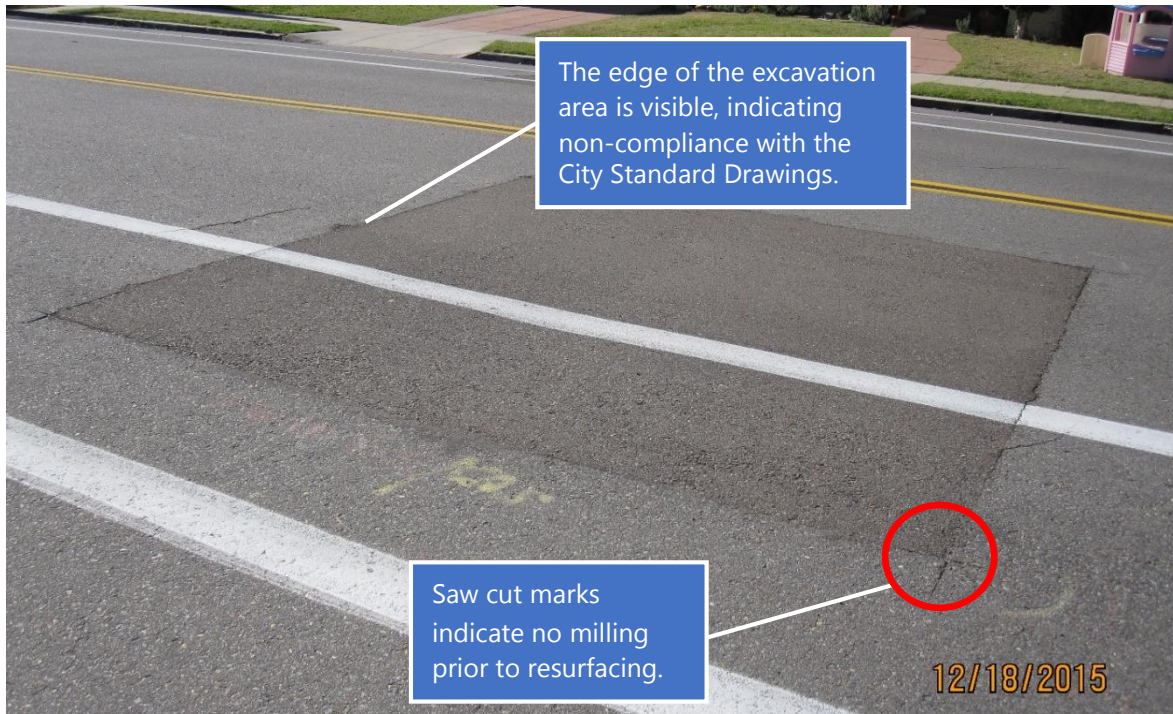
Location	Moratorium Street	Curb to Curb Repaving	Influence/Edge Area Repaving
1	Yes	No	No
2	No	Not Required	No
3	Yes	No	No
4	No	Not Required	No
5	No	Not Required	Unknown <sup>9</sup>

Source: OCA Analysis.

<sup>9</sup> We visited our selected site address of an emergency excavation but were not able to identify an excavation at the location. The Public Utilities Department determined that the address associated with the service request was incorrect.

**Exhibit 5**

**Example of Street Division Resurfacing of an Emergency Water Trench**



Source: OCA.

Seven of the trenches we reviewed were planned excavations performed by the Public Works Department, a private utility, or a private party that had received an excavation permit from the Development Services Department (DSD). Of these seven trenches, five complied with SPO and Standard Drawing requirements. We did not make a determination at two sites because the excavation project was still ongoing at the time of the visit.

*Street Division Does Not Mill the Excavation Area Prior to Resurfacing*

The SPO and the City's Standard Drawings establish trench repair requirements for right-of-way excavators. Additionally, PUD has a Service Level Agreement with the Street Division to repair excavations addressing water and wastewater emergency repairs and maintenance. We found that the Street Division is not repairing these excavations in accordance with the SPO, including the Ordinance's requirement that at least 30 days after laying the initial patch, they return to the site to mill and pave a trench. The City Standard Drawing for trench restorations is contained in **Appendix C**.

Street Division managers reported the Division lacks the proper equipment to repair water emergency excavations in accordance with SPO and City Standard Drawings because the Street Division does not have a milling

machine dedicated to emergency water excavation resurfacing. According to PUD records during the period of Fiscal Year (FY) 2013-FY 2015, approximately 4,574 water and 81 wastewater emergency incidents occurred. Given the number of emergency incidents occurring in the right-of-way and the Street Division's lack of mill and pavement resources, it is likely that many of the City's emergency excavation restorations undertaken during this period may not have been properly repaired to required standards.

According to the Public Works Department, failure to mill and resurface can have a detrimental impact on how the restored area wears over time. The trench can sink and develop an uneven surface, causing the roadway to break apart at an accelerated rate compared to the rest of the street. Furthermore, milling the initial patch prior to final resurfacing allows the excavator to properly cap and seal the trench. Failure to mill, cap, and seal a trench can lead to water infiltration, which compromises the roadway and causes it to break apart.

The Street Division reported that it, in conjunction with the Fleet Services Division, is in the process of acquiring an additional milling machine dedicated to resurfacing PUD's emergency excavations. Per the FY 2016 Service Level Agreement with PUD, the Street Division is required to purchase and replace equipment, as necessary, to perform emergency excavation repairs, including the acquisition of mill and pave equipment. The Street Division is also planning to hire 12 new full time employees to carry out trench restoration activities. The FY 2016 adopted budget for TSWD included a budget adjustment of \$717,213 for the addition of "a trench repair crew to support the Street Preservation Ordinance."

*The Street Division Has No Formal Process for Assuring that Excavation Repair Crews Comply with the Street Preservation Ordinance*

The City's process for inspecting excavation restoration quality and restoration compliance with the SPO and Standard Drawings differs depending on the party that performs the work. The Public Works Construction Management & Field Services Division Engineers review excavation repair work conducted by City contractors and by private entities that obtain a permit from the DSD. However, TSWD's Street Division, which repairs excavations on behalf of PUD, explained that it self-assesses excavation restorations, and has no formal process for determining whether work conducted by its crews complies with SPO requirements.

The Street Division self-inspects its trench restoration work and does not have records that demonstrate its compliance with the SPO. According to Street Division management, street paving crew supervisors are responsible for ensuring repair crews comply with SPO and Standard Drawing

requirements. The Street Division maintains any crew supervisor notes related to excavation restorations in an SAP-based project management system.

Furthermore, the Street Division does not have a set of criteria or standard operating procedures for trench restoration quality control. Street Division management said they expect crew supervisors to be knowledgeable of the City's excavation repair requirements. However, street crew supervisors receive their training on trench restoration requirements from senior crew supervisors while on the job. As a result, Street Division supervisors must rely on institutional knowledge when reviewing the quality of excavation restorations.

**Recommendation #1 The Street Division should establish formal criteria and training for assessing the quality of work performed by City crews to ensure that the repairs performed for emergency excavations align with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and any other applicable regulations. (Priority 2)**

**Recommendation #2 To comply with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and other applicable regulations, the Street Division should:**

- **In conjunction with Fleet Services, expedite acquisition of paving equipment; and**
- **Hire additional street repair staff. (Priority 2)**

**The Public Utilities Department Has Not Been Consistently Submitting Street Moratorium Waivers for Emergency Trench Repairs to the Transportation & Storm Water Right-of-Way Coordination Division**

According to the current service level agreement with the Street Division to repair emergency excavations, PUD is required to submit street moratorium waivers to the TSWD Right-of-Way Coordination Division. However, PUD management acknowledged that staff do not always adhere to the waiver submission requirement. PUD staff explained that in some instances, waivers “slip through the cracks,” while in other instances, managers are simply failing to fulfill the requirement. However, during the course of the audit, PUD management implemented new processes to regularly submit waivers to the TSWD Right-of-Way Coordination Division.

In the event of an emergency, a private utility may excavate a street that is under moratorium without obtaining a waiver prior to excavation. However, the SPO requires the excavator to notify the City’s 24-hour Public Works Dispatch Center. The private utility must also apply for a Public Right-of-Way Permit and waiver within 14 days of the event. PUD is required to submit street moratorium waivers to the TSWD Right-of-Way Coordination Division within five business days after they complete emergency work.

We found that PUD did not have a process in place to identify emergency excavations which require the submission of a moratorium waiver to the Right-of-Way Coordination Division. However, during the course of our audit, PUD Water Construction and Maintenance designated a supervisor responsible for conducting daily research to which emergency excavations occur on a street under moratorium, as well as ensuring that the department submits a street moratorium waiver for those excavations.

During the period of January 2013 to September 2015, PUD conducted emergency maintenance work on the right-of-way to address 3,549 water service requests, and 81 wastewater service requests. The TSWD Right-of-Way Coordination Division received 48 moratorium waivers, 33 of which were from the PUD, either for water or wastewater emergencies. Based on the magnitude of water and wastewater emergency incidents occurring in the right-of-way, it appears the TSWD Right-of-Way Coordination Division is not receiving all moratorium waivers for emergency incidents. Without the submittal of street moratorium waivers, City departments cannot track whether excavations on streets under moratorium are repaired according to SPO requirements.



