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Report of the Office of Inspector General:

Chicago Department of Transportation Management of Construction in the Public Wa y Audit

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January 2018

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January 17, 2018

To the Mayor, Members of the City Council, City Clerk, City Treasurer, and residents of the City of Chicago:

The City of Chicago Office of Inspector General (OIG) has completed an audit of the Chicago Department of Transportation's (CDOT) management of construction projects in the public way. OIG's objectives were to determine whether CDOT maximized public way project coordination opportunities to protect its infrastructure and minimize disruptions, and whether CDOT ensured that permittees restored street surfaces in accordance with its rules and regulations.

Because repeated street openings frustrate residents and lead to unnecessary costs for the City and other stakeholders, careful project coordination is essential to public way management. Active enforcement of CDOT's specifications for street restoration ensures that streets are restored to the City's standards regardless of which agency or contractor performs the work.

Based on our audit results, OIG concluded that CDOT's project coordination program has reduced unnecessary street cuts, and saved the City at least \$18.1 million in 2016. We commend CDOT on this success. This audit identifies several areas for further improvement of the program, which we encourage CDOT to pursue.

OIG also concluded that CDOT's public way inspections program is insufficient to ensure that public way opening permittees properly restore street surfaces. Specifically, we found that CDOT did not have the resources to fulfill its responsibility to inspect all street cut restorations, and, due to its paper-based inspection system, the Department could not produce a reliable figure for the number of inspections it had completed but acknowledged that it inspects only a small portion of restorations. Unfortunately, this dearth of enforcement has the potential to undermine the good work being done in the realm of project coordination. It is imperative that CDOT devise a strategy for aligning its inspections program with Municipal Code requirements to ensure that street restorations meet the City's quality standards. Achieving this alignment may include working with the Office of Budget and Management to designate additional resources for the inspection program, as well as devising alternative methods for assessing risk and assigning inspectors. In response to our recommendations, CDOT stated that it would work with stakeholder agencies to obtain more long-term capital planning information; engage with public agencies that have had less involvement in public way project coordination; improve emergency dig ticket enforcement; consider implementing random and risk-based inspections; review its staffing needs; and record and track its inspections electronically. CDOT disagreed with our recommendation to remove core infrastructure planning from its Aldermanic Menu Program.

We thank CDOT management and staff for their cooperation throughout this audit.

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CDOT Management of Construction in the Public Way Audit

Respectfully,

Joseph M. Ferguson Inspector General City
of Chicago

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Acronyms

CDOT	Chicago Department of Transportation
CIP	Capital Improvement Plan
DOAH	Department of Administrative Hearings
DOIM	Division of Infrastructure Management
DPD	Department of Planning and Development
DWM	Department of Water Management
EFP	Existing Facilities Protection
IR	Information Retrieval
MCC	Municipal Code of Chicago
OIG	Office of Inspector General
OUC	Office of Underground Coordination
PBC	Public Building Commission
PCO	Project Coordination Office

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I. Executive Summary

The Office of Inspector General (OIG) conducted an audit of the Chicago Department of Transportation's (CDOT) management of construction projects in the public way. The public way consists of all City streets, sidewalks, parkways, and alleys. In addition to its transportation function, the public way serves as a corridor for underground private and public utilities, such as sewers, water and gas mains, and telecommunications conduits. CDOT issues over 60,000 permits annually for construction, projects in the public way—commonly referred to as "street cuts"—to allow utility companies and other stakeholders to repair, replace, or expand their underground facilities. CDOT is responsible for coordinating these projects to minimize their impact on the public, and for inspecting permittees' street restorations to ensure that they meet the City's quality standards.

The objectives of this audit were to determine whether CDOT maximized public way project coordination opportunities to protect its infrastructure and minimize disruptions, and whether CDOT ensured that permittees restored street surfaces in accordance with its rules and regulations.

OIG found that CDOT's project coordination efforts reduced unnecessary roadwork and saved the City at least \$18.1 million in 2016. However, we identified the following opportunities for improvement in CDOT's coordination efforts:

- CDOT did not consistently obtain long-term capital improvement plans from all the agencies with which it coordinates, including the Department of Water Management (DWM).
- CDOT did not fully incorporate the Department of Planning and Development (DPD) and the Public Building Commission (PBC) into its coordination efforts.
- The annual nature and short planning period of CDOT's Aldermanic Menu Program for residential infrastructure made it difficult to coordinate Menu projects with other agencies.
- CDOT's permitting process allowed contractors to circumvent project coordination by obtaining emergency dig tickets in non-emergency situations.

