

**Performance Audit 19-01:
LDO Street Cut Inspections**

July 2019

City Auditor

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OFFICE OF INTERNAL AUDIT

Stan Sewell, City Auditor

July 12, 2019

To: Mayor Andy Berke
City Council Members

Subject: LDO Street Cut Inspections Audit (Report #19-01)

Dear Mayor Berke and City Council Members:

The attached report contains the results of our audit of Land Development Office (LDO) street cut permitting and inspections.

Our audit found formal policies and procedures are not in place, City Code was not followed, the City Code needs to be strengthened and sufficient staff is not available to perform required inspections. However, we also found the street cut inspector works diligently to perform the job within these constraints.

In order to address the noted areas for improvement, we recommended additional staff be assigned to street cut inspections, actions be taken to develop formal policies and procedures, and City Code be followed and strengthened.

We thank the management and staff of Economic and Community Development, Public Works and Transportation Departments for their cooperation and assistance during this audit.

Sincerely,

Stan Sewell, CPA, CGFM, CFE
City Auditor

Attachment

cc: Audit Committee Members
Stacy Richardson, Chief of Staff
Maura Sullivan, Chief Operating Officer
Donna Williams, Administrator, Economic and Community Development

Justin Holland, Administrator, Public Works
Blythe Bailey, Administrator, Transportation Department
Dallas Rucker, Land Development Office Director
Mark Heinzer, City Transportation Engineer
Jim Arnette, Tennessee Local Government Audit

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AUDIT PURPOSE

This audit was conducted in accordance with the Office of Internal Audit's 2019 Audit Agenda. The objectives of this audit were to determine if:

- The Land Development Office (LDO) street cut permitting process follows City Code and proper internal controls are in place;
- LDO street cut inspections meet City Code requirements; and,
- LDO practices for managing street cuts are comparable with other cities policies and best practices.

BACKGROUND

“Clearly one reason that so many people rate street conditions to be so important is that, as they tell it, poor street conditions disrupt their daily life. Street impediments cause them delays and discomfort in getting to and from work, school, shops and other destinations. Their own personal experiences formed the basis for their judgements (rather than media reports and hearsay). They judge the condition of the streets and the quality of maintenance by the presence of potholes and bumpy streets and what results from them; vehicle damage and palpable discomfort. Virtually everyone – residents, visitors, pedestrians, passengers, commercial and private car drivers and anyone with a window-view of a block front experiences the streets and observes their condition. People know that it is city government’s responsibility to maintain them. For many, then, the performance of local government itself is evaluated by the condition of the streets.”¹

The focus of this audit is on adequacy and enforcement of regulations related to excavation (street cuts) in the public right-of-way. Excavation on city streets reduces the useful life of pavement. Street cuts where restorations fail create hazards in city streets. Figure 1 (below) shows a failed utility street cut; the pavement is sunken and cracked, and a deeper hole is forming. Unlike potholes, failed utility street cuts are normally square or rectangular in shape.

¹ How Smooth are New York City’s Streets? Fund for the City of New York, September 1998

Figure 1.

Street cuts disrupt surface integrity, which creates surface roughness. Surface roughness reduces pavement strength and allows the entry of moisture, which accelerates long-term deterioration. A study in Charlotte, NC found a street cut affects the integrity of the pavement negatively for five feet from all edges of the cut.²

The public bears the cost of untimely pavement deterioration either directly through premature maintenance and rehabilitation, or indirectly through the effect of rough roads on their vehicles. It is very difficult, if not impossible, to repair pavement that has been cut to its original state. Stated differently, it is very difficult, if not impossible, to make a repair match the current state of the surrounding pavement's physical properties. Only a reduction in the number of utility cuts can preserve the pavement in its current, original state.³

While high quality workmanship may reduce the structural damage caused by utility cuts, the street will still result in poor ride quality and cracking damage, and its service life will be diminished. Improved inspection and quality control can reduce the ultimate pavement roughness due to the cut; however, it is almost impossible to prevent it completely.

