



# Memorandum

**TO:** TRANSPORTATION & ENVIRONMENT  
COMMITTEE

**FROM:** Katy Allen

**SUBJECT:** TRENCH RESTORATION UPDATE

**DATE:** 10-22-07

Approved

Date

10/25/07

**COUNCIL DISTRICT:** Citywide

## RECOMMENDATION

That the Transportation and Environment Committee:

- a) Accept this status report on trench restoration and benchmarking study on trench restoration methods in other major cities.
- b) Direct staff to evaluate ways to improve trench excavation and restoration methods and processes in the City of San José.

## EXECUTIVE SUMMARY

The intent of current Council Policy, ordinance, and construction specifications is to protect City streets from damage caused by trenching. Poor trench construction leads to reduction of the service life of pavement, poor rideability, and decreased aesthetic conditions.

Council Policy 8-6 has been in effect for almost 30 years, with just one update in 1990 to increase the quality of trench restorations and reduce the time that trenches remain open. It is timely to look at what other jurisdictions are doing and coordinate with the Department of Transportation on the impacts of utility trenches to our streets in order to develop procedures that maximize the life of our assets.

Based on our review of current policies, other jurisdictional practices, technical design standards and our inspection procedures, we recommend that staff work with the City Attorney's Office and outreach to utility companies and the development industry to better achieve the following results:

- a) Increase inspection oversight to ensure that all trench construction is in compliance with current standard specifications.
- b) Enforce current lifetime warranty provisions for utility companies with trenches in City streets.

## **BACKGROUND**

This memorandum responds to the Mayor's March 2007 budget message request for review and strengthening of the trench restoration guidelines to ensure that the entities responsible for excavating City streets restore the condition of the pavement.

There are approximately 2,300 miles of roadway in San Jose. Beneath these streets are underground utilities including storm and sanitary sewers, electrical services to street lights and traffic signals, natural gas pipelines, water (potable and non-potable), electrical and telecommunication lines, and the City's fiber optic inter-connect system. Other underground facilities are owned and maintained by utility companies such as PG&E, AT&T, Comcast, San Jose Water Company, Great Oaks Water Company, and other agencies including Caltrans, Santa Clara Valley Transportation Authority (SCVTA), and the Santa Clara Valley Water District (SCVWD).

### Existing Trench Excavation and Restoration Methods and Processes

The following documents govern trench excavation and restoration methods for the installation of facilities in City streets:

- City of San Jose 1992 Public Works Standard Specifications and Details
- San Jose Municipal Code Chapters 13.36 and 15.50 and Franchise Agreements
- Council Policy 8-6

### 1992 Public Works Standard Specifications and Details

The 1992 Public Works Standard Specifications and Details are the unified standard for trench restoration methods in City streets. Trench excavation and restoration methods are detailed in Sections 16, 19, 86, 90, and 1301 of the Standard Specifications and Details.

Trench excavation and restoration includes:

- The edge of trench outline is sawcut neatly in a line to avoid damage or cracks to adjacent pavement.
- Upon sawcutting, the trench is excavated using an excavator or other mechanical device.
- Before a conduit or pipe is installed in the trench, a layer of bedding material is placed to provide a cushion, as shown in Attachment A. This helps prevent future settlement and failure of the trench.
- The trench is backfilled and compacted to the bottom of an existing pavement section using approved materials such as cement sand slurry

- The roadway pavement section is repaved with approved Asphalt Concrete mix. This pavement section is paved in two phases to achieve adequate compaction. Once the trench is paved to the finish grade (flush with existing pavement), the existing pavement is removed approximately one inch down, a minimum of six inches on either side beyond the trench walls, and the final surface is paved to match existing surface finish.
- In cases where the trench edge is within twenty-four inches of an existing trench or lip-of-gutter, that section is removed and replaced as part of the surface restoration.

### San Jose Municipal Codes, Chapters 13.36 and 15.50 and City Agreements

Utility companies, developers, private property owners, and other public agencies are required to obtain encroachment permits from the City when trenching or placing their facilities in the public right-of-way. Encroachment permits are issued pursuant to San Jose Municipal Code (SJMC) Chapter 13.36 and SJMC Chapter 15.50 and agreements between CSJ and the permitted entity which incorporate the provisions of Chapter 13.26 and Chapter 15.50 (e.g., franchise agreements with utility companies and easements with other public agencies). The SJMC and related agreements require the permittee to adhere to the same trench restoration standards and practices set forth in the Standard Specifications mentioned above. The two SJMC chapters relate to trenching and excavation as follows:

#### 1. Chapter 13.36 – Public Works Street Permits

Under this chapter of the SJMC, a revocable encroachment permit is issued to developers, private property owners and other public agencies for work in the public right-of-way. The permit is valid for up to one year depending on permit type and project scope. The projects that are subject to this chapter are inspected regularly to ensure compliance with City requirements for trench restoration and surface paving.

#### 2. Chapter 15.50 – Excavation Encroachment Permit

Utility companies are required by the SJMC, Chapter 15.50 to obtain an encroachment permit prior to excavating city streets. Utility companies are also regulated by the State. The City's regulatory authority over these entities that are working in the streets is limited to the imposition of reasonable "time, place and manner" restrictions.

There are three types of permits issued to utility companies to work in the public right-of-way:

- Minor Permits - for work that constitutes emergency work, repair of underground or aboveground utility infrastructure, and regular routine maintenance service on minor streets than can be completed in short period of time.
- Major Permits – for work which does not qualify for a minor permit and can be completed in less than 30 days.
- Special Permits - for work that requires more than 30 days to complete.

These permits are valid for six months from the date of issuance and are inspected regularly to ensure compliance with City requirements for trench restoration and surface paving. The permittee is responsible for trench and surface conditions and any necessary traffic control during the time their facilities remain within the trench.

Utility companies that maintain trenches with City streets are subject to a lifetime “warranty” for the surface condition of those trenches. The nine member Utilities Section staff in the Department of Public Works issue “Deficiency Permits” to utility companies to notify them of needed restoration of their deteriorated trenches. Staff issued of 250 Deficiency Permits in the last two years in order to ensure the restoration work was completed to established standards. Communication with the Department of Transportation is key to avoiding the City expending resources to maintain trenches that are the warranty responsibility of a utility company.

### Council Policy

Council Policy #8-6, Utility Excavations (Attachment B), was adopted in 1979 to provide as additional guidelines related to utility excavations. This policy applies to public utility companies working in the public right-of-way. Some of the key provisions pertaining to trench restoration are:

- The time that excavations remain open shall be held to minimum
- Restoration of trenches must meet current minimum City specifications
- Pavement cuts will be made by power saw methods only
- Street crossings will be bored and jacked under the pavement.
- A two-year moratorium on newly paved or resurfaced street, except for emergencies and development related utility cuts.
- Each trench cut shall be permanently paved within 30 days of the date of backfilling the trench.

### ANALYSIS

#### Benchmarking

City staff conducted a benchmarking study on trench restoration materials with major cities in California, including the County and City of San Francisco, Los Angeles, San Diego, and Palo Alto. A report on the benchmarking is provided in Attachment C. The trench restoration materials described in the study were found in each of the cities standard specifications.

Based on the benchmarking study, San Jose's trench restoration materials and construction methods are similar to the requirements of other cities. Final surface asphalt concrete pavement thickness varied from 1/8 inch to 2 inches among the agencies questioned. Therefore, the City's materials and construction requirements are of comparable quality to all other four agencies and consistent with the practices of the other jurisdictions. Staff believes that these results indicate that the materials required to be used by CSJ are appropriate for trench excavation and restoration projects in CSJ.

#### Improvements to Existing Trench Excavation and Restoration Methods and Processes

Staff also believes that the existing trench excavation and restoration methods and processes are comprehensive and provide staff with a number of mechanisms to ensure that the excavation and restoration of City streets is completed to City standards. However, staff would like an opportunity to review and evaluate ways to improve the existing methods and processes.

Staff is considering changing the current trench excavation and restoration structure is through revisions to the Standard Specifications. Public Works staff is currently working to update and revise the Standard Specifications and Details. The estimated date of completion for this update is late 2008 and staff is considering whether updating the current trench restoration details should be a part of this effort.

Staff is also considering whether the time limits for encroachment permits should be modified as a way to minimize disruption in CSJ streets. Utility companies are responsible for the majority of trench cuts in existing streets. Each year, the Utilities Section issues approximately 2,200 utility permits impacting City streets. This is primarily due to the demand for new or upgraded services, technology advances and the replacement of aging infrastructure. Utility companies are required to obtain encroachment permits prior to excavation. Currently, the major and minor permits are valid for up to six months from the date of issuance. Staff is evaluating whether these time limits can be modified and whether shorter time periods would result in less disruption of CSJ's streets.

Staff is also evaluating whether there are other provisions in the encroachment permit process which could be modified to provide the City with additional control over trenching restoration in the right-of-way. In addition, staff is considering options to increase the level of inspection associated with utility permit work.

#### Council Policy 8-6

Staff will continue to actively enforce provisions in the current Utility Excavation Policy while evaluating existing methods and processes, which include the two-year moratorium prohibiting the excavation of newly paved or resurface streets. Staff will also continue to coordinate with the Department of Transportation's street paving and resurfacing projects.

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### **EVALUATION AND FOLLOW UP**

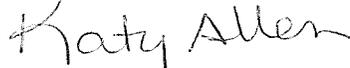
In reviewing the materials and methods of trench restoration, it appears that current practices are comparable to other California cities sampled in the benchmark study. In the coming year, staff will conduct a review of the existing trench excavation, restoration methods, processes, CSJ's trench restoration materials, and make recommendations to this Committee. As part of the process, staff will hold meetings with stakeholders such as the various Development Roundtable groups and local public utility companies.

### **COORDINATION**

This memo is being coordinated with the Department of Transportation and the City Attorney's Office.

### **CEQA**

Not a project.



KATY ALLEN

Director, Public Works Department

For questions, please contact TIMM BORDEN, DEPUTY DIRECTOR, at (408) 535-8499.

MO:SK:ay

TrenchRestoration T & E Memo

Attachments:

Attachment A – City Council Policy #8-6

Attachment B – Benchmarking Study

Attachment C – Trench Backfill and Restoration Method Detail, Detail A

CITY OF SAN JOSE, DEPARTMENT OF PUBLIC WORKS, ENGINEERING SERVICES, UTILITIES SECTION  
**TRENCH BACKFILL & SURFACE RESTORATION METHODS**

**METHOD A**

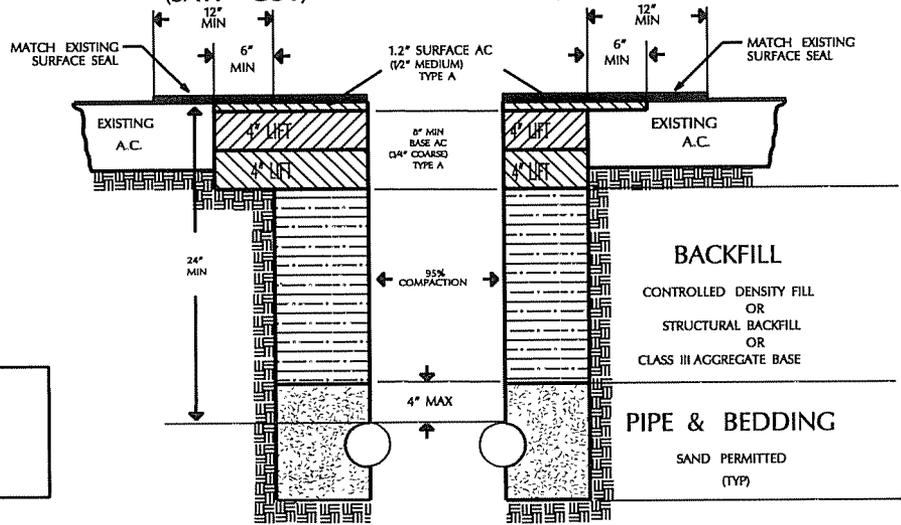
(SEE NOTES BELOW)

**OPTION #1:**  
(SAW CUT)

OR

**OPTION #2:**  
(1.2" DEEP GRIND)

- a) POT HOLES
- b) MAJOR ST. TRENCHES
- c) MINOR ST. CROSSINGS
- d) LATERAL TRENCHES



6" T-CUT IS REQUIRED, AND CAN BE EITHER:  
**OPTION #1:** FULL DEPTH A.C. REMOVAL  
 OR  
**OPTION #2:** 1.2" MIN DEEP GRINDING

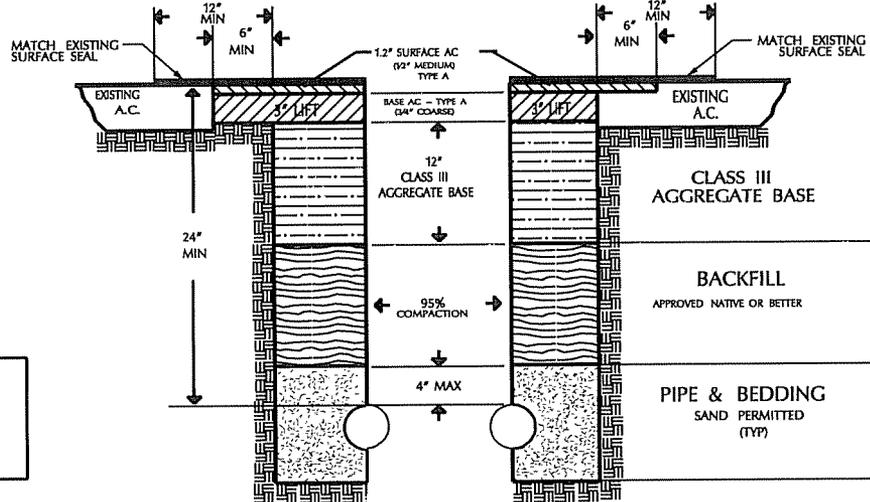
**METHOD B**

LONGITUDINAL TRENCHES  
 ON MINOR STREETS

**OPTION #1:**  
(SAW CUT)

OR

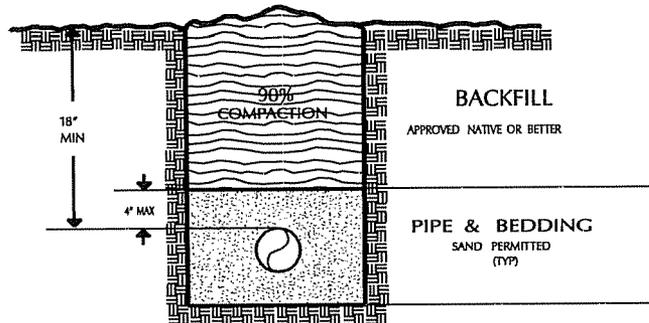
**OPTION #2:**  
(1.2" DEEP GRIND)



6" T-CUT IS REQUIRED, AND CAN BE EITHER:  
**OPTION #1:** FULL DEPTH A.C. REMOVAL  
 OR  
**OPTION #2:** 1.2" MIN DEEP GRINDING

**METHOD C**

FOR USE IN DIRT AREAS OUTSIDE THE  
 PAVED TRAVELLED WAY  
 (LANDSCAPED AREAS, PARK STRIPS, ETC.)



**NOTES:**

- A) SAW CUT FULL DEPTH OF EXISTING AC BEFORE EXCAVATION (SEE OPTION #1) OR OPTION #2). JACKHAMMERING PERMITTED ONLY FOR EMERGENCY REPAIRS.
- B) WHENEVER THE TRENCH EDGE IS WITHIN 12" OF THE LIP OF GUTTER, REMOVE AND REPLACE THE ENTIRE DEPTH OF AC BETWEEN THE TRENCH WALL AND THE LIP OF GUTTER.
- C) WHENEVER THE TRENCH EDGE IS LESS THAN 24" FROM THE LIP OF GUTTER, GRIND A MINIMUM OF 1.2" DEEP FROM THE LIP OF THE GUTTER TO 12" BEYOND THE FAR TRENCH WALL. PLACE THE 1.2" SURFACE AC.
- D) MATCH EXISTING SURFACE SEAL (CAPE-SEAL, SLURRY-SEAL, ETC.) A MINIMUM 12" FROM TRENCH WALL AFTER PLACING FINAL AC LIFT.

REV. 10/18/07 BY L. RUIZ

COUNCIL POLICY

TITLE UTILITY EXCAVATIONS	PAGE 1 OF 3	POLICY NUMBER 8-6
	EFFECTIVE DATE	REVISED DATE 1/23/90
APPROVED BY Council Action - October 2, 1979 January 23, 1990, Item 7g(1)(a)		

BACKGROUND

Public utility companies are currently required by City Ordinance No. 18384 to obtain a permit before making excavations or cuts in City streets. The Department of Public Works has been assigned the responsibility of checking and approving utility excavation plans, issuing the necessary permits, and inspecting the completed projects to ensure that pavement restorations are accomplished in accordance with City standards.

In June, 1989, the City Council directed that existing policies for utility excavations be examined to determine if the quality of restorations could be improved and the time that trenches are open could be reduced. Subsequently, the Council directed that improved utility excavation procedures be developed.

PURPOSE

To establish City policy so that utility excavations of City streets and their restoration are made in conformance with City specifications.

POLICY

It is the policy of the City of San Jose that a program be established to standardize the process for 1) making utility excavations or cuts in City streets, and 2) for restoring such excavations to City specifications.

This program shall be administered by the Director of Public Works to assure that excavation of City streets and their subsequent restoration is conducted in accordance with the following provisions:

1. Plans for excavating and restoring City streets must be submitted to and approved by the Director of Public Works before a utility excavation permit is granted.
2. Plans for utility excavations must provide for minimal disruption of pedestrian and vehicular traffic.
3. A City permit must be obtained before excavation of a City street may begin.
4. The time that excavations remain open shall be held to a minimum.
5. Restoration of excavated City streets must satisfy the Director of Public Works.

TITLE	PAGE	OF	3	POLICY NUMBER
UTILITY EXCAVATIONS	2	OF	3	8-6

### RESPONSIBILITY

The Director of Public Works, under the direction of the City Manager, shall be responsible for the administration of this City program.

### IMPLEMENTATION

The Director of Public Works shall establish and maintain a program to control and direct utility excavations of City streets and their restoration as authorized and directed by the City Council. Specifically, the program shall institute quarterly meetings attended by utility company representatives and representatives from affected Public Works divisions and other City Departments to discuss and coordinate activities associated with:

1. Planned projects for the next 12 months
2. Planned projects for the next 90 days
3. Unplanned "emergency" projects
4. Complaints arising from project activities.

To aid in achieving program objectives, the City shall assign City inspectors to inspect utility excavation projects.

In addition, the following conditions, unless specifically waived by the Director of Public Works, shall apply to utility excavations and restoration of City streets:

1. Restoration of trenches must meet current minimum City specification.
2. During construction, pedestrian traffic will be given the greatest consideration for safety and ease of access.
3. Utility companies shall color code their trenches and potholes during and after final paving. This color code shall be a two-inch-in-diameter permanent dot on each corner of the trench or at every 50 feet for trenches longer than 100 feet.
4. The utility companies shall implement appropriate traffic control specifications associated with each issued City permit. This may include the use of reserve police officers when working in a signalized intersection and requiring that work on certain streets be scheduled for either weekend or night work.

TITLE	PAGE	POLICY NUMBER
UTILITY EXCAVATIONS	3 OF 3	8-6

5. Pavement cuts will be made by power saw method only, except for narrow trenches. For narrow trench excavations, six inches wide or less, a rock wheel trencher shall be used.
6. Street crossings will be bored and jacked under the pavement as required by the Director of Public Works.
7. Except for emergency and development-related utility cuts, there shall be no utility excavations for 24 months from the date of completion of the paving, repaving, and/or resurfacing of a street. For violation of this provision, the Director of Public Works shall assess additional cost recovery fees or require additional repaving of a portion of the excavated street.
8. Unless otherwise directed by the Director of Public Works, each trench cut shall be permanently paved within 30 days of the date of backfilling the trench.
9. Unless otherwise authorized by the Director of Public Works, no traffic lane shall be restricted after working hours.

**ATTACHMENT C - Benchmarking Study**

<b>Cities</b>	<b>Specification Analyzed</b>		
	<b>Bedding</b>	<b>Backfill</b>	<b>Pavement</b>
<b>City of San Jose</b>	Sand	Controlled Density Fill (CDF) Structural Backfill or Class III Aggregate Base	1/2 inch Medium Type A of Asphalt Concrete
<b>City and County of San Francisco</b>	Sand	Native fill free of Organic Material or Concrete Slurry or Class II AB Controlled Density Fill (CDF)	1.5 inch minimum of Asphalt Concrete Wearing Surface (ACWS)
<b>City of Los Angeles</b>	Sand	Concrete Slurry	Portland Cement or Asphalt Concrete - 1 inch greater than existing pavement
<b>City of San Diego</b>	Sand or Cement Slurry	Sand or Concrete/Cement Slurry	1/8 inch to 1/4 inch of Class F Asphalt Concrete
<b>City of Palo Alto</b>	Sand or Class I, Type A & B or Graded Granular Material Controlled Density Fill (CDF)	Sand or Class 2 Aggregate Base or Graded Granular Material per Caltrans Std. Specs. or Clean Quarry Fines or Controlled Density Fill (CDF)	8 inch minimum of Class 2 Aggregate Base and 2 inch Asphalt Concrete whichever is greater