In addition, we found that CDOT did not consistently hold public way opening permittees accountable for poor quality restoration work. CDOT acknowledged that it inspects only a small portion of street cut restorations, falling short of the Municipal Code of Chicago's (MCC) requirement that all restorations be inspected to ensure they meet CDOT standards. However, the Department was unable to produce a reliable figure for the number of inspections actually completed, because most inspection records were stored in paper files rather than tracked electronically in its software system, Hansen 8. Furthermore, CDOT relied on paper-based methods for logging inspections and citations despite its use of electronic tools in other areas, only inspected public way openings pursuant to complaints received via the City's 311 service, and employed very few inspectors relative to the volume of inspection work required by the MCC.

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Ultimately, OIG concluded that CDOT's project coordination program has reduced unnecessary street cuts and resulted in millions of dollars in savings for the City. However, the Department could realize additional savings through increased coordination. OIG also found that CDOT's inspections program for street restorations was insufficient to ensure that public way opening permittees properly restored street surfaces.

OIG recommends that CDOT improve its coordination program by increasing information sharing among public and private agencies regarding their long-term capital improvement plans; that the Department assume full responsibility for core infrastructure planning by removing it from the Aldermanic Menu program to allow a holistic analysis of infrastructure needs; and that it implement procedures to ensure that emergency dig tickets cannot be used to circumvent the project coordination process. We also recommend that CDOT improve its compliance program by aligning its operational goals with its responsibility under the MCC to inspect all public way restorations. To that end, CDOT should conduct a staffing analysis to determine how many inspectors are needed to meet this mandate, and work with the City's Office of Budget and Management to staff this function appropriately. While developing this strategy, and in light of the limited resources available, CDOT should immediately implement processes for random and risk-based restoration inspections in order to provide at least the possibility that any particular restoration will be subject to inspection. Finally, we recommend that CDOT track all inspections by associated permits in its Hansen 8 database.

In response to our audit findings and recommendations, CDOT stated that it would work with stakeholder agencies to obtain more long-term capital planning information; engage with public agencies that have had less involvement in public way project coordination; improve emergency dig ticket enforcement; consider implementing random and risk-based inspections; review its staffing needs; and record and track its inspections electronically. CDOT disagreed with our recommendation to remove core infrastructure planning from its Aldermanic Menu Program.

The specific recommendations related to each finding, and CDOT's response, are described in the 'Audit Findings and Recommendations' section of this report.

Background

A. The Public Way

The public way consists of streets, sidewalks, parkways, medians, and alleys. It comprises 23% of the city's total land area, including over 70% of its public open space.¹ In addition to transportation and special events uses, the public way serves as a corridor for underground private utilities, such as gas and telecommunications, as well as public utilities, such as water and sewer. The figure below illustrates common surface and underground elements of the public way.

Elements of the Public Right of Way

SIDEWALK/ PARKWAY CONSTRUCTION

Source: CDOT "Rules and Regulations for Construction in the Public Way"

Because the underground elements are managed by separate entities, poor coordination can lead to frequent openings in the public way, also known as "street cuts," when those entities repair or replace their utility infrastructure. Street cuts shorten the life of street surfaces, and pose safety risks, disruptions to traffic flow, and inconveniences to pedestrians, bicyclists, and motorists. Residents, as well as businesses that may experience disruptions to regular commercial activity,

¹ Chicago Department of Transportation, "Sustainable Urban Infrastructure Policies and Guidelines." May 2014. 10, accessed November 20, 2017. <http://chicago.gov/depts/dot/sustainable-urban-infrastructure-policies-and-guidelines-vol-1/>.

² Chicago Department of Transportation, "Rules and Regulations for Construction in the Public Way," March 2016, 3.1. accessed November 20, 2017, https://www.cityofchicago.org/city/en/depts/cdot/supp_files/rule_regs_for_construction_in_public_way.pdf.

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may find the traffic disruption caused by street cuts particularly frustrating if there are frequent cuts in the same area.