Chattanooga Department of Transportation (CDOT) is responsible for developing City Code drafts, standards and drawings regarding street cuts. LDO is tasked with the enforcement of the street cut code and standards. They provide the staff who process the permits and perform the inspections. In addition, Public Works (PWD) performs street cuts, but is not required to obtain permits or follow code requirements.

² Charlotte DOT Utility Cut Pavement Degradation Fee Implementation

³ FHWA Pavement Utility Cuts

Statistical Information

**Land Development Office
Streetcut Revenue and Counts
Calendar Year 2015-2018**

	<u>Receipts</u>	<u>Permit Count</u> *
2018	\$ 391,134	979
2017	386,049	1,035
2016	388,229	1,111
2015	285,099	1,196

* Exclusive of Public Works street cuts.

Source: Receipts - City financial Records
Permit Counts - Accela permitting system

For the four-year period January 2015 – December 2018 4,321 permits were issued for street cuts and repairs performed on Chattanooga streets. This count excludes street cuts performed by PWD.

FINDINGS AND RECOMMENDATIONS

LDO street cut process does not comply with City Code.

All required street cut inspections are not performed.

City Code requires three inspections be performed on each street cut. City Code 32-69 states, in part, that inspections are required:

- a) After the repairs or installation of the new conduit or piping and before the graded aggregate base fill over the pipe has been placed;
- b) During the placement of the flowable fill or other approved fill in the sole discretion of the Transportation Department; and
- c) Final completion.

The purpose of interim inspections, which includes inspections prior to and during restoration, is to ensure the cut is repaired to city standards. Without inspecting cuts during restoration, the department has no way of ensuring that contractors are meeting technical specifications for restoration.

The American Public Works Association (APWDA) recommends inspectors conduct the following inspections; before work begins, before restoration is done, after restoration is completed, and after the permit is closed to ensure the cut has not failed before the warranty period ends.

City Code requires the contractor to schedule the necessary inspections with the inspector. Some independent plumbers schedule inspections, but utilities and other contractors proceed with work without requesting inspections. However, if they did request the required inspections, LDO does not have sufficient manpower assigned to street cut inspections to complete the required inspections.

A sample taken by Internal Audit of 36 street cuts occurring over several years located only 36% of the corresponding permits posted in the software system. Of the thirteen permits found, 23% had at least one inspection recorded, but none had all three. Also, a random sample of ten recent street cuts permits from October 2018 was checked for compliance to Code. Of the ten street cuts reviewed, none had documentation for the required three inspections and one lacked any inspections.

LDO does not have standard procedures detailing documentation of inspection results. Most inspection results are not recorded in the permitting system, nor does the office keep systematic, hardcopy records. The APWDA suggests jurisdictions record inspector notes and necessary follow-up actions.

LDO currently has assigned one individual as the street cut inspector. As well as performing inspections, the inspector's responsibilities include handling 3-1-1 complaints, responding to questions from contractors and recording results of the inspections in the system.

Compliance with City Code, based upon approximately 1,000 annual permits, would require at least 3,000 inspections annually. A sufficient inspection requires an hour at minimum, plus additional time to record the findings in the software system. For LDO to comply with the code would require additional street cut inspectors to perform the necessary inspections.

An additional inspection included prior to expiration of the warranty is a best practice but is not a requirement in the current City Code. This would add approximately 1,000 additional inspections annually.

Recommendation 1:

We recommend staffing be increased to allow all required street cut inspections be performed per code. We further recommend all inspections be documented in the permitting system.

***Auditee Response:** Staffing increases were requested in the FY2020 budget, but were not approved. Inspections will be documented in the permitting system.*

Contractors performing noncompliant repairs are allowed to acquire new permits.