**Recommendation #3 The Public Utilities Department should develop written procedures requiring Water Construction and Maintenance staff to determine whether an excavated street was under moratorium. When excavations occur on a moratorium street, staff should complete and submit a street moratorium waiver to the Transportation & Storm Water Right-of-Way Coordination Division. The Public Utilities Department should train appropriate staff on the procedures. (Priority 3)**

**The Transportation & Storm Water Right-of-Way Coordination Division Does Not Maintain Street Preservation Ordinance Compliance Documentation in a Centralized Location**

At present, there is no centralized repository containing information that allows the TSWD Right-of-Way Coordination Division to easily identify all excavations performed in the right-of-way, and assess those excavations for compliance with the SPO. The TSWD Right-of-Way Coordination Division depends on staff from various departments to submit moratorium waivers and Street Damage Fee documentation via email. As a result, the TSWD Water Right-of-Way Coordination Division must also take additional steps to assess department compliance with moratorium waiver and Street Damage Fee requirements. Actions taken by the TSWD Right-of-Way Coordination Division includes, but is not limited to:

- Reviewing DSD's permit system to identify private utility projects that were granted street moratorium waivers;
- Reviewing CIP project schedules and construction activity reports in Primavera, the Public Works Department's project scheduling and management system, to determine whether Public Works has assessed the required Street Damage Fee; and
- Recording street moratorium waivers and street damage fees received in a database.

According to the U.S. Government Accountability Office's *Standards for Internal Control in the Federal Environment*, management should monitor internal control systems through ongoing monitoring and separate evaluations. Ongoing monitoring includes regular management and supervisory activities, comparisons, reconciliations, and other routine activities. These federal standards also recommend the use of automated tools that can increase objectivity and efficiency by electronically compiling evaluations of controls and transactions. Management should also select an appropriate method of effective internal communication to assist an organization achieve its objectives.

TSWD maintains a SharePoint site that could enable departments to submit SPO compliance information to the TSWD Right-of-Way Coordination Division. The use of this site by City departments would allow the TSWD Right-of-Way Coordination Division to retain waiver and Street Damage Fee records in one central repository and to continuously monitor that information to assess for SPO compliance. Additionally, City departments will be able to review documentation it has already submitted.

**Recommendation #4 The Transportation & Storm Water Right-of-Way Coordination Division should centralize the collection and maintenance of required Street Preservation Ordinance information, including Street Moratorium Waivers, using an automated process and leveraging existing resources, such as the Transportation & Storm Water Right-of-Way Coordination Division's existing SharePoint site. (Priority 3)**

**City Staff Is Not Always Able to Effectively Resolve Right-of-Way Project Conflicts**

We found that City staff responsible for projects in the right-of-way are not always able to resolve project conflicts due to insufficient communication and unclear guidance on how to resolve project conflicts. Per the SPO, the City should coordinate projects to reduce the amount of damage to the City's street. City departments that manage projects in the right-of-way or permit projects in the right-of-way coordinate their activities using IMCAT. The primary function of IMCAT is to assist project managers in identifying and reducing project location or scheduling conflicts, and project conflicts with streets that are under moratorium. Administrative Regulation 1.40 defines a project conflict as two or more projects scheduled for the same area, in the same timeframe, thereby negatively impacting the final project. Without improved processes to resolve project conflicts in an effective manner, the City may not be able to prevent planned excavations into the right-of-way that may affect newly paved or slurry sealed streets.

To gauge whether project managers believe they can successfully coordinate projects through the IMCAT application, we surveyed 246 IMCAT users across multiple City departments and received 101 responses. Specifically, our survey sought to solicit project manager and permit-issuing employee opinions on the following subjects:

- The reliability of project information in IMCAT;<sup>10</sup>
- The ease or difficulty of the conflict resolution process;
- The individual factors that make the project conflict resolution process easy or difficult; and

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<sup>10</sup> Survey responses related to the reliability of IMCAT information indicated staff concerns related to IMCAT data reliability. We plan to issue a subsequent memorandum following additional data reliability testing.



- Whether project coordination difficulties are contributing to project delays.

Survey results indicate that poor interdepartmental communication and poor coordination between project managers is hindering project managers' ability to resolve project conflicts. In total, 65 percent of the survey respondents that were asked to describe the project conflict resolution process said conflict resolution was sometimes difficult, or usually difficult; only 11 percent described the conflict resolution process as easy. Twenty four percent had not used the IMCAT application to resolve project conflicts.

Various factors contributed to IMCAT users' opinions that the conflict resolution process can be difficult. Of the survey respondents who described the process as either sometimes difficult or usually difficult, more than half stated that resolving conflicts is difficult because other project managers are unwilling or unable to resolve issues in a timely manner. Survey respondents also believe the process is difficult because guidance on which projects should have priority is unclear, and because project managers have to resolve too many project conflicts. **Exhibit 6** outlines the factors survey respondents said make conflict resolution difficult.

**Exhibit 6**

**Project Managers Cite Several Causes Which Make Resolving Project Conflicts Difficult**

*What makes resolving conflicts a difficult task? Select all that apply.*

Answer Options	Response Percent <sup>11</sup>	Response Count
Other project managers are unwilling or unable to resolve issues in a timely manner	56.6%	30
Project information contained in IMCAT is inaccurate	30.2%	16
Project information contained in IMCAT is incomplete	24.5%	13
Project managers have to resolve too many project conflicts	41.5%	22
Guidance on which projects have priority is unclear	39.6%	21
Guidance on which projects have priority is not followed	11.3%	6
Other (please specify)	34.0%	18
<b>Number of respondents that answered the question</b>		<b>53</b>
<b>Number of respondents for which the question was not applicable</b>		<b>48</b>

Source: IMCAT User Survey Responses.

<sup>11</sup> The sum of values in the "Response Percent" column surpass 100% because survey respondents were able to select more than one answer.

Interdepartmental communication was also a concern for City staff. During our audit, we interviewed project managers who said that resolving conflicts with employees in departments outside of their own can be especially difficult. Survey data reflected this sentiment. When asked to rate the difficulty of the project conflict resolution process on a scale from 1 to 5 – 1 being not difficult at all, and 5 being extremely difficult – 46 percent of respondents to which the question applied rated the level of difficulty resolving conflicts with an external department as either a 4 or 5. Additionally, 25 percent of respondents rated the difficulty as a 3 – moderately difficult. **Exhibit 7** shows IMCAT user opinions on resolving interdepartmental project conflicts.

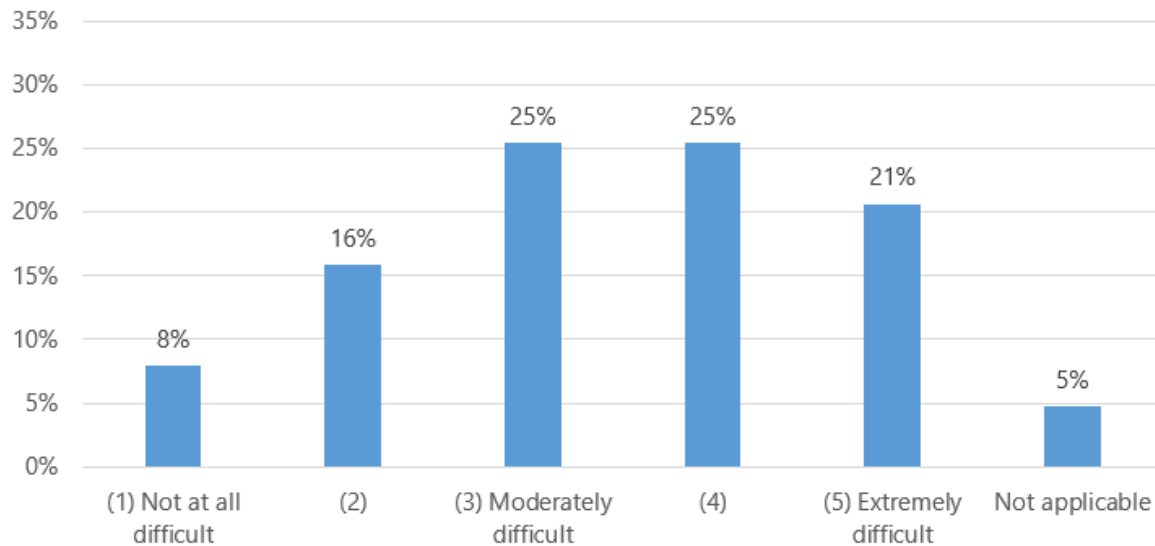
**Exhibit 7**

**IMCAT User Opinions on the Resolution of Interdepartmental Project Conflicts**

**When resolving a project conflict with another project manager from an external department, how difficult is the conflict resolution process?**

**Number of respondents that answered the question: 63**

**Number of respondents that skipped the question: 38**



Source: IMCAT User Survey Responses.

In contrast, using the same scale, when asked to rate the level of difficulty resolving conflicts with project managers from within the same department, 59 percent of respondents to which the question applied rated difficulty as either a 1 or a 2. Additionally, 22 percent rated the difficulty as a 3 – moderately difficult. **Exhibit 8** displays the IMCAT user opinions on resolving intra-department project conflicts.

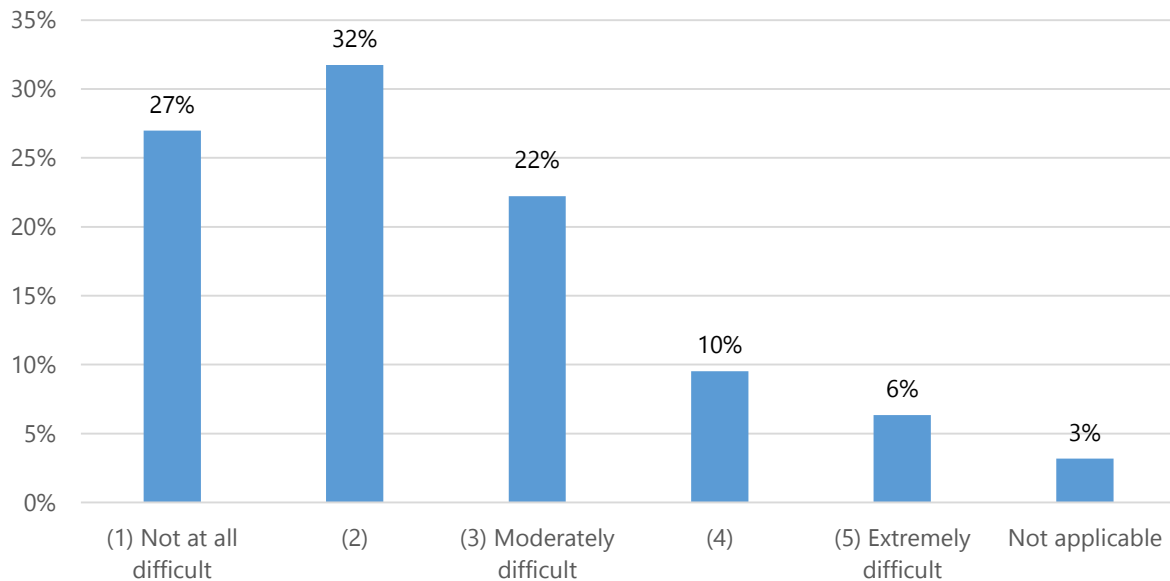
**Exhibit 8**

**IMCAT User Opinions the Resolution of Intradepartmental Project Conflicts**

**When resolving a project conflict with another project manager from within your own department, how difficult is the conflict resolution process?**

*Number of respondents that answered the question: 63*

*Number of respondents that skipped the question: 38*



Source: IMCAT User Survey Responses.

Survey respondents reported that conflict resolution difficulties have contributed to project delays and even project cancellations. Twenty-two survey respondents said they have delayed projects in the right-of-way as the direct result of another project manager initiating work in the same area without resolving a project conflict identified in IMCAT. Eight employees said they have cancelled projects in the right-of-way in the past for the same reason. Additional responses to questions regarding communication and coordination are contained in **Appendix E**.

Administrative Regulation (AR) 1.40 establishes project planning and conflict resolution requirements for project managers overseeing CIP projects in the right-of-way, and for City staff responsible for issuing permits for projects and events in the right-of-way. AR 1.40 stipulates that a department that adds a new project or event within the right-of-way must check for project conflicts throughout the execution of the event or project. It also requires that departments issuing permits for projects and events within the right-of-way resolve all conflicts prior to issuing a permit.

In the event a project manager adds a new project that conflicts with a pre-existing project entry in IMCAT, the AR requires the employee adding the new project to take the lead role in coordinating a resolution with the project manager overseeing the existing project. AR 1.40 Section 4.0, "General Policy for the Resolution of Conflicts," stipulates that City staff working on projects in the right-of-way shall use their best judgement in the coordination of projects and public events. Project managers should resolve conflicts within two weeks, and any individuals unable to resolve a project conflict then must elevate the issue through their respective management chains. Once projects managers resolve their scheduling or location conflict, they both update project management system data to demonstrate the resolution.

Based on our review of AR 1.40 and the results of our survey, we found that the City should improve the conflict resolution process by reinforcing the importance of effective communication, ensuring all staff are aware of and following the conflict resolution guidelines, and ensuring staff understand roles and prescribed conflict resolution authority levels.

**Recommendation #5 The Deputy Chief Operating Officer, Infrastructure, should direct departments responsible for oversight and management of projects to revise or enhance training programs in order to clarify guidance related to Administrative Regulation 1.40 and the Street Preservation Ordinance. The training should include but not be limited to guidance on:**

- **Effective intradepartmental and interdepartmental communication;**
- **Conflict resolution roles and responsibilities; and**
- **Proper authority levels and escalation procedures as they relate to right-of-way conflict resolution. (Priority 3)**

***Finding 2: The City Can Enhance the Controls Over Street Damage Fees to Ensure it Assesses and Collects Fees From All Excavators***

A key component of the Street Preservation Ordinance (SPO) is the assessment of the Street Damage Fee on all excavators to offset the long-term impact on the streets.<sup>12</sup> The City may use these fees for resurfacing and related repair and maintenance activities for City roadways. Our third audit objective was to determine if the City is assessing and collecting Street Damage Fees from all excavators.

Based on our review, we found that:

- The Transportation & Storm Water (TSWD) Right-of-Way Coordination Division is unable to track and monitor Street Damage Fee assessment and collection;
- Development Services Department (DSD) does not have a reporting capability for linking right-of-way permits to corresponding street damage fees; and
- Public Utilities Department (PUD) is assessing and remitting Street Damage Fees, but does not have this process formally documented.

The TSWD Right-of-Way Coordination Division is unable to track Street Damage Fee assessments on an ongoing basis, as the Division relies on City departments to submit information about assessed Street Damage Fees. As a result, the City is unable to determine whether the City is collecting all Street Damage Fees owed from excavators. Failure to collect required Street Damage Fees undercuts the City's efforts to recover the increased repaving and reconstruction costs caused by right-of-way excavations.

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<sup>12</sup> As noted in the Background section, the Street Preservation Ordinance amended and set the current fee schedule to partially reimburse the City for increased life cycle costs incurred as a result of excavations. The Street Damage Fee set allowing for 25 percent cost recovery went into effect July 1, 2013. Effective July 1, 2014, the City Council raised the Street Damage Fee to allow for 50 percent cost recovery.

**The Transportation & Storm Water Right-of-Way Coordination Division Is Unable to Track and Monitor Street Damage Fee Assessment and Collection**

The TSWD Right-of-Way Coordination Division is responsible for the collection and monitoring of Street Damage Fees assessed on City departments. As noted below in more detail, DSD assesses and collects fees from private entities that require a right-of-way permit. We found that the TSWD Right-of-Way Coordination Division is invoicing and collecting payments for Street Damage Fees when City departments submit excavation information. However, the Right-of-Way Coordination Division does not formally track excavation activity in order to ensure that all departments that should be assessing and remitting Street Damage Fees are doing so. As a result, the TSWD Right-of-Way Coordination Division has no systematic process for detecting whether departments assess and collect all required Street Damage Fees.

We reviewed the Street Damage Fee assessment information that departments submitted to the Right-of-Way Coordination Division. We also reviewed the corresponding invoices for these assessments and verified that departments paid the invoiced amount. However, the Right-of-Way Coordination Division could not provide assurance that these records are comprehensive because they rely on other departments to self-report this information.

The Public Works-Engineering & Capital Projects Division has a standard operating procedure that requires project managers to submit street damage fee calculations to the TSWD Right-of-Way Coordination Division during the preliminary engineering phase. Based on the results of the Right-of-Way Coordination Division's monitoring procedures, it appears that Public Works-Engineering & Capital Projects is not submitting the Street Damage Fee calculations as prescribed by its standard operating procedures. The Right-of-Way Coordination Division has been able to use Primavera, the Public Works Department's project scheduling and management system, to conduct a cursory review to identify projects that were ready for construction. For those projects, the Right-of-Way Coordination Division then reviewed whether the Public Works Department calculated an estimated Street Damage Fee, and shared the fee calculation with the Right-of-Way Coordination Division. The Right-of-Way Coordination Division reviewed project information for 158 Capital Improvements Program (CIP) projects and identified 36 projects (23 percent) where Public Works had not yet calculated a Street Damage Fee.

TSWD management advised it is in the process of drafting an internal process narrative to document the monitoring process. A division analyst will be playing a larger role in the monitoring process to ensure the City is collecting fees from all City CIP projects and PUD maintenance activities, as

well as to ensure the City collects appropriate Street Damage Fee amounts from SDG&E. Without an adequate monitoring process, the City cannot ensure it is collecting all Street Damage Fees.

**Recommendation #6 The Transportation & Storm Water Department Right-of-Way Coordination Division, in conjunction with the departments that assess Street Damage Fees, should implement a formal documented monitoring process which allows the Right-of-Way Coordination Division to verify Street Damage Fees for City Capital Improvements Program projects, projects implemented by the Public Works Department, construction and maintenance performed or requested by the Public Utilities Department, and private excavation activities. (Priority 3)**

**The Development Services Department Does Not Have a Reporting Capability for Linking Right-of-Way Permits to Corresponding Street Damage Fees**

We found that DSD is not able to match street damage fees assessments to individual right-of-way excavation projects. According to DSD, although it records Street Damage Fees within the permitting system, the system currently does not have a reporting capability for linking a right-of-way permit to corresponding Street Damage Fees. As a result, DSD cannot provide information to the TSWD Right-of-Way Coordination Division that would allow the Division to systematically review Street Damage Fees assessed by the DSD.

Private entities must obtain a Right-of-Way Permit to excavate in the right-of-way. As part of the right-of-way permit approval process, a DSD engineer determines if the applicant is required to pay Street Damage Fees. The engineer uses a standardized template to collect excavation details and inserts this information into an automated template to calculate the Street Damage Fee. DSD collects the Street Damage Fees associated with permitted projects and then transfers the fees to the City's financial system.

DSD is in the process of implementing a new project management system to track permits. DSD Management advised that the Department will be able to configure the system to allow the Department to report street damage fees associated with individual right-of-way permits.

**Recommendation #7 The Development Services Department should configure their new permitting system so it can identify and report on Street Damage Fees and the corresponding permits. (Priority 3)**

**The Public Utilities Department Is Assessing and Remitting Street Damage Fees for Emergency Excavations and Maintenance, but Does Not Have This Process Formally Documented**

We found that PUD is paying Street Damage Fees to the TSWD Right-of-Way Coordination Division for emergency excavations and other maintenance. However, their processes are not documented. The SPO requires excavators to submit Street Damage Fees after performing emergency excavations and maintenance activities. To facilitate the submission of Street Damage Fees, PUD utilizes the City Engineer-approved automated template to determine the Street Damage Fees owed.

PUD aggregates and submits Street Damage Fees and supporting documentation on a quarterly basis. PUD staff stated that although they do not have any documented standard operating procedure for assessing and submitting Street Damage Fees, they did receive training on how to calculate and submit the fees from the TSWD Right-of-Way Coordination Division. Per the *Standards for Internal Control in the Federal Government*, effectively documenting processes assists management in establishing and retaining organizational knowledge and mitigating the risk of limiting knowledge to a few personnel.

**Recommendation #8 The Public Utilities Department should formally document their procedures for assessing, collecting, and submitting Street Damage Fees for emergency excavations and other maintenance activities. (Priority 3)**



## Conclusion

With the prioritization of infrastructure improvements and maintenance, the City can expect an increase in excavation activity and other projects that will impact the public right-of-way and street conditions. We found that by strengthening project coordination efforts and compliance with the Street Preservation Ordinance, the City can help minimize impacts to streets caused by excavations. Additionally, with increased activity in the right-of-way, the proper assessments and collections of Street Damage Fees reasonably attributable to the excavation's impact on the public right-of-way will help the City recover its repaving and reconstruction costs.

## Recommendations

**Recommendation #1** The Street Division should establish formal criteria and training for assessing the quality of work performed by City crews to ensure that the repairs performed for emergency excavations align with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and any other applicable regulations. (Priority 2)

**Recommendation #2** To comply with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and other applicable regulations, the Street Division should:

- In conjunction with Fleet Services, expedite acquisition of paving equipment; and
- Hire additional street repair staff. (Priority 2)

**Recommendation #3** The Public Utilities Department should develop written procedures requiring Water Construction and Maintenance staff to determine whether an excavated street was under moratorium. When excavations occur on a moratorium street, staff should complete and submit a street moratorium waiver to the Transportation & Storm Water Right-of-Way Coordination Division. The Public Utilities department should train appropriate staff on the procedures. (Priority 3)

**Recommendation #4** The Transportation & Storm Water Right-of-Way Coordination Division should centralize the collection and maintenance of required Street Preservation Ordinance information, including Street Moratorium Waivers, using an automated process and leveraging existing resources, such as the Transportation & Storm Water Right-of-Way Coordination Division's existing Share Point site. (Priority 3)

**Recommendation #5** The Deputy Chief Operating Officer, Infrastructure, should direct departments responsible for oversight and management of projects to revise or enhance training programs in order to clarify guidance related to Administrative Regulation 1.40 and the Street Preservation Ordinance. The training should include but not be limited to guidance on:

- Effective intradepartmental and interdepartmental communication;
- Conflict resolution roles and responsibilities; and
- Proper authority levels and escalation procedures as they relate to right-of-way conflict resolution. (Priority 3)

**Recommendation #6** The Transportation & Storm Water Department Right-of-Way Coordination Division, in conjunction with the departments that assess Street Damage Fees, should implement a formal documented monitoring process which allows the Right-of-Way Coordination Division to verify Street Damage Fees for City Capital Improvements Program projects, projects implemented by the Public Works Department, construction and maintenance performed or requested by the Public Utilities Department, and private excavation activities. (Priority 3)

**Recommendation #7** The Development Services Department should configure their new permitting system so it can identify and report on Street Damage Fees and the corresponding permits. (Priority 3)

**Recommendation #8** The Public Utilities Department should formally document their procedures for assessing, collecting, and submitting Street Damage Fees for emergency excavations and other maintenance activities. (Priority 3)

## Appendix A: Audit Recommendation Priorities

### DEFINITIONS OF PRIORITY 1, 2, AND 3

#### AUDIT RECOMMENDATIONS

The Office of the City Auditor maintains a priority classification scheme for audit recommendations based on the importance of each recommendation to the City, as described in the table below. While the City Auditor is responsible for providing a priority classification for recommendations, it is the City Administration’s responsibility to establish a target date to implement each recommendation taking into considerations its priority. The City Auditor requests that target dates be included in the Administration’s official response to the audit findings and recommendations.

Priority Class <sup>13</sup>	Description
1	<p>Fraud or serious violations are being committed.</p> <p>Significant fiscal and/or equivalent non-fiscal losses are occurring.</p> <p>Costly and/or detrimental operational inefficiencies are taking place.</p> <p>A significant internal control weakness has been identified.</p>
2	<p>The potential for incurring significant fiscal and/or equivalent non-fiscal losses exists.</p> <p>The potential for costly and/or detrimental operational inefficiencies exists.</p> <p>The potential for strengthening or improving internal controls exists.</p>
3	<p>Operation or administrative process will be improved.</p>

<sup>13</sup> The City Auditor is responsible for assigning audit recommendation priority class numbers. A recommendation which clearly fits the description for more than one priority class shall be assigned the higher number.

## Appendix B: Objectives, Scope and Methodology

**Objectives** In accordance with the City Auditor’s FY 2015 Work Plan, we conducted a performance audit of the Street Preservation Ordinance (Municipal Code Section 62.1200). We evaluated data and program information maintained by the Development Services Department, Public Works Department, Public Utilities Department, and Transportation & Storm Water Department. Our period of evaluation was from FY 2013 through FY 2016<sup>14</sup>.

Our objectives were as follows:

- Determine if municipal and other excavators are adhering to the Street Preservation Ordinance’s street moratorium waiver and excavation restoration requirements.
- Determine if the municipal and other public utilities are coordinating projects to minimize damage to streets.
- Determine if the City is assessing and collecting Street Damage Fees from all municipal and other excavators in the right-of-way.

**Scope and Methodology**

1. To determine if municipal and other excavators were submitting street moratorium waivers under the conditions prescribed by the Street Preservation Ordinance, the audit team reviewed available documentation, including policies and procedures, forms, and other relevant documents. Additionally, we interviewed the Transportation & Storm Water Right-of-Way Coordination Division, Public Works-Engineering & Capital Projects engineers, Development Services Department permit reviewers, Public Utilities Department staff, and Office of Special Events staff to identify the conditions under which excavators must obtain a moratorium waiver, and submit moratorium waivers to the Transportation & Storm Water Right-of-Way Coordination Division.

To determine if municipal and other excavators are restoring excavated streets in accordance with the Street Preservation Ordinance and City Standard Drawings, we selected a judgmental sample of 12 excavations.<sup>15</sup> At each site, we reviewed excavator compliance with the Street Preservation Ordinance’s requirement, and curb-to-curb

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<sup>14</sup> As of September 2015.

<sup>15</sup> We were not able to make a determination of two of the sites, as one excavation site selected was part of an active construction project. We also were not able to identify an emergency excavation, as the address on file with the Public Utilities Department was a record-keeping error. Our findings were based on the ten sites we were able to verify as repaired.

resurfacing requirement. We also reviewed whether the excavator milled and paved the trenched area. We conducted these site visits with two supervisory engineers from the Public Works Department's Construction Management & Field Services Division, who assisted the Office of the City Auditor in making compliance determinations.

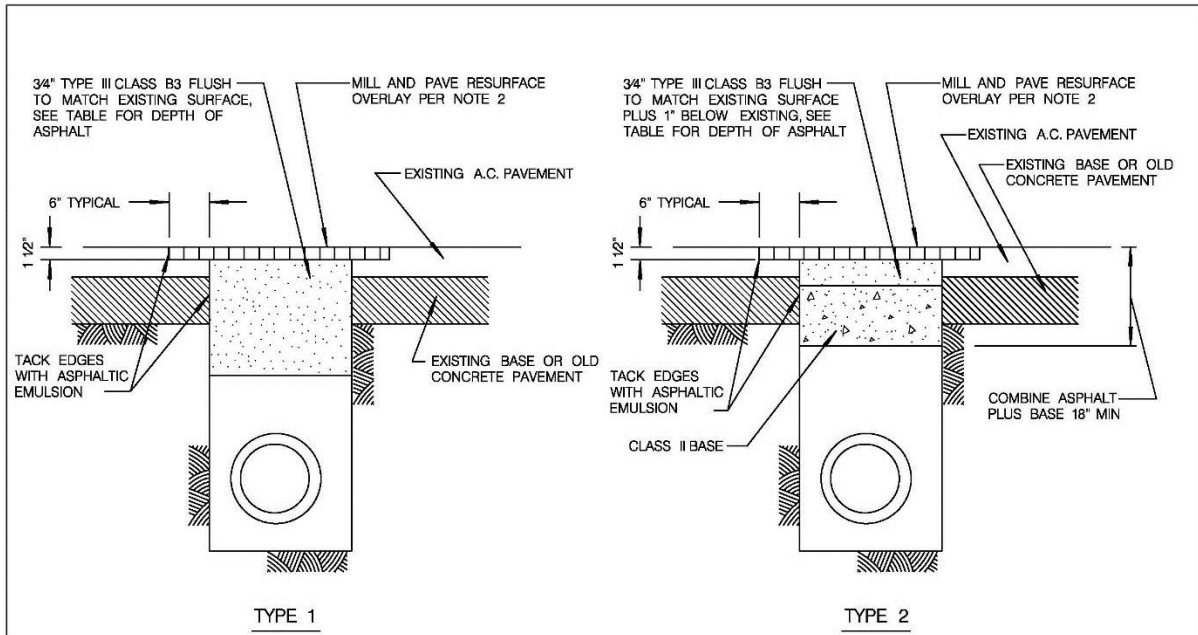
2. To determine if the municipal utilities are coordinating projects to minimize damage to the streets, we reviewed all available administrative regulations, departmental policies and procedures, project management system descriptions, and other relevant guidance related to how coordinators should coordinate their work in the right-of-way.

To obtain project manager opinions about the right-of-way project coordination process, the audit team administered a survey to users of IMCAT. Respondents included engineers and other staff responsible for managing projects in the right-of-way from the Public Works, Development Services, Transportation and Storm Water, Public Utilities, and Special Events Departments. To assemble our survey recipient list, we requested from Public Works the names and emails of IMCAT users based on IMCAT login information. We also requested that the Development Services Department and Office of Special Events provide the names and emails of IMCAT users in those departments as IMCAT application users in those departments do not necessarily have login information.

3. To determine whether the City is assessing and collecting Street Damage Fees from all excavators in the right-of-way, we interviewed City staff responsible for assessing, collecting and monitoring fees. We also reviewed available citywide and departmental policies, procedures, regulations, and other relevant guidance related to Street Damage Fees. The audit team also reviewed Street Damage Fee documentation and financial information from the Transportation and Storm Water Right-of-Way Coordination Division, Development Services Department and the City's financial system.

We conducted this performance audit in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on the audit objectives.

## Appendix C: City Standard Drawings for Trenching and Restoration

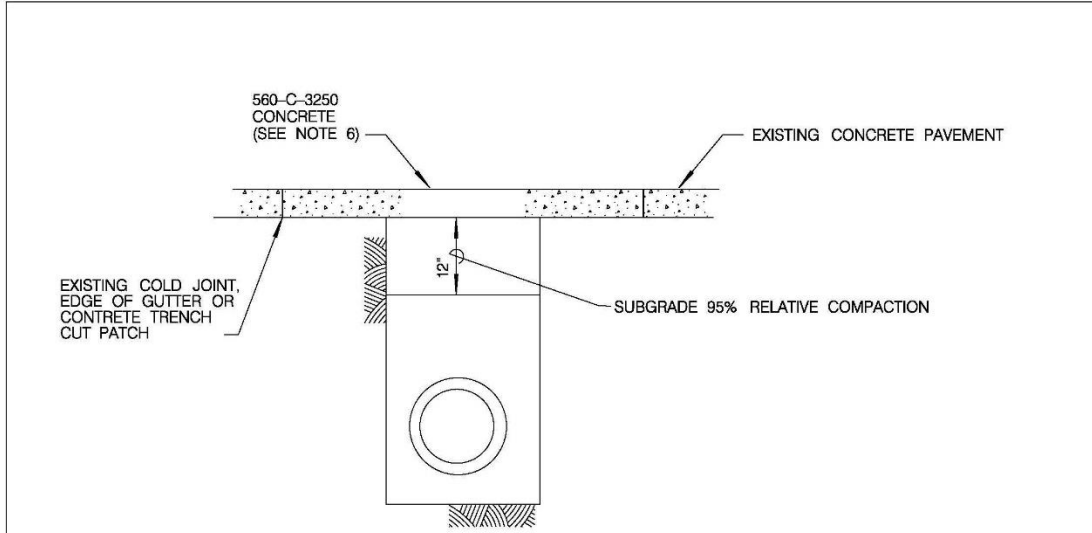


	TYPE 1	TYPE 2
	ASPHALT	ASPHALT PLUS BASE
MIX DESIGN	3/4" TYPE III CLASS B3	3/4" TYPE III CLASS B3 PLUS CLASS II BASE
ALLEYS	8.0"	ASPHALT THICKNESS TO EQUAL
LOCAL THROUGH 4 LANE COLLECTORS	10.0"	EXISTING PLUS 1", MIN 4" TO MAX. 9"
MAJOR	12.0"	COMBINED ASPHALT PLUS BASE 18" MIN.

**NOTES:**

1. ANY STREET TRENCH 7 FEET IN WIDTH OR GREATER AND LONGER THAN 100 FEET IN OVERALL LENGTH SHALL BE RECONSTRUCTED WITH THE PAVEMENT SECTION FOR THE STREET CLASSIFICATION PER SCHEDULE "J" (SDG-113).
2. ASPHALT TRENCH CAPS IN STREETS NOT RECEIVING A FULL WIDTH OVERLAY PRIOR TO ACCEPTANCE SHALL BE MILLED AS SHOWN AND RESURFACED WITH 1/2" TYPE III CLASS C2 ASPHALT NO LESS THAN 30 DAYS AFTER INITIAL ASPHALT PLACEMENT.
3. WHEN DIRECTED BY CITY ENGINEER OR SHOWN ON THE PLANS, CONCRETE PER SDG-108 (NOTE #5) MAY BE PLACED; A 1/8" - 1/4" WEARING SURFACING OF TYPE III CLASS F ASPHALT CONCRETE WILL BE REQUIRED.

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	<b>TRENCH RESURFACING FOR ASPHALT CONCRETE SURFACED STREETS</b>	RECOMMENDED BY THE CITY OF SAN DIEGO STANDARDS COMMITTEE		
ORIGINAL		J.P. CASEY	1/24/69			<i>CA Dungey</i>		
UPDATED	KA	J. NAGELVOORT	01/12			COORDINATOR	R.C.E. 3523	1/30/14 DATE
UPDATED	KA	J. NAGELVOORT	4/13			DRAWING	<b>SDG-107</b>	
UPDATED	BB	J. NAGELVOORT	1/14			NUMBER		



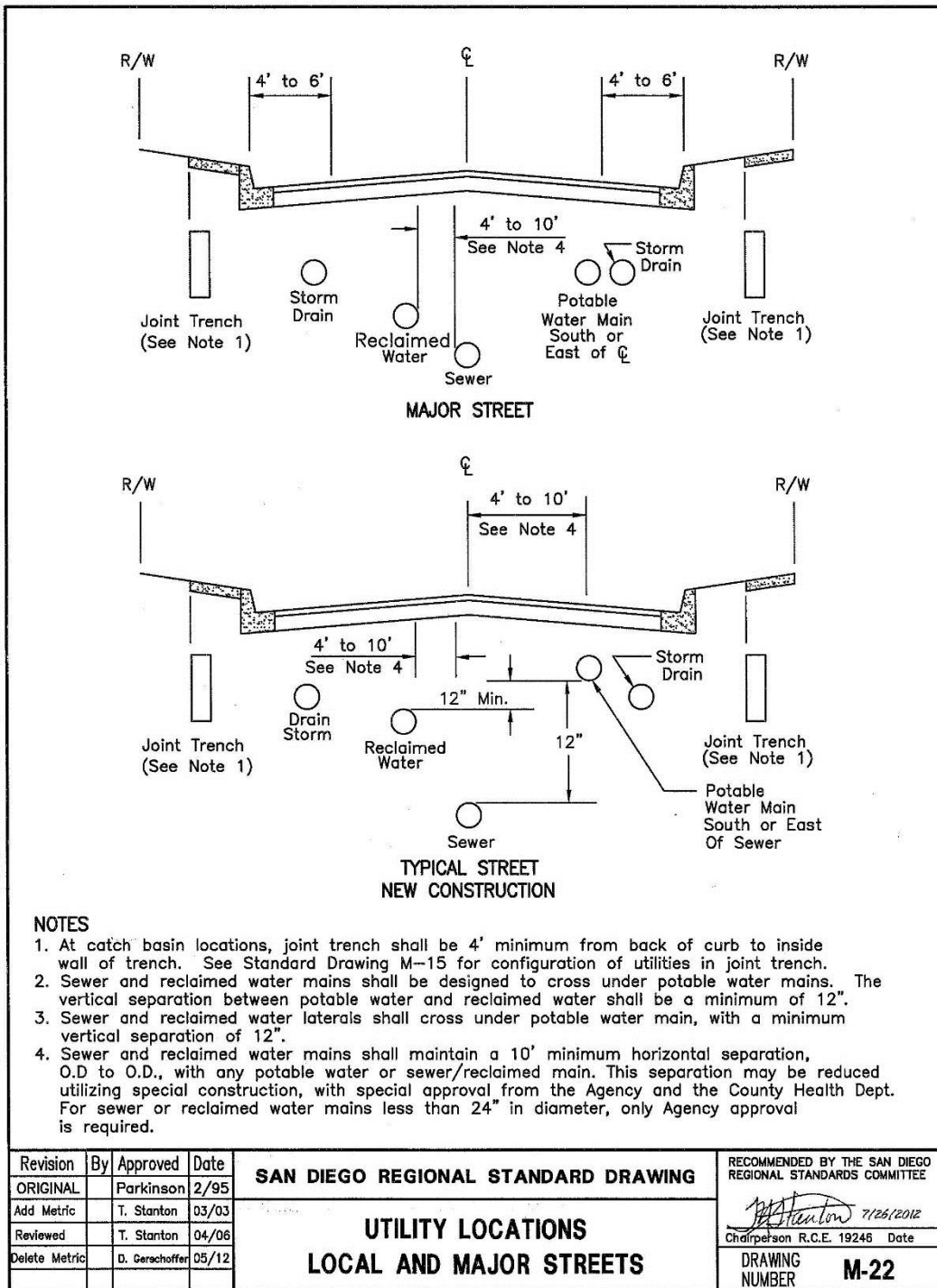
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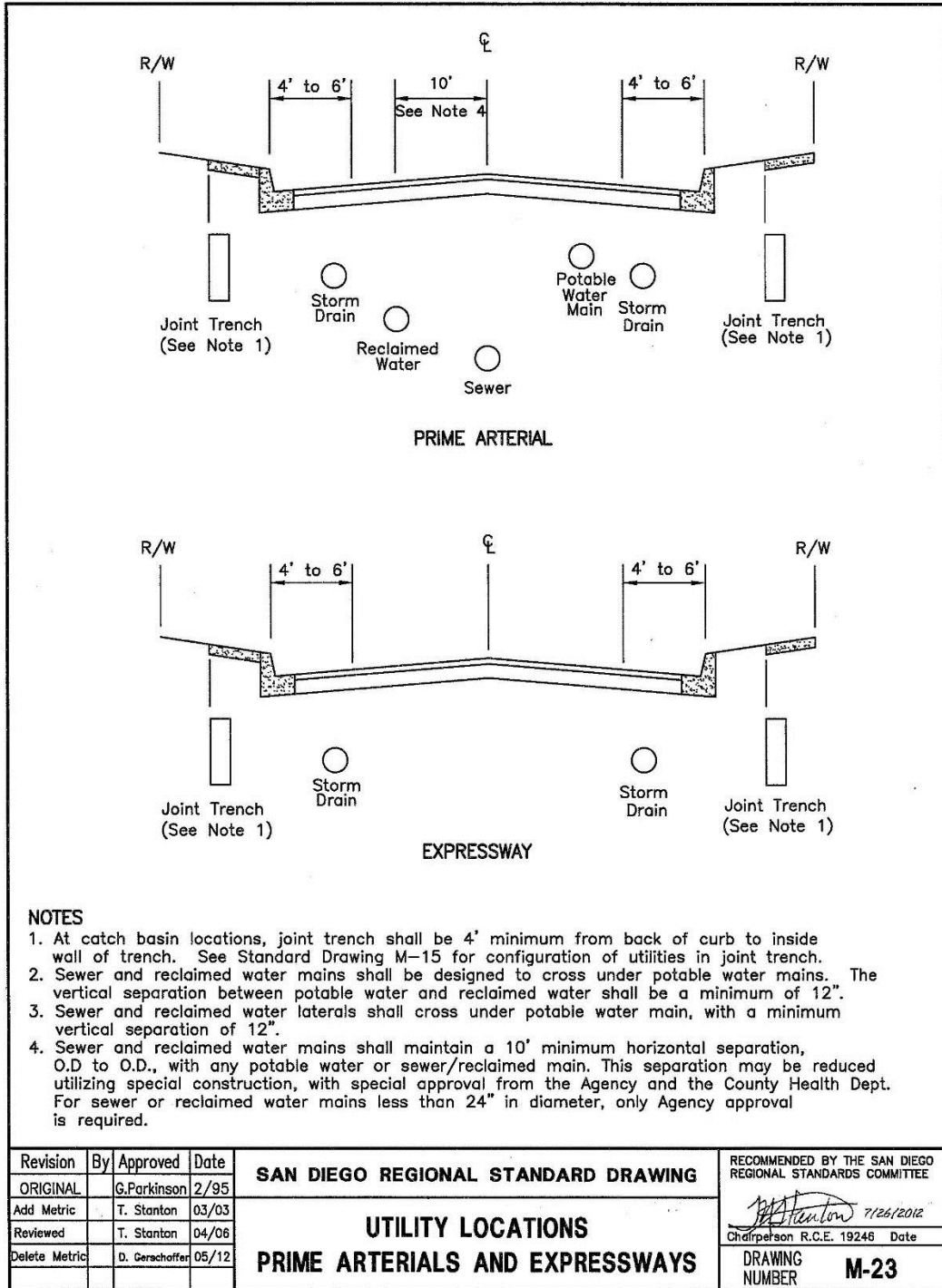
1. EXISTING CONCRETE PAVEMENT SHALL BE REMOVED. CONCRETE PAVEMENT RESTORATION SHALL EXTEND TO THE FULL WIDTH OF THE CONCRETE PANEL (BETWEEN COLD JOINTS OR COLD JOINT TO EDGE OF GUTTER) AROUND THE PERIMETER OF THE EXCAVATION. FOR CONCRETE PAVEMENT WITH EXISTING TRENCH CUT PATCHING, CONCRETE PAVEMENT RESTORATION SHALL INCLUDE, AS PART OF THE RESTORATION, THE EXISTING TRENCH CUT PATCHES IF THOSE PATCHES ARE WITHIN 4 FEET OF THE CONCRETE PANEL TO BE REPLACED.
2. PRIOR TO PLACING CONCRETE, PAVEMENT EDGES SHALL BE TRIMMED TO NEAT HORIZONTAL AND VERTICAL LINES.
3. UNLESS OTHERWISE SPECIFIED, CONCRETE TRENCH COVER SHALL BE A MINIMUM OF 5 1/2" FOR ALLEYS, 7" FOR LOCAL THROUGH FOUR LANE COLLECTOR STREETS AND 9" THICK FOR ALL MAJOR OR GREATER STREET CLASSIFICATIONS.
4. ANY STREET TRENCH 7 FEET IN WIDTH OR GREATER AND LONGER THAN 100 FEET IN LENGTH SHALL BE RECONSTRUCTED WITH THE PAVEMENT SECTION FOR THE STREET CLASSIFICATION PER SCHEDULE "J" (SDG-113). STREET TRENCH SECTIONS 7 FEET IN WIDTH OR GREATER BUT LESS THAN 100 FEET IN OVERALL LENGTH SHALL BE RESURFACED TO A THICKNESS OF 1" GREATER THAN REQUIRED BY NOTE 3 ABOVE.
5. 560-C-3250 CONCRETE TREATED WITH A MINIMUM 2% CALCIUM CHLORIDE SOLUTION IN ACCORDANCE WITH 201-1 OR 650-CW-4000 (WO. CC) CONCRETE MAY BE OPENED TO TRAFFIC 3 DAYS AFTER IT IS PLACED. 650-CW-4000 CONCRETE TREATED IN SAME MANNER (WCC) MAY BE OPENED TO TRAFFIC 24 HOURS AFTER IT IS PLACED. CONCRETE SPECIFIED BY ALTERNATE CLASS OR OTHERWISE CONTAINING FLY ASH IS NOT ALLOWED.
6. IN FOUR-LANE MAJOR OR GREATER STREETS, AN APPROVED SET ACCELERATING ADMIXTURE SUCH AS CALCIUM CHLORIDE, SHALL BE USED IN THE CONCRETE.

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	RECOMMENDED BY THE CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J. CASEY	01/09		<b>TRENCH RESURFACING FOR PCC SURFACED STREETS</b>
UPDATED	KA	J. NAGELVOORT	01/12		
UPDATED	BB	J. NAGELVOORT	01/14		
UPDATED	BB	J. NAGELVOORT	03/15		
				DRAWING NUMBER	<b>SDG-108</b>



## Appendix D: Utilities That Can Exist in the Right-of-Way in San Diego

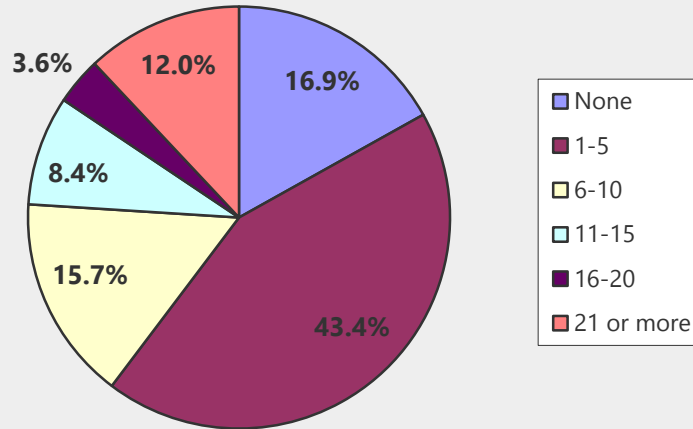




## Appendix E: Survey Results of IMCAT Users Related to Coordination of Projects in the Right-of-Way

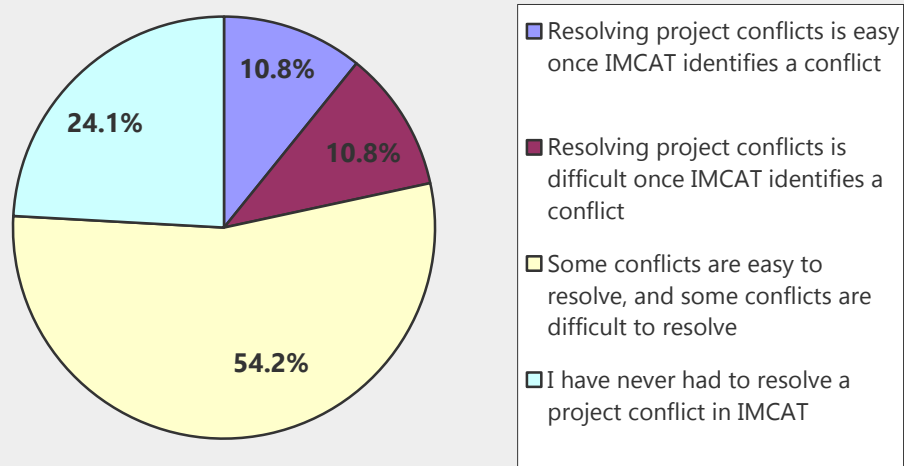
**Question 7: In the past year, about how many projects required you to coordinate with another project manager to ensure projects were not in conflict?**

Number of respondents that answered the question: 83



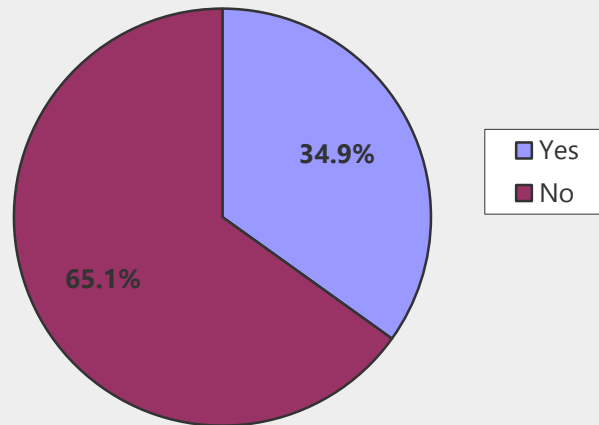
**Question 8: When IMCAT reveals that your project conflicts with another project, how would you describe the process of resolving conflicts?**

Number of respondents that answered the question: 83



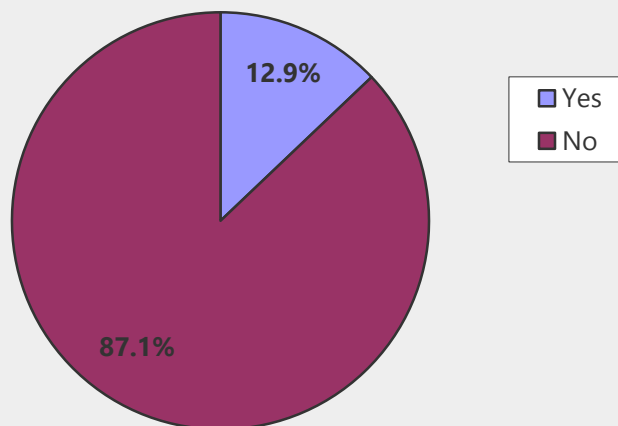
**Question 12: Have you ever delayed a project in the right-of-way as the direct result of a project manager initiating work in the same area without resolving a project conflict in IMCAT?**

Number of respondents that answered the question: 63



**Question 13: Have you ever cancelled a project in the right-of-way as the direct result of a project manager initiating work in the same area without resolving a project conflict in IMCAT?**

Number of respondents that answered the question: 62



## Appendix F: Current Street Damage Fee



# NOTICE

## DEVELOPMENT SERVICES DEPARTMENT

CITY OF SAN DIEGO - 1222 FIRST AVENUE, M.S. 501, SAN DIEGO, CALIFORNIA 92101

**DATE:** May 29, 2014  
**TO:** Distribution  
**FROM:** Jeffrey D. Strohming, Deputy City Engineer, Development Services Dept.  
**SUBJECT:** Street Damage Fee Increase, July 1, 2014

On December 17, 2012, the City Council approved Ordinance No. O-2013-51, also known as the Street Preservation Ordinance and Resolution R-307939, which set the current Street Damage Fee. The City Council originally established the fee in 2003 under Resolution No. R-298358. The Street Damage Fee is to partially recover the increased repaving and reconstruction costs incurred by the City attributed to the impact of an excavation in the public right-of-way. The Fee Resolution made the revised fee effective on July 1, 2013 and included an automatic increase effective July 1, 2014.

**The Fee Increase will apply to all permits issued on or after July 1, 2014** as required under Chapter 6, Article 2, Divisions 11 and 12 of the Municipal Code.

The new Fee Schedule showing the cost per square foot of influence area is attached.

Projects with the fee calculated under the new fee schedule will be listed on an invoice or estimate as "Street Damage Fee 2014". Projects that had estimates or invoices issued prior to July 1, 2014 based on the 2013 fee schedule, where the permit is issued on or after July 1, 2014, will have the old fee removed and the new fee added prior to issuance.

If you have any questions on how this may apply to your project please contact your Drainage & Grades or Engineering reviewer.

Jeffrey D. Strohming  
Deputy City Engineer

Street Damage Fee 2014 (50% of Cost recovery)		\$ / square foot of Influence Area						Effective 7-1-14
Street Class	Utility Type	Age Group (years)						
		<=5	>5 & <=10	>10 & <=15	>15 & <=20	>20 & <=25	>25	
Arterial	Wet	2.80	2.01	1.21	0.41	0	0	
	Dry	1.95	1.39	0.84	0.28	0	0	
Major	Wet	1.93	1.38	0.74	0.28	0	0	
	Dry	0.97	0.69	0.41	0.13	0	0	
Collector	Wet	3.94	3.06	2.19	1.32	0.45	0	
	Dry	1.10	0.86	0.61	0.37	0.13	0	
Residential	Wet	1.67	1.30	0.93	0.56	0.19	0	
	Dry	1.34	1.04	0.74	0.45	0.15	0	

Resolution R-307939, approved 12-17-2012

# Appendix G: Street Damage Fee Template

## STREET DAMAGE FEE CALCULATIONS

PROJECT NAME: \_\_\_\_\_

**Notes:**

- 1) Add a row for each street segment as needed
  - 2) Insert the information for column 1-10
  - 3) To determine the street classification and age of the street use the following link:  
<http://www.sandiego.gov/street-div/pdf/streetasphaltoverlayhistory.pdf>
  - 4) Use the table below to determine Cost/SF - column 4, and the excavation influence width- column 10
  - 5) If an overlap influence area in parallel trench use 1/2 distance between the utilities.
  - 6) Refer to diagrams on the Trench Cut Diagram Tab for typical trench scenarios.
  - 7) A readable copy (two pages if necessary) of the Street Damage Fee Calculation signed by the DCE must posted on the following link:  
<http://sdshare/forums/cip/projects/StreetDamageFeeCalculations/Forms/AllItems.aspx>
- Use the following naming convention WBS No-Name of Project-Date, **EXAMPLE: B12085-Water Sewer Group 966 (S) - 020314**

Approval of :

- Planning Estimate
- Design Estimate
- Construction Estimate

NAME  
BY DEPUTY CITY ENGINEER

Sign and Date

**Table 1: Typical main trench with laterals/services**

**Table 2: lateral/service only**

Street damage fee=Main fee +lateral/service fee

$$\text{Main Fee} = \pi I^2 + 2W_m I + L_m(2I + W_m) \times \text{COST SF}$$

$$\text{Lateral/Service Fee} = n[(W_L + 2I)L_L + W_L I + \pi I^2 / 2] \times \text{COST SF}$$

$$\text{Lateral/Service Fee} = (W_L + 2I)(L_L - I)n \times \text{COST SF}$$

DATE:	
Drawing Number:	
WBS #:	
Prepared by:	
Reviewed by:	

**Table 1**

Use for Main or Main with Laterals

1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Street Name	Street Classification	Age Group	Cost, \$/ft <sup>2</sup>	Main Trench Length (L <sub>m</sub> ), ft	Main Trench Width (W <sub>m</sub> ), ft	Number of Laterals (n)	Average Lateral/Service Length (L <sub>s</sub> ), ft	Lateral/Service Width (W <sub>L</sub> ), ft	Excavation Influence Width (I), ft	Main Influence Area, ft <sup>2</sup>	Lateral Service Influence Area, ft <sup>2</sup>	Total Influence Area, ft <sup>2</sup>	Street Damage Fee	
1	Plumosa Drive	Residential	>10 & <=15	0.72	1,094.00	3.00	16.00	20.00	1.00	6.17	16,938.58	2,951.88	19,890.46	14,321.13
1	Plumosa Drive	Residential	>10 & <=15	0.72	0.00	0.00	16.00	20.00	1.00	6.17	0.00	5,324.30	5,324.30	3,833.50
4														
1	Plumosa Drive	Residential	>10 & <=15	0.72	1,094.00	3.00	0.00	20.00	1.00	6.17	16,938.58	0.00	16,938.58	12,195.78
6														
7														
8														
9														
10														
	<b>Grand Total</b>													<b>30,350.41</b>

18,154.63

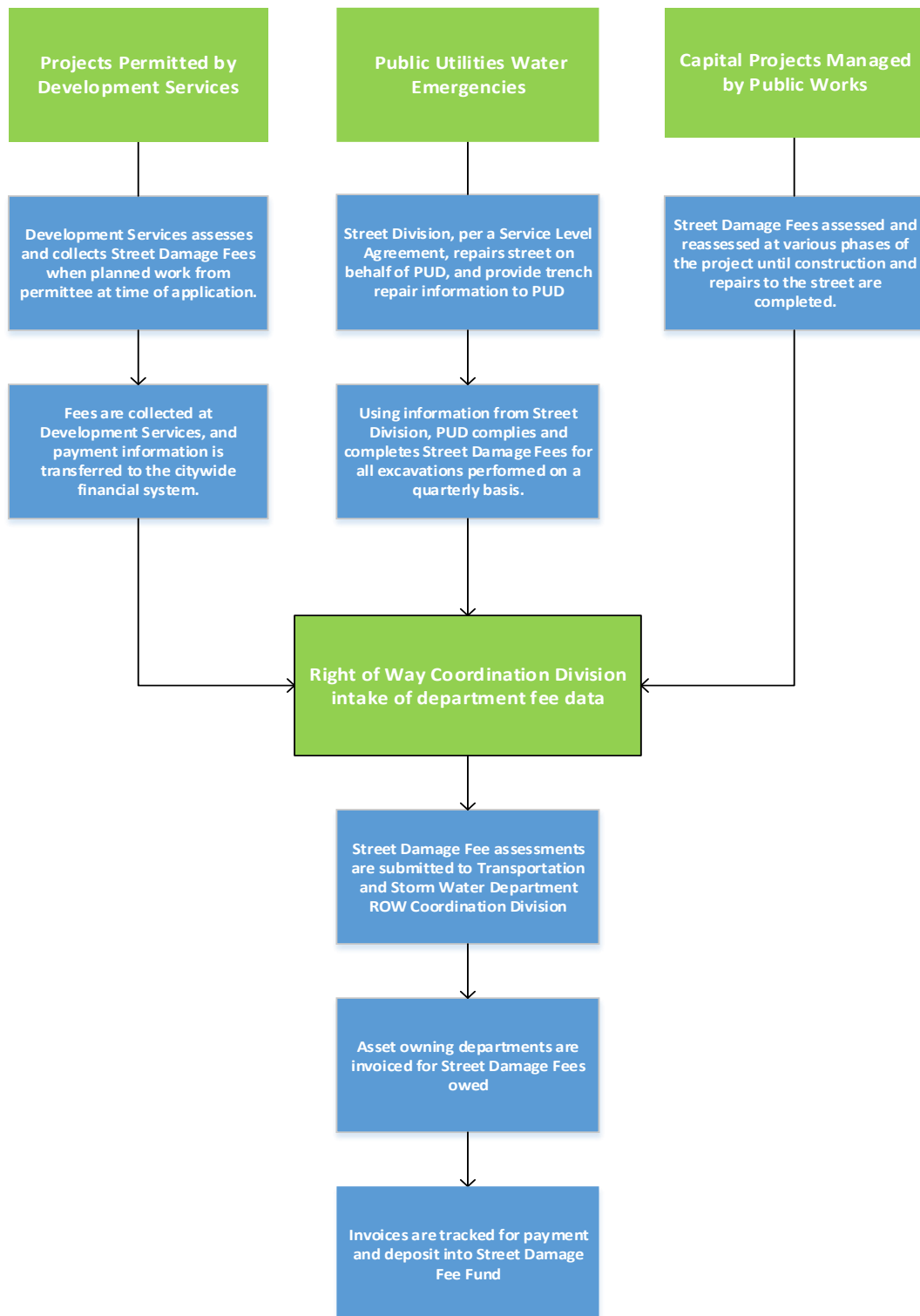
Street Classification	Utility Type	Age Group (Years)							Excavation Influence Width		
		<=5	>5 & <=10	>10 & <=15	>15 & <=20	>20 & <=25	>25	Street Classification	Wet Utility (ft)	Dry Utility (ft)	
Primary Arterial	Wet	2.80	2.01	1.21	0.41	0.00	0.00	Primary Arterial	5.17	4.25	
	Dry	1.95	1.39	0.84	0.28	0.00	0.00				
Major	Wet	1.93	1.38	0.74	0.28	0.00	0.00	Major	5.92	4.58	
	Dry	0.97	0.69	0.41	0.13	0.00	0.00				
Collector	Wet	3.94	3.06	2.19	1.32	0.45	0.00	Collector	6.83	3.58	
	Dry	1.10	0.86	0.61	0.37	0.13	0.00				
Residential	Wet	1.67	1.30	0.93	0.56	0.19	0.00	Residential	6.17	3.83	
	Dry	1.34	1.04	0.74	0.45	0.15	0.00				

- NOTES:**
1. This table is an excerpt from City of San Diego Municipal Code, Chapter 6, Article 2-Division 12.
  2. Primary arterial means prime on the Street Asphalt Overlay History report from Street Division.

Rev.: 12/04/2014



## Appendix H: Processes to Assess and Collect Street Damage Fees from Excavators in the Right-of-Way



Source: OCA.



THE CITY OF SAN DIEGO  
M E M O R A N D U M

DATE: March 3, 2016

TO: Eduardo Luna, City Auditor

FROM: Paz Gomez, Deputy Chief Operating Officer, Infrastructure/Public Works and David Graham, Deputy Chief Operating Officer, Neighborhood Services

SUBJECT: Management Response to the Performance Audit of the Street Preservation Ordinance

---

The purpose of this memorandum is to provide Management's responses to the Audit Report titled "Performance Audit of the Street Preservation Ordinance". The Audit's primary objectives were to:

- Determine if municipal and other excavators are adhering to the Street Preservation Ordinance's street moratorium waiver and excavation restoration requirements.
- Determine if the municipal and other public utilities are coordinating projects to minimize damage to streets.
- Determine if the City is assessing and collecting Street Damage Fees from all municipal and other excavators in the right of way.

The Audit Report provides recommendations to improve oversight of implementation of the Street Preservation Ordinance in order to help minimize impact to streets caused by excavations, and to ensure proper assessment and collection of Street Damage Fees. Below are the Departments' responses to the Audit's recommendations.

**Recommendation 1:** The Street Division should establish formal criteria and training for assessing the quality of work performed by City crews to ensure that the repairs performed for emergency excavations align with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and any other applicable regulations.

**Management Response:** We agree with the recommendation. The Transportation & Storm Water Department (T&SWD), Street Division, will develop a Standard Operating Procedure (SOP) and a training program for its street repair supervisors and crews to ensure knowledge and consistent application of trench repair standards and regulations. **Target implementation date: July 2016.**



**Recommendation 2:** To comply with the Street Preservation Ordinance, City Standard Drawings, the Service Level Agreement, and other applicable regulations, the Street Division should: In conjunction with Fleet Services, expedite acquisition of paving equipment; and hire additional street repair staff.

**Management Response:** We agree with the recommendation.

1. The Public Utilities Department (PUD) and T&SWD Street Division are working with Fleet Services Division to expedite acquisition of paving equipment. Several of the vehicles have already been ordered and are pending delivery. The remaining paving equipment will be expedited. **Target implementation date: June 2016.**
2. In recognition of these deficiencies, the Mayor's Fiscal Year 2016 Adopted Budget included funding for 12 additional positions in Street Division to perform the final mill-and-pave of trench repairs. Street Division has hired ten of the 12 new positions and the two remaining positions will be hired in the next few months for full implementation by Fiscal Year 2017. **Target implementation date: July 2016.**

**Recommendation 3:** The Public Utilities Department should develop written procedures requiring Water Construction and Maintenance Staff to determine whether an excavated street was under moratorium. When excavations occur on a moratorium street, staff should complete and submit a street moratorium waiver to the Transportation & Storm Water Right-of-Way Coordination Division. The Public Utilities Department should train appropriate staff on the procedures.

**Management Response:** We agree with the recommendation. In recognition of this deficiency, PUD, Water Construction and Maintenance Division, initiated steps and implemented new procedures in February 2016 to ensure compliance with the street moratorium waiver requirement. However, to further comply with Recommendation 3, PUD agreed to develop an SOP that outlines the waiver submission process and will provide necessary training to all appropriate supervisors and crewmembers. **Target implementation date: December 2016.**

PUD and T&SWD will collaborate to streamline the current process of statutory waiver for emergency water pipeline repairs and include any recommendations in the upcoming revisions to the Street Preservation Ordinance. **Target implementation date: December 2016.**

**Recommendation 4:** The Transportation & Storm Water Right-of-Way Coordination Division, should centralize the collection and maintenance of required Street Preservation Ordinance information, including Street Moratorium Waivers, using an automated process and leveraging existing resources, such as the Transportation & Storm Water Right-of-Way Coordination Division's existing SharePoint site.

**Management Response:** We agree with the recommendation. In working with the auditors in February 2016, T&SWD, Right-of-Way Coordination Division, initiated its existing SharePoint site to centralize collection and management of moratorium waivers, Street Damage Fee schedules, and all other documents associated with the Street Preservation Ordinance. The Division will communicate with and grant access to all project managers and supervisors tasked with preparation and execution of these documents to ensure all documents are routed through this centralized repository. **Target implementation date: April 2016.**

**Recommendation 5:** The Deputy Chief Operating Officer, Infrastructure, should direct departments responsible for oversight and management of projects to revise or enhance training

programs in order to clarify guidance related to AR 1.40 and the Street Preservation Ordinance. The training should include but not be limited to guidance on: Effective intra-departmental and inter-departmental communication; Conflict resolution roles and responsibilities; and Proper authority levels and escalation procedures as they relate to right-of-way conflict resolution.

**Management Response:** We agree with the recommendation. For several years, Public Works Department has hosted a training program to develop project managers. This Project Management Academy occurs semi-annually and includes the IMCAT process and conflict resolution. We will further enhance the training program to ensure all appropriate staff are properly trained and document all training provided to staff to ensure compliance with requirements of the Street Preservation Ordinance and AR 1.40. **Target implementation date: September 2016.**

**Recommendation 6:** The Transportation & Storm Water Department, Right-of-Way Coordination Division, in conjunction with the departments that assess Street Damage Fees, should implement a formal documented monitoring process which allows the Right-of-Way Coordination Division to verify Street Damage Fees for City Capital Improvements Program projects implemented by the Public Works Department, construction and maintenance performed or requested by the Public Utilities Department, and private excavation activities.

**Management Response:** We agree with the recommendation. T&SWD, Right-of-Way Coordination Division, initiated a process of documenting formal procedures in February 2016 to ensure Street Damage Fees are collected and accurate for all projects that are subject to the fee. The process will define roles and responsibilities for Division staff as well as other City staff who manage projects that have excavation activities. It will identify the tools necessary to determine the Street Damage Fee for a particular project and how the fee is collected from various entities. The process will also define procedures Division staff will utilize to verify accuracy of fees that are collected. In addition, the division is considering a number of improvements including enhancements to the City's project coordination and permitting systems to aid in the verification process. **Target implementation date: September 2016.**

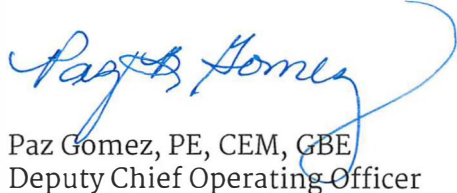
**Recommendation 7:** The Development Services Department should configure their new permitting system so it can identify and report on Street Damage Fees and the corresponding permits.

**Management Response:** We agree with the recommendation. Development Services Department will ask for this functionality to be incorporated into its new project management system. **Target implementation date: March 2017.**

**Recommendation 8:** The Public Utilities Department should formally document their procedures for assessing, and submitting Street Damage Fees for emergency excavations and other maintenance activities.

Page 4  
Eduardo Luna, City Auditor  
March 3, 2016

**Management Response:** We agree with this recommendation. PUD has a process in place to pay the Street Damage Fee on a quarterly basis. PUD will develop an SOP to document the process of assessing and submitting the Street Damage Fee for emergency excavations and other scheduled maintenance activities in the public right-of-way. PUD will finalize the SOP and provide necessary training to all appropriate staff. **Target implementation date: September 2016.**



Paz Gomez, PE, CEM, GBE  
Deputy Chief Operating Officer  
Infrastructure/Public Works



David Graham  
Deputy Chief Operating Officer  
Neighborhood Services

HY/rm

cc: Jaymie Bradford, Deputy Chief of Staff/Chief of Policy, Office of the Mayor  
Scott Chadwick, Chief Operating Officer  
Stacey LoMedico, Assistant Chief Operating Officer  
Mary Lewis, Chief Financial Officer  
Marshall Anderson, Director of Council Affairs, Office of the Mayor  
Katherine Johnston, Director of Budget & Infrastructure Policy, Office of the Mayor  
Kenneth So, Deputy City Attorney  
Rolando Charvel, City Comptroller  
Kris McFadden, Director, Transportation & Storm Water Department  
James Nagelvoort, Director, Public Works Department and City Engineer  
Halla Razak, Director, Public Utilities Department  
Robert Vacchi, Director, Development Services Department  
Vic Bianes, Assistant Director, Transportation & Storm Water Department  
Marnell Gibson, Assistant Director, Public Works Department  
Stan Griffith, Assistant Director, Public Utilities Department  
John Helminski, Assistant Director, Public Utilities Department  
Rania Amen, Deputy Director, Public Utilities Department  
Isam Hireish, Deputy Director, Public Utilities Department  
Gregory Hopkins, Deputy Director, Development Services Department  
Kristy Reeser, Deputy Director, Transportation & Storm Water Department  
Hasan Yousef, Deputy Director, Transportation & Storm Water Department