B. CDOT's Coordination of Construction in the Public Way

CDOT's Division of Infrastructure Management (DQIM), which consists of the Office of Underground Coordination (OUC), the Project Coordination Office (PCO), the permit office, and the public way inspections office, is primarily responsible for coordinating construction projects in the public way. In an effort to improve communication about such projects, the City established OUC in 1994 "to promote efficiency of work in the public way, to reduce the risk of damage to existing underground facilities, and to reduce the inconvenience to the public caused by work in the public way."³ OUC comprises 29 member agencies that own underground facilities in the public way.⁴ Member agencies include City departments, public utilities, and telecommunications companies. OUC meets each week to discuss planned projects and coordinate the work performed by each agency.

In April 2012, CDOT expanded its project coordination efforts by creating PCO, "to relieve the burden on the citizens of the City by creating a single, shared transparent forum for stakeholders to coordinate public and private construction collaboratively, openly, efficiently, safely and with minimal disruption to the general public."⁵ According to CDOT's 2016 Rules and Regulations for Construction in the Public Way (hereafter, "Rules and Regulations"): "The PCO works

towards minimizing the disruptions to businesses and citizens and maximizing the engineering design life of public way projects through the reduction of street openings and repaving." PCO effectively functions as OUC staff, aiming to improve communication between OUC stakeholders. To this end, PCO collects and consolidates members' project plans, identifies coordination opportunities, mediates project conflicts, and leads the regular OUC meetings. PCO's work is currently supported by a contract between the City and Collins Engineers, which provides for a maximum compensation totaling \$22 million from 2015 through 2019.⁶

PCO uses a Google Maps-based application called dotMaps to facilitate coordination between OUC members. OUC members upload project data to dotMaps using a pre-formatted spreadsheet, which PCO staff analyze to identify potential conflicts between projects. When a conflict is identified, PCO requires the affected parties to draft a memorandum of understanding that prioritizes the work and, ideally, determines the most efficient, least disruptive project order. PCO regularly obtains longer-term capital improvement plans from OUC members, as well as planned street closures, special events, traffic detours, permit requests, and existing building and transportation permits. PCO uploads this information directly into dotMaps, and the application's map interface displays conflicts and opportunities for project coordination. Project schedules are

⁶ City of Chicago, City Council Journal of the Proceedings, February 9, 1994, 453 15, accessed November 20, 2017, <<http://www.chicgov.com/cityclerk/rile/587/1/download?token=7w0fW1SI>>. The Journal of Proceedings refers to the "Board of Underground," which was the original name of the OUC. See Appendix A for a list of OUC member agencies.

⁷ Chicago Department of Transportation, "Rules and Regulations for Construction in the Public Way." March 2016. 14, accessed November 20, 2017.

⁸ https://www.cityofchicago.org/city/en/departments/transportation/traffic_rules_and_regulations.html

⁹ See City of Chicago contract number 30561, as amended by modification 30561 1, specification number 120442, accessed November 20, 2017, <<https://webapp.sls.cityofchicago.org/VCSearch/AVcb/ori:>>

negotiated at OUC meetings, allowing each member to revise its capital improvement plan to cause as little disruption to the public way as possible.

Other cities, such as Seattle, San Francisco, Phoenix, and Boston, also have programs to coordinate with utilities to reduce roadwork costs and minimize disruptions to the public way. Some utilize specialized software. For example, San Francisco's Accela mapping software provides stakeholders with information akin to Chicago's dotMaps software. Likewise, Seattle uses a database system called PACT to collect data from stakeholders on a quarterly basis.

C. Public Way Opening Permits

Pursuant to MCC § 10-20-150, all work in the public way requires a permit from CDOT. The Department issues over 60,000 permits annually for public way construction projects. The permit process begins with contractors-often utility companies, City departments, or their agents- submitting proposals that may involve "opening" the public way to DOIM's Public Way Permit Office.⁷ A permit must be obtained prior to excavation, except in the event of an emergency.

If a request involves construction work in or adjacent to the public way, it necessitates an Information Retrieval (IR) from the OUC to obtain notice of any existing facilities maintained by OUC members in the vicinity of the work location. In this sub-process, the permit applicant's project manager submits an online request containing the project's general location to OUC's intake portal, which is integrated with PCO's dotMaps project management system, allowing OUC members to review the request remotely in real time.⁸ OUC members have 30 days to respond with information on their

facilities, if any, in the project area. The applicant then adjusts its project plan as necessary.

If the project is located near an OUC member's facilities, it requires an Existing Facilities Protection (EFP) review. At this stage, all project designs and drawings must be complete and signed by a licensed engineer, and submitted via the same online portal as the IR. After evaluating the submission for adequacy, the OUC administrator forwards it to OUC members, who review the plans for conflicts with their existing facilities and respond within 30 days⁹ if they have any comments, proposed changes, or inspection requests.

OUC members discuss potential conflicts at weekly project coordination meetings. Where there is a conflict, PCO assists the parties in drafting a memorandum of understanding that allows the project to proceed under mutually agreeable terms and establishes each party's restoration responsibilities. The goal is to coordinate conflicting projects, causing them to occur in a sequence that minimizes disruptions and reduces costs by avoiding redundant excavations and restorations.

As the public agency tasked with issuing or declining permits for any construction work in the public way, CDOT has final authority over all such projects. The Department enforces its public way coordination and compliance rules by issuing construction permits and by denying

⁹ For a flow chart of the public way coordination and management process described here, see Appendix B.

⁸ Chicago Department of Transportation, Office of Underground Coordination. "Project Request Form," accessed November 20, 2017, <<https://www.cdotmap.com/ouc/proiccl>> request.

⁹ The 30-day EFP response period occurs after the 30-day IR response period described in the previous paragraph.

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noncompliant entities' permit applications. CDOT stated that its goal is to discourage poor planning in construction and maintenance projects, because while it is responsible for protecting the integrity of the public way by declining needless permit requests, it does not want to inhibit development unnecessarily.

D. Restoration of the Public Way

CDOT Rules and Regulations require permittees, "at their own expense in a manner approved by CDOT," to "rebuild, restore, or repair any portion of the Public Way to the satisfaction of the Commissioner."¹⁰ CDOT enforces this requirement through restoration agreements, which detail the scope of the public way restoration required of a permit applicant. Technical standards for public way restorations are specified in the CDOT Rules and Regulations. For projects involving multiple stakeholders, responsibilities for various aspects of public way restoration may be divided among the parties by a memorandum of understanding.

The following figures illustrate appropriate and inappropriate surface restorations under CDOT's Rules and Regulations.

Figure 1: Appropriate Street Restoration

Source: OIG photo.

Note that the edges of the restoration area have been crack-sealed and the

crosswalks and stop line have been replaced.

¹¹¹ Chicago Department of Transportation, "Rules and Regulations for Construction in the Public Way." March 2016. 3 4.5. accessed November 20, 2017, https://www.cityofchicago.org/city/en/depts/cdot/supp_info/conditions_for_construction_in_the_public_way.html.

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Figure 2: Inappropriate Street Restoration

Source: OIG photo.

Note the use of concrete on an asphalt surface and edges that have not been crack-sealed.

E. Inspections

MCC § 10-20-155 mandates a field inspection to confirm compliance with restoration requirements." CDOT sometimes performs inspections while construction is still in progress,

" MCC § 10-20-155 states. "All work done under authority of the permit required by this article shall be inspected by a Held service specialist designated by the commissioner of transportation."

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but these inspections are only complaint-driven (i.e., CDOT will not inspect a project in progress if no one complains about it). Upon the completion of a public way construction project, CDOT likewise relies on complaints to identify any pavement not properly restored." The Department does not proactively inspect restorations. When CDOT receives a complaint after construction is complete, it generates a "restoration resurvey"-a record of a street restoration waiting to be inspected. The Department then dispatches inspectors to inspect these sites, prioritizing inspections by the potential severity of the problem.

If an inspector determines that a restoration is inadequate, the inspector will issue a citation to the permittee.¹³ Citations are heard at the Department of Administrative Hearings, where any applicable fines can be imposed through a judgment, or the City's Department of Law can agree to settle the matter. CDOT prefers that permittees correct the restoration issue prior to the hearing date, which is typically four to six weeks after the citation is issued. In the event an entity fails to return to the site and make the required repairs, CDOT reserves the right to deny future permit applications. The Department also has the option of drawing the cost of repairs, as well as any applicable fines, from the letter of credit it requires permittees to keep on file as a warranty for each project.¹⁴

CDOT received 6,886 complaints in the categories "Inspect Public Way Survey" and "Street Cut Complaint" in 2016. While these categories include complaints about street cuts, they also include complaints about unrelated matters, such as trucks blocking traffic lanes, lack of adequate fencing around construction, or residents blocking parking spaces with furniture.

As described in Finding 2, CDOT was unable to produce a reliable figure for the number of inspections conducted or their outcomes because most inspection records were stored in paper files rather than electronically. OIG did not attempt to analyze the existing paper records, but as stated in Finding 2, recommends that in the future, CDOT electronically record and track all inspections and citations by associated permit number, which will facilitate such analysis.

" CDOT stated that it very rarely resorts to drawing from letters of credit because it is usually able to obtain compliance by threatening (o withhold permits for future work

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III. Objectives, Scope, and Methodology

A. Objectives

The objectives of the audit were to determine if,

- CDOT maximized opportunities for project coordination to protect surface and subsurface infrastructure, and to minimize disruptions to the general public; and
- CDOT ensured that public way opening permittees restored street surfaces in accordance with its rules and regulations.

B. Scope

This audit focused on CDOT's coordination and inspection of construction projects that require opening the public way. Coordination involves CDOT, other City departments, and private sector stakeholders such as utility and telecommunications companies.

The scope of this audit did not include CDOT's permitting application and approval process, moratorium street compliance program,¹⁵ or permit and related fee collection procedures. The audit did not assess other public way uses that do not involve opening the public way, such as special events, benches, refuse containers, sidewalk cafes, and signs. OIG also did not review the technical aspects of CDOT Rules and Regulations, such as its preferred trench sizes, excavation techniques, or restoration materials.

C. Methodology

To understand CDOT's coordination process and the extent to which it coordinates with other stakeholders, OIG interviewed CDOT management and staff, as well as representatives from four stakeholder agencies (AT&T, People's Gas, ComEd, and DWM). CDOT also provided documentation related to the program, including the quantity ledger used to calculate City savings and the related memoranda of understanding documenting which agency would be responsible for restoration work at the end of each coordinated project.

To confirm the accuracy of CDOT's savings figure, OIG first compared a sample of 68 coordinated projects recorded on PCO's quantity ledger against the related memoranda of understanding. Specifically, we compared the recorded square yards of pavement, as well as the number of Americans with Disabilities Act compliant sidewalk ramps and alley aprons to be restored, and checked these values against the memoranda. We also examined a sample of 25 projects that were not subject to the coordination process to confirm that no corresponding memoranda existed. We then validated CDOT's method for calculating restoration material quantity savings for each project, and reviewed a set of quantity calculations updated after the close of all 2016 projects, multiplied by unit cost estimates for each type of material, to validate CDOT's dollar-savings figure.

^{1:1} CDOT establishes moratoriums on construction work in certain areas of the public way, such as streets that have been recently resurfaced or reconstructed, and streets located within streetscape project areas, on parade routes, or in other special event areas. To discourage new openings, sections of the public way with active moratoriums typically have special restoration requirements, as well as increased permit costs and additional street-degradation fees.

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To determine whether all OUC members submitted the live-year capital plans required by CDOT Rules and Regulations, OIG interviewed CDOT and four other stakeholder agencies. For each stakeholder, we asked whether the agency submitted a five-year capital plan, and inquired about any concerns or obstacles that might prevent the submission of such plan.

To determine if CDOT consistently enforced emergency excavation policies, OIG interviewed CDOT management and staff regarding emergency street cuts, and the process for acquiring a permit in an emergency. Our inquiry into this process focused specifically on the possibility that contractors might use emergency dig tickets to circumvent CDOT's coordination process.

To determine if CDOT inspected public way restoration work as often as required by the MCC, OIG analyzed the Department's public way opening permit and inspections data stored in its Hansen 8 system related to any permits issued between March 2, 2016 and March 2, 2017. We compared permit data to inspection data to determine what percentage of public way permits logged in the system during that period had corresponding inspection records. As described below in Finding 2, we determined that Hansen 8 is not a reliable source of inspection data because not all inspections were recorded in the database.

To determine whether CDOT's warranty requirements met best practices, OIG interviewed CDOT management and staff, as well as representatives from the City's Department of Law, about the letter of credit CDOT requires from permittees. We also compared CDOT's letter of credit requirements to the Federal Highway Administration's warranty recommendations.

To determine if Hansen 8 data was sufficiently reliable to identify permitted owners of restorations encountered in the field, OIG selected a convenience sample (that is, a non-random sample of readily available items) of 28 restorations in the field and documented each with photographs and measurements. Using the location and measurement information collected, we then searched the Hansen 8 system for a corresponding permit for each restoration. We concluded that Hansen 8 data was sufficiently reliable for the purpose of identifