

PAVEMENT CUT AND REPAIR STANDARDS

DEPARTMENT OF PUBLIC WORKS

CITY OF SHREVEPORT, LOUISIANA
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PROCEDURES FOR REPLACING OR REPAIRING PAVEMENT CUTS

The City of Shreveport is preparing to create a much-needed comprehensive right-of-way management ordinance. It is the desire of the City of Shreveport to develop a balance between the need to service its citizens with essential utilities and new technology and the preservation of street infrastructure. The new procedure incorporates many positive changes reflecting the interest of the city to provide safe and well-maintained streets. This procedure is intended to promulgate the technical criteria and details necessary to implement the provisions of the Shreveport City Charter:

Article 2. – Powers

Section 2.03 Powers relating to Public Works, utilities, and properties

- (f) To establish the conditions under which any person, firm, corporation, or department or agency of the city will be permitted to cut the surface of any street, alley, sidewalk or other public place for the purpose of laying therein rails, pipes, conduits for wires or other facilities, which conditions shall require the street to be restored to its original condition at the cost of such permittee.
- (g) To make regulations for the prevention of injury to any street, alley, sidewalk or public place, and the pavement, curb, gutter, trees, plants, shrubs, ornamental lighting fixtures, traffic signs and signals and other property of the city therein.
- (h) To grant franchises for the use of the streets, alleys, sidewalks, or other public places of the city by any public utility for its pipes, conduits, rails, poles, wires, cars, buses and other facilities on such conditions and for such term, conformable to the constitution and general laws of the state, as the council may determine.
- (i) To regulate the location of rails, pipes and wire-carrying poles in the streets, alleys, sidewalks or other public places of the city; to regulate the stringing of wires on such poles; and to compel the removal of such poles and the placing of such wires beneath the ground wherever in the opinion of the council the public interest shall so require.

The City is authorized to administer and enforce the provisions of the article and to promulgate regulations, including but not limited to engineering, technical, and other criteria and standards, to aid in the administration and enforcement of the article.

It is the intent of the Department of Public Works to keep this procedure current as to the latest materials, methods, and techniques that are acceptable for pavement cut and repair and for any other changes or additions that may be made. The latest update will be noted on the face of the document.

I. INTRODUCTION

This procedure will establish the standards and process details for implementation of Article 2 of the Shreveport City Charter "Powers relating to public works, utilities, and properties." A copy of this Article is attached and shall govern all pavement cuts, repairs, and excavations in city public rights-of-way and public easements. The ultimate goal of this procedure is to maintain a high standard for the restoration of city public rights-of-way and public easements, to avoid damage to other utilities or improvements, and to provide safety and convenience for the public. It is not intended to interfere with the utility's type of construction or equipment used. The following is a list of other goals that should be utilized:

1. Maximize protection of the public and work force during construction;
2. Minimize inconvenience and disruption to adjacent landowners;
3. Provide quality pavement repairs and replacements;
4. Minimize future maintenance cost to the City;
5. Minimize time of lane closures or restrictions and interruption of traffic flow.

II. STREET EXCAVATION AND INSTALLATIONS

- 1) The removal and replacement of portions of existing concrete pavement, drives, slabs, sidewalks, etc., shall require breakout lines to be sawed by the use of an approved power driven concrete saw in accordance with this specifications and details shown on the plans or as directed by the city engineer or his designee. Locations shown on the plans are indicative only of the need for grooves, and where designated locations coincide with or fall within three (3) feet of the present location of either dummy joints, construction joints, or expansion joints, breakout shall be to existing joints. In this case, there will be no necessity for cutting additional saw lines. Sawed breakout lines shall be cut perpendicular to the surface of the pavement and shall be sawed full-depth to form a neat breakout line in the pavement when the pavement is removed. Removal and replacement of sidewalks shall be to the nearest existing joint not damaged by the construction. Street and alley pavement removals shall have no horizontal dimension less than three (3) feet and in concrete pavements shall not leave any existing portion of pavement in place less than three (3) feet as measured to the nearest joint or edge of pavement except that for curb and gutter. A gutter of at least 12 inches may remain, provided that the curb and gutter is not damaged by the construction activity.
- 2) Excavation in city street or alley pavements should begin with an air-hammer shovel, a pavement breaker, or other equipment that will not damage the pavement outside an approximate width of the opening prior to beginning excavation operations. If the excavation is to pass under an existing curb in which there is no dummy/expansion joint, the utility/contractor may saw cut a smooth line one (1) foot beyond each side of the disturbed base. If no damage to curb is evident to the City representative, the utility/contractor may pump concrete under curb and gutter for cuts less than one (1) foot wide. The city representative, prior to concrete being placed under existing curb and gutter, will make this determination.

- 3) The following additional requirements shall govern installation:
- (a) All pipe, conduit, line, or other conveyance of utility service shall have at least 3 feet of cover below the roadway. All lines, pipes, conduits, etc. shall be marked with standard marker tape for future locating.
 - (b) Following removal of any excess water and mud from the excavation, the utility can be installed per utility requirements. All excavations shall be backfilled with acceptable materials in the required lifts and to the required densities provided in the "Backfill Operations" section of this manual
 - (c) All subgrades, subbases, and pavements excavated or damaged by the repair activity shall be restored as provided in the "Pavement Repairs" section of this manual.
 - (d) The responsible person shall provide a landscape protection plan during the term of the construction to minimize damage to existing landscape and facilities. All damaged trees, shrubs or ground covers shall be restored or replaced. Replaced ground cover and seeded areas shall be fertilized and watered and maintained as required until lawn areas are reestablished. Irrigation systems shall be repaired to pre-construction condition and extent.
 - (e) The responsible person shall repair or replace all damaged or removed traffic control devices in accordance with city standards to the pre-construction condition and extent as required by the city engineer or his designee.
 - (f) In the event that it is necessary to place a temporary surface on any cut opening, the temporary surface shall be composed of hot mix asphalt or cold mix paving materials. Gravel or aggregate surface course material shall not be used as a temporary surface on any excavation unless the preexisting street surface was gravel or aggregate surface course. Hot mix asphalt may be required by the representative for certain repairs to maintain good driving conditions. Temporary surfaces shall be adequately compacted to prevent deterioration of repair during the temporary period. The temporary surface shall be replaced with permanent repair within 14 calendar days.
 - (g) If the excavation is to be covered, the contractor shall use steel plates of sufficient strength and thickness to support all traffic. The plates must be sufficiently secured in place so as not to become dislodged or in any way cause a hazard to traffic. Asphalt transitions shall be placed as required to provide an acceptably smooth riding surface.
 - (h) Any temporary surface that fails to provide a non-deteriorating riding surface or fails to meet the requirements of these specifications shall be removed and replaced at the city engineer or his designee's discretion, at the responsible person's expense. The city engineer or his designee must approve any exceptions to these provisions.
 - (i) The city engineer or his designee will notify the responsible party of unacceptable work or work that settles or fails in accordance with the procedure outlined in the city ordinance.

III. BACKFILL OPERATIONS

- 1) Backfill operations shall commence as rapidly as is consistent with high quality workmanship and materials. If the excavation cannot be backfilled to create a temporary surface by the end of the working day, the excavation shall be covered with steel plates of sufficient strength and thickness to support all traffic.

- 2) Backfill shall be completed to the elevation of the bottom of the pavement section in accordance with the "Pavement Repairs" section of this manual.
- 3) The city engineer or his designee shall have the authority to direct any entity or contractor to use excavatable flowable fill to backfill an excavation in the city public right-of-way in the interest of preserving the public convenience or safety.
- 4) All excess water and mud must be removed from the excavation prior to backfilling. Any backfill placed during a rainy period or at other times where excess water cannot be prevented from entering the excavation shall be considered temporary and must be removed as soon as weather permits.
- 5) Following removal of any excess water and mud from the excavation, the excavation shall then be backfilled with select materials from the excavation or with excavatable flowable backfill material as follows:
 - a) For all excavations and pavement cuts exceeding width and length of five (5) feet, backfill shall use select materials from the excavation. Excavated material used in backfilling shall be select soil free of organic or other deleterious materials and have a maximum particle size of less than three (3) inches. Excavated material may not be used if it is water saturated. If excavation materials are not acceptable, then import borrow material or excavatable flowable backfill material shall be used for backfill as provided in this manual. In the event rock is encountered, the rock excavation can be used for backfill provided it meets the size requirements above. During freezing weather where repairs must be made to restore or maintain service, crushed stone may be used when approved by the city engineer or his designee for backfill.
 - b) That portion of backfill, which will not support any portion of any sidewalk, driveway, or roadway, shall be placed in maximum loose lift heights of 8 inches and compacted to at least 90% of the Standard Proctor (ASTM D-698) maximum dry density.
 - c) That portion of the backfill which lies below any portion of sidewalk, driveway, alley, roadway, or other pavement shall be placed in maximum loose lift heights of 8 inches and compacted to at least 95% of the Standard Proctor (ASTM D-698) maximum dry density.
 - d) The backfill material shall be adjusted to within a range of -2 to +2 percent of the optimum moisture content.
 - e) If hand pneumatic tampers are used, the backfill shall be placed in maximum loose lift heights of 3 inches and thoroughly tamped in place.
 - f) The backfill shall be placed in uniform layers completely across the excavation and compaction shall progress in an orderly and uniform manner. Utmost care must be taken in tamping in this manner to prevent damage to the conduit.
 - g) All pavement excavations equal to or less than five (5) feet in length or width shall be backfilled with excavatable flowable backfill material, unless the city engineer or his designee authorizes an alternate backfill method and material.
 - h) Excavatable flowable backfill material shall be a controlled density material consisting of cement and/or fly ash, fine aggregate, water, entrained air, and appropriate admixtures. Excavatable flowable backfill material shall be in accordance with the specifications of Section 710 of the Louisiana Standard Specifications for Roads and Bridges, 2016 Edition.
 - i) The use of flooding as a means of obtaining compaction of backfill shall not be allowed on existing public streets, alleys or sidewalks.

- 6) The permittee will be required to provide, at their expense, a certified construction materials testing lab acceptable to the City of Shreveport to perform the appropriate tests to ensure quality control for the backfill and pavement construction phases. The results from compaction tests shall be supplied to the City within three days of the backfill work completion and before pavement construction begins.
- 7) The City may perform, or have performed, any material tests needed as indicated by the situations described below:
 - a. Visual inspection by the representative shows poor quality of workmanship or materials.
 - b. Any other unusual circumstances that cause the Representative to doubt the quality of work.All laboratory tests or retests shall be the responsibility of the permittee doing the work, at his sole expense.
- 8) Compaction testing will not be required where excavatable flowable backfill is used and accepted for the excavation backfill.

IV. PAVEMENT REPAIRS

- 1) Pavement repairs are to be made as rapidly as is consistent with high quality workmanship and materials. Use of high early strength concrete and similar techniques is encouraged insofar as possible without sacrifice of the quality of the repair. Unless otherwise allowed by the city engineer or his designee, excavations in thoroughfares, collectors, and streets located in the Central Business District must be backfilled and compacted or properly plated within 24 hours.
- 2) All materials used to replace pavement base and pavement shall be in accordance with the requirements of this manual, the Standard Specifications for Infrastructure Improvements, and the City Standard Plans for Infrastructure Improvements.
- 3) All permanent patches and repairs shall be appropriate to the surface course. For example, concrete pavement repairs shall be required for streets with concrete surfaces, asphalt surface course over concrete base shall have an asphaltic surface course, etc. In no case shall there be an asphalt repair in a concrete street or a concrete repair in an asphalt street.
- 4) The size of the street repair area will typically always be larger than the size of the excavated area.
- 5) Replacing Concrete Pavement: The pavement shall be repaired in accordance with Standard Plans 509-10, 509-11, and 509-12. The existing pavement shall be cutback and removed at least 12 inches on each side of the undisturbed banks of excavation. Removal shall be to the nearest joint if within 48 inches of a joint. The backfill shall be brought up to the elevation of the bottom of the pavement section and satisfactorily compacted in accordance with the "Backfill Operations" section of this manual. A minimum of six (6) inches of base course aggregate shall be placed and compacted to at least 95% of the Standard Proctor (ASTM D-698) maximum dry density. Contractor shall drill and epoxy new dowel bars or tie bars. Toeing under the existing concrete pavement is an option for older pavements. The concrete pavement shall be replaced using the appropriate class of concrete as provided the Standard Specifications for Infrastructure Improvements. The concrete pavement shall match the finish and thickness of the existing pavement, but street and alley pavements shall be not less than the following:
 - a) Six (6) inches for alleys and driveways.

- b) Eight (8) inches for local streets, residential collectors, and commercial driveways. (Local streets are typically residential streets with a width not exceeding 26 feet and not on a bus route.)
- c) Ten (10) inches for thoroughfares, collectors, and streets located in the Central Business District.

All concrete construction specified herein shall be protected from vehicular traffic, including vehicles of the contractor, until the concrete is not less than seven (7) days old unless high early strength concrete is approved for use. A compressive strength of at least 3,000 psi shall be achieved before vehicular traffic is allowed on the new pavements. Any joints shall be sealed in accordance with the Standard Specifications for Infrastructure Improvements.

- 6) Replacing "Full Depth" Asphaltic Concrete Pavement on Rigid Base: The pavement shall be repaired in accordance with Standard Plan 509-10. The existing pavement shall be cutback and removed at least twelve (12) inches on each side of the undisturbed banks of excavation. The backfill shall be brought up to the elevation of the bottom of the pavement section and satisfactorily compacted in accordance with the "Backfill Operations" section of this manual. A minimum of six (6) inches of base course aggregate shall be placed and compacted to at least 95% of the Standard Proctor (ASTM D-698) maximum dry density. Contractor shall drill and epoxy new dowel bars or tie bars. Toeing under the existing rigid base is an option for older pavements. The total thickness of the rigid base and asphaltic surface course shall match the existing thickness. A minimum thickness of eight (8) inches shall be used when the existing thickness is less than eight (8) inches. The asphaltic concrete thickness shall match the existing asphaltic concrete thickness, and the rigid base thickness shall be adjusted to meet the total thickness requirements above.
- 7) Replacing Asphaltic Concrete Pavement on Flexible Base: The pavement shall be repaired in accordance with Standard Plan 509-10. The existing pavement shall be cutback and removed at least four (4) inches on each side of the undisturbed banks of excavation. The backfill shall be brought up to the elevation of the bottom of the pavement section and satisfactorily compacted in accordance with the "Backfill Operations" section of this manual. The total thickness of the base course aggregate and asphaltic surface course shall match the existing thickness of the pavement section. A minimum of six (6) inches of base course aggregate shall be placed and compacted to at least 95% of the Standard Proctor (ASTM D-698) maximum dry density. The asphaltic concrete thickness shall be a minimum three (3) inches.
- 8) Replacing "Full Depth" Asphaltic Concrete Pavement on Natural Soil Base: The existing pavement shall be cutback and removed at least four (4) inches on each side of the undisturbed banks of excavation. The backfill shall be brought up to the elevation of the bottom of the pavement section and satisfactorily compacted in accordance with the "Backfill Operations" section of this manual. Excavatable flowable fill shall be used to create base for the asphaltic concrete pavement. The thickness of the excavatable flowable fill base shall not be less than eight (8) inches. Upon completion and curing of the excavatable flowable fill base, the asphaltic concrete surface course can be installed. The asphaltic concrete thickness shall match the existing thickness. A minimum thickness of three (3) inches shall be used when the existing thickness is less than three (3) inches.
- 9) Replacing Special Pavement: Special Pavements are those with a surface of brick, stone, exposed aggregate, manufactured paving blocks, or other surfaces designed to present unique visual images,

color, or designs. Cuts or excavations in these special pavements shall be avoided whenever possible, by utilizing boring or tunneling. When a cut or excavation in a special pavement in the city public right-of-way is unavoidable, the contractor shall, in addition to complying with the requirements of all applicable preceding repair standards, take whatever additional measures are necessary to restore the pavement area to a condition equal to or better than the preexisting condition. Removal shall be from joint or back of curb to joint or back of curb. Saw cutting of special pavements shall not be permitted. To establish the preexisting condition of the pavement prior to the cut or excavation, the contractor may take pictures before the work begins. The presence of a photograph taken prior to the actual repair activity shall not relieve the contractor of the responsibility to correct any damage to special pavements caused by the condition of the utility facility or the repair activity. All pavement restoration shall be to the satisfaction of the city engineer or his designee and entirely at the contractor's expense. The contractor shall match the existing pavement section thickness. The contractor shall match the color, texture, and pattern of the existing pavement. Any joints shall be sealed in accordance with the Standard Specifications for Infrastructure Improvements.

- 10) Replacement of Curb and Gutter, Sidewalk, and Alleys shall be as follows: Construction of curb and gutter, sidewalk, and alley pavement its related base support shall be in accordance with the Standard Specifications for Infrastructure Improvements. Structural Class A concrete shall be used to replace curb and gutter, sidewalk, and median concrete pavement. Concrete for integral curbs shall be Class A or the same type of concrete used in the road pavement. Pavement Class B concrete shall be used to replace cuts in concrete alley pavement. Alley pavements shall be restored using like materials in accordance with the pavement details provided in this manual. Any joints shall be sealed in accordance with the Standard Specifications for Infrastructure Improvements.
- 11) Core holes and utility potholing shall be repaired as follows:
 - a) For core holes in concrete pavement, the hole shall be filled with a non-shrink grout having a compressive strength of 4,500 psi after 28 days. The grout material used shall be compatible with the existing surface in color and texture and shall seal the hole to prevent the intrusion of moisture into the subgrade. If the core hole passes into the subgrade, the subgrade shall be tamped to provide pavement support prior to filling with grout.
 - b) For core holes in asphalt pavement, hot mix fine graded surface course asphaltic concrete tamped in place shall be used in place of the non-shrink grout.
 - c) Excavations for potholing to expose underground utilities shall be backfilled with excavatable flowable fill prior to completing surface repairs.
 - d) The surface of the completed repair shall have no indentions, pockets, or recesses that may trap and hold water, nor have bumps or high places. The completed surface shall match the grade of the existing pavement surface.
- 12) The permittee will be required to provide, at their expense, a certified construction materials testing lab acceptable to the City of Shreveport to perform the appropriate tests to ensure quality control for the pavement repairs. The results from pavement tests shall be supplied to the City within one week of completion of the project.
- 13) Specifications for pavement testing shall meet the requirements contained in the applicable provisions of the Standard Specifications for Infrastructure Improvements.

V. RESTORATION DETAILS FOR NEWLY CONSTRUCTED, RECONSTRUCTED, OR RESURFACED STREETS

Excavations are not permitted in a newly constructed, reconstructed, or resurfaced streets for a period of three (3) years after final completion of the work unless the excavation is deemed an emergency as accepted by the city engineer or his designee. Repairs to excavations in a newly constructed, reconstructed, or resurfaced streets are made in compliance with the preceding sections and to the extent described below. The contractor shall not proceed with pavement restoration until the Engineering representative approves the replacement limits. For asphalt streets, restoration limits will be no less than one lane width and extend no less than three (3) feet in the longitudinal direction from the edge of the excavation. For concrete streets, the removal limit will extend beyond the edge of the excavation to the nearest expansion, construction, or dummy joint. The excavation limits includes the required cutback of at least 12 inches on each side of the undisturbed banks of excavation. For asphalt streets, the contractor will be required to Slurry Seal, Micro-surface, or other acceptable method to match the existing pavement color and create uniformity. The determination of treatment type will be made by the city engineer or his designee. The treatment will be for the entire block in which the cut was made.

VI. LANDSCAPING AND SEEDING

The contractor shall restore the landscaped and unpaved areas to a condition equal to or better than the preexisting condition. Landscaping and seeding shall be in accordance with the Standard Specifications for Infrastructure Improvements.

VII. ON-SITE PROJECT INFORMATION SIGN

A project sign is required to be posted at the work-site for work in the city's public rights-of-way. The sign shall be no smaller than 12 inches by 18 inches and clearly identify the utility/contractor's name and telephone number. The sign must be posted from the start of work until the site has been restored to the pre-work condition. The sign must be easily seen. If work is visible, a sign should be visible. A sign is not required if all of the following conditions are met:

- The company is only performing overhead/aerial work.
- Not digging or disturbing the ground.
- The company name and telephone number are clearly legible on the side of the truck/equipment.

If there is a violation, a fine of \$250/day may be charged.