City Code section 32-68 (c) states, in part: Repaving shall be completed to the standards approved by the Transportation Department. The contractor, utility or other entity shall be prohibited from acquiring any permits for additional excavations in any City right-of-way until such time as the repaving required by this street segment section is completed and approved by the Transportation Department. LDO does not strictly enforce this requirement.

Other cities specify the paving contractor must be qualified. For example, Nashville code states: The pavement replacement shall be performed by a reputable paving contractor within thirty days of backfilling the excavation.

Figure 2.



City Code does not specify the contractor be a qualified paving contractor. Some contractors have purchased paving equipment and perform street repair (figure 2). The result is often poor quality work. The materials are often substandard, e.g. recycled or cold-mix asphalt. The pavement often has ripples, uneven edges and deteriorates quickly.

Furthermore, the Tennessee Department of Commerce and Insurance requires paving contractors possess a Commercial Contractor License BC-B or BC. These licenses allow paving to be performed in municipal settings under the Municipal & Utility (MU) license classification, or equivalent.

In 2002, the Construction Practices Subcommittee of the APWDA was assigned to research available documents related to pavement degradation caused by utility cuts. A summary of the major findings of their review follows:

- Factors influencing the performance of a patch include the pavement material, soil conditions, climate, traffic and repair techniques. These roughly correlate with the same factors influencing the life of new pavement.

- Poor construction techniques can damage the area adjacent to the cut and further degrade the patch and surrounding pavement. Studies showed this zone of influence to be 1.5 to 6 feet beyond the patch.
- Pavement cut repairs made using quality materials, sound engineering and construction techniques tend to perform as well as the surrounding pavement.
- Poor performance of the patch tends to be a result of inadequate compaction of the materials, insufficient thickness of materials, poor quality of materials, and damage to the side of the cut.
- The estimated reduction in pavement life due to a utility cut ranged from 20 to 56% of the original life of the pavement.

Figure 3.



Figure 3 compares paving produced by a professional paving company and paving by an inexperienced contractor. The paving at the top of the figure was paved by a professional paving company. It is smooth with defined edges level with the street. The lower patch was not performed by a professional paver. The surface is rough, has irregular edges and is raised from the street.

Code section 32-69 states, in part: When it is determined that improper work has been performed in the City's right of way, the contractor or utility responsible for the work shall remove improper work and reinstall the work in accordance with the City Standards. No future permits will be issued to the violating contractor or utility until the improper work has been corrected.

The enforcement tool available to LDO is withholding further permits upon discovering performance of substandard repair work. This tool is not regularly used. Contractors are allowed to continue receiving permits prior to repairing noncompliant repairs. For example, utility contractors sometimes do not restore pavement to standards, and refuse to bring it to code. Permits are seldom, if ever, withheld from utilities as the inspector feels he would not be supported by CDOT, City Council or Mayor's office.

When a repair issue is identified, the inspector informs the contractor of the problem. If the issue isn't addressed in a timely manner the contractor is issued a deadline to complete repairs. There are typically several street cut repairs not in compliance with standards. It may take months for a problem to be corrected (or in some cases never), requiring the public to deal with an inferior pavement repair.

Recommendation 2:

We recommend the City Code be updated to specify only reputable paving companies, possessing a Tennessee commercial contractor license BC-B or BC are allowed to repave street cuts.

***Auditee Response:** Please be aware that the State of Tennessee Contractor licensing requirement is for contract amounts of \$25,000 and larger. We could require a MU license but would get no support from the Contractor's Licensing Board on street cut contracts less than \$25,000. Many of the street cuts are associated with residential construction, the City is excluding BC-A contractors in the recommendation. This license covers buildings with 4 dwelling units or less and not more than 3 stories in height. Per the state contractor licensing law, a BC-A contractor can do any of the 34 categories listed when associated with residential project, category #13 is Site and Subdivision Development.*

The LDO requests a definition of reputable as it pertains to contractors, seems we are tying reputable to licensed. Every inspector in the LDO knows contractors that are licensed, but would not call reputable.

***Auditor Comment:** While state law doesn't apply to projects less than \$25,000, the City can adopt more stringent standards.*

As discussed during our review of findings, LDO will work with CDOT to research and develop detailed specifications.

***CDOT Response:** Research will be conducted and more stringent specifications will be put in place for paving street cuts.*

Recommendation 3:

We recommend City Code be followed with all contractors and utilities prohibited from receiving further permits until noncomplying work is repaired to standards, per code section 32-69.

***Auditee Response:** We concur with the audit finding and recommendation. Without the proper staff levels we will not be able to enact all of the recommendations in the Street Cut Audit.*

Recommendation 4:

We recommend an effort be made to inspect all street cuts currently nearing expiration of warranty. This would likely require the temporary use of human resources currently not allocated to street cut inspections. Vendors who have repaired street cuts unsatisfactorily, and are under warranty, should be required to repair them immediately.

***Auditee Response:** We concur with the audit finding and recommendation.*

Street cut permits are issued with no due diligence.

The street cut permit application should contain location, mitigation of damage to roadway, restoration plan, safety hazards and traffic plan.

City Code section 32-63, detailed below, requires consideration of the following prior to the issuance of a permit:

- a) The proposed work should be redesigned to mitigate a potential safety hazard;
- b) The proposed work should be redesigned to mitigate damage within the right-of-way;
- c) The proposed work cannot be safely made in the right-of-way;
- d) The proposed restoration plan does not meet the minimum City standards for restoration;
- e) The applicant has willfully failed to comply with conditions of prior permits issued to the applicant; provided that such disqualification shall be removed upon correction of any such defects; or
- f) For other good cause in the discretion of the Building Official.

When a permit application is processed, it is forwarded to CDOT for traffic and safety approval per code section 32-63 (a) and (c). Upon an applications return to LDO, a permit is issued. Neither CDOT nor LDO verifies, or considers, items listed in City Code sections 32-63 (b), (d), (e) and (f). Any permit requested is issued, with no consideration by a person with knowledge of paving, roadways, etc. except for traffic safety. As a result, permits may be issued that do not meet City Code, resulting in unnecessary damage to roadways.

Recommendation 5:

We recommend LDO and CDOT work together to develop a documented process that will ensure the required evaluations in City Code Section 32-63 are performed.

***Auditee Response:** We concur with the audit finding and recommendation.*

***CDOT Response:** We concur with the audit finding and recommendation.*

Utility company street cut permits are not handled per code.

City Code section 32-62 states, in part: It shall be unlawful for any person to make any excavation in or to tunnel under any street, curb, alley, or right-of-way in the City without first having obtained a street cut permit and complying with the provisions of this Article.

LDO does not require utility vendors to receive an approved permit prior to beginning work. In addition, LDO staff does not process utility applications as they are received.

Utility street cut permits are not provided to the inspector until the monthly invoice is paid, which can be 45 days after work was commenced. This timing prevents inspections from being performed. Permit applications should be processed and forwarded to the inspector at least daily.

City Code allows utility companies specifically listed in the City Code to receive monthly billing due to the volume of permits they request each month. LDO allows one contractor not listed in City Code section 32-64 (k) to be invoiced monthly.

LDO provides a means for electronic submittal of applications for the utilities. Some utility companies enter permit data electronically, while others email or fax applications to LDO to be processed by internal personnel. Requiring utilities to enter applications directly would reduce the occurrence of data entry errors and expedite permitting. Other contractors could be encouraged to use this process as well.

Recommendation 6:

We recommend all utilities be required to enter applications electronically. Applications should be processed the day of receipt and forwarded immediately to inspectors for handling.

***Auditee Response:** We concur with the audit finding and recommendation. This issue will be addressed for all contractors by an online permitting system to be implemented by May 2020.*

Recommendation 7:

We further recommend utilities be informed of the City Code requirement that no work proceed prior to issuance of a permit (excepting emergencies), per City Code section 32-62.

***Auditee Response:** We concur with the audit finding and recommendation.*

Recommendation 8:

We recommend only vendors listed in City Code be billed monthly.

Auditee Response: We concur with the audit finding and recommendation.

LDO does not enforce City Code requirements for insurance and bonding.

Code Section 32-71 states: Each person applying for a permit shall file a certificate of insurance with certain liability limits against claims of personal injury or property damage which may related to their work. LDO has not required proof of insurance prior to issuance of a street cut permit.

City Code section 32-66 requires a bond be submitted before a street cut permit is issued. The form does not supply a notification address in case the bond is cancelled. The City recently attempted to collect against a bond for nonperformance and discovered it had been cancelled due to nonpayment. The bond cancellation notice was sent to City Hall, but not forwarded to LDO. In addition, LDO does not have a formalized tracking system for bond expiration dates.

Recommendation 9:

We recommend City Code 32-71 for contractor's insurance requirements be enforced immediately, requiring receipt prior to street cut permits being issued. We further recommend this procedure be included in LDO's written policies and procedures.

Auditee Response: This issue has been addressed and will be included in policies and procedures when written.

Recommendation 10:

We also recommend the *Street Obstruction and Excavation Bond* form be revised to include an address for notification of cancellation, with the expiration date relocated on the form to make it more noticeable.

We further recommend a formal written procedure be developed to ensure a bond is currently valid.

Auditee Response: We concur with the audit finding and recommendation.

Publicly available Public Works drawings and specifications for guidance on repair of street cuts are incorrect.

CDOT drawings #SD-200.01 and #SD-200-02 do not comply with City Code section 32-67 (e). The requirement for completely filling the trench with aggregate was replaced in 2009 with the requirement of a base of aggregate topped with flowable fill. This requirement is not addressed in the drawings. The drawing was last updated in 1999. Also, the specifications for street cuts does not follow the latest City Code changes that were effective January 2018.

Contractors relying on these drawings for information are using incorrect types and quantity of acceptable materials, resulting in street cuts not being repaired to code.

Recommendation 11:

We recommend CDOT update the drawings and specifications to comply with current City Code pertaining to street cut specifications.

CDOT Response: Replacement documents are currently in draft form.

City Code for street cuts should be updated.

City Code does not reflect best practices for inspections.

The APWDA recommends inspectors conduct four inspections: before work begins, before restoration is done, after restoration is completed, and after the permit is closed to ensure that the cut has not failed before the warranty period ends. City Code currently requires three inspections, but does not require an inspection prior to expiration of the warranty period.

Recommendation 12:

We recommend City Code be amended to require an inspection of all street cuts one month prior to expiration of the warranty period.

Auditee Response: We concur with the audit finding and recommendation.

CDOT Response: We concur with the audit finding and recommendation.

One year warranty on repair work should be revised.

City Code 32-68 states any roadway excavation should remain free from defects for 12 months following installation. With only a one year warranty, the City is left to incur the expense of poor repairs. Road cuts degrade the quality of the cut portion of the roadway and surrounding pavement. Most roadways will not be paved for many years after completion of street cuts and many street cuts will have deteriorated prior to that time. As noted above, the minimum

inspections are not performed, heightening the need for an extended warranty period.

According to Federal Highway Administration documentation, most states require utilities be responsible for the condition of permanent excavation repairs for at least two years and as many as five to ten years. For example, Nashville, TN (two years.), Knoxville, TN and Greensboro, NC (unlimited) have longer warranty periods than Chattanooga.

Recommendation 13:

We recommend the City Code be amended to require a warranty period for road excavations for a period of five years.

***Auditee Response:** We concur with the audit finding and recommendation.*

***CDOT Response:** Draft City Code changes increase the warranty period to five years.*

Steel plates covering street cuts do not identify owner.

Steel plates are used to cover street cuts during construction when workers are not present and during repair of the pavement. The street cut inspector often receives calls that metal plates have shifted and pose a danger to vehicles and their passengers.

The majority of steel plates are not marked to identify the owner. This requires the inspector to spend unnecessary time and effort determining which contractor to contact to correct the problem, as opposed to spending time on more productive efforts.

City Code does not limit the length of time a plate can be on the road. The plates left in place for extended periods result in traffic disruptions for extended periods of time. Extended periods with plates on the street increases the rate of deterioration of the street.

Best practice for steel plates identification is owners are responsible for ensuring they are legibly identified at all times. Plate owners are required to record their company name and plate identification initials with the transportation departments. This requirement is included in Atlanta and Charlotte code requirements.

Recommendation 14:

We recommend City Code be revised to mandate metal plates used in street repairs be clearly marked to identify the owner.

We further recommend City Code specify a maximum allowable number of days steel plates may be left on the roadways without City Engineer approval.

Auditee Response: We concur with the audit finding and recommendation.

CDOT Response: We concur with the audit finding and recommendation.

City departments are not required to obtain street cut permits or follow City Code during repairs.

Public Works Divisions regularly perform street cuts. They have historically not acquired zero-cost permits for street cuts, resulting in street cuts not being in the permitting system. During our review we found many street cuts that could not be tied to a permit.

Street cut information should be an integral part of the information used by CDOT to accurately calculate the pavement condition index (PCI), which is the principal tool used to determine which streets should be paved. Street cut location, data, size, etc., are integral elements in calculating the PCI of streets.

Street cut permitting and inspection data is housed in an electronic permitting system. The data is currently not transferred to CDOT for use in determining the PCI of streets. To provide useful information for the PCI software, all street cuts must be geocoded before transfer to CDOT.

Geographic Information Systems (GIS) are being utilized by jurisdictions more every year. Currently, these systems have become more important as the General Accounting Standards Board continues to develop and implement accounting policies that require jurisdictions to record and monitor the value of rights-of-way infrastructure and other activities. Some jurisdictions are also taking advantage of these enhanced requirements to incorporate tracking systems within developed GIS programs to monitor utility construction and maintenance activities more effectively.⁴

Public Works Divisions do not follow City Code section 32-67 relating to materials used to repair street cuts or receive required inspections.

Recommendation 15:

We recommend Public Works policies be amended to require their divisions receive zero-cost street cut permits and geocode the location of repairs. This will allow LDO to accurately track activity in the right-of-way and provide data for CDOT PCI calculations.

We further recommend Public Works Divisions comply with City Code section 32-67 for street cut repairs or use alternate materials and processes that are equivalent to code requirements.

⁴ Federal Highway Administration Utility Cuts - Design

Public Works Response: *We concur with the audit finding and recommendation. PWD uses PUG, instead of flowable fill, as required by Code in their street cut repairs.*

Recommendation 16:

We recommend CDOT, in conjunction with LDO and PWD, develop and implement processes to transfer geocoded street cut data to Micropaver.

Auditee Response: *We concur with the audit finding and recommendation. We will need funding to purchase equipment to Geocode street cuts through Geographic Information Systems.*

Public Works Response: *We concur with the audit finding and recommendation.*

CDOT Response: *We concur with the audit finding and recommendation.*

LDO needs to develop written policies and procedures.

Control activities are the actions management establishes through internal control policies and procedures to achieve objectives and manage risks. Fundamental examples of control activities include issuing receipts and purchase orders, reconciling the bank statement, and division (i.e. segregation) of duties.⁵

Interviews with LDO staff confirmed there are no written policies and procedures detailing the street cut permitting process, billing procedures or street cut inspection process. Employees are not following City Code in the daily job duties in several instances. Standard procedures approved by management are not available to follow for everyday operations; nor is a roadmap available to follow if the person performing a duty leaves employment.

Recommendation 17:

We recommend development of written, detailed policies and procedures for the permitting, billing and inspections related to street cuts. These policies should reflect City Code requirements, as well. Procedures should include documentation of inspections, handling of inspector notes and follow-up information and information be required to be recorded electronically in the system within a short time of the inspection. Receipt of the policies should be documented by signature of the employee when distributed.

Auditee Response: *We concur with the audit finding and recommendation.*

⁵ *Internal Control and Compliance Manual for Governmental Entities and other Audited Entities in Tennessee*

Street cut inspection should be managed to ensure maximum efficiency.

Other cities, including Nashville, Charlotte and Atlanta, have all facets of street maintenance under the management of one department (i.e. paving, pothole repair, street cut management). Chattanooga has not taken a comprehensive approach to managing transportation assets. Pavement preservation and other transportation responsibilities have been decentralized among three City departments.

CDOT emphasis is closely aligned to management of streets and the City's paving plan. CDOT develops proposed revisions to the code related to paving and street cuts. LDO is responsible for enforcement of the code and permitting of street cuts. Public Works performs street cuts and some paving/patching however the cuts are not reported to LDO and the repairs are not inspected.

Coordination between CDOT, PWD and LDO has not been optimal. Each division houses key information that is not always shared but is needed by the other departments. Street cut data is maintained by both LDO and PWD but is not provided to CDOT. When CDOT's proposed code changes were enacted for street cuts in January 2018, the street cut inspector was not informed for several months. The departments acknowledge inter-departmental communication needs improvement.

The street cut inspector has not been required to obtain a Tennessee Department of Transportation Hot Mix Road Roadway certification. This certification was required within six months of beginning the job, per the job description. The related training should provide knowledge that enhances inspection effectiveness and efficiency.

Recommendation 18:

We recommend LDO and CDOT review the various aspects of street cut inspection, in conjunction with organizational structure, to ensure maximum effectiveness and efficiency.

Auditee Response: We concur with the audit finding and recommendation.

CDOT Response: We concur with the audit finding and recommendation.

Recommendation 19:

We recommend the street cut inspector receive a Tennessee Department of Transportation Hot Mix Road Roadway certification the next time the course is offered.

Auditee Response: We concur with the audit finding and recommendation.

APPENDIX A: SCOPE, METHODOLOGY AND STANDARDS

Based on the work performed during the preliminary survey and the assessment of risk, the audit covers the operations of LDO Street Cut Management from January 2018 to December 2018. When appropriate, the scope was expanded to meet the audit objectives. Source documentation was obtained from the LDO Department and Finance. Original records as well as copies were used as evidence and verified through physical examination.

To evaluate the efficiency and internal controls of LDO's street cut operations, we interviewed LDO, City Wide Services, Economic Community Development staff, and reviewed LDO's street cut permit process. We reviewed City and State Codes related to street cuts.

To develop our recommendations, we reviewed industry best practice documents. We also contacted similar sized cities and counties to identify best practices, street cut code requirements and pricing among the City's peers. The cities selected for review were: Charlotte, NC; Knoxville, TN; Nashville, TN; Atlanta, GA; Greensboro, NC, and Hillsborough County, FL. We conducted a ride along with the Street Cut inspector to observe the daily routine and to gauge the number of inspections performed per day. We randomly selected 10 street cut permits to verify if the required inspections were performed and if the street cut seemed to meet the required standards. We drove city streets and judgmentally chose 36 street cuts to identify a permit was issued and if the cut met code requirements.

To achieve the audit's objectives, reliance was placed on computer-processed data contained in the Accela (street cut permit) system. We assessed the reliability of the data contained in the system and conducted sufficient tests of the data. Based on these assessments and tests, we concluded the data was sufficiently reliable to be used in meeting the audit's objectives.

We conducted this performance audit from January 8, 2019 to May 30, 2019 in accordance with generally accepted government auditing standards. Those 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 our audit objectives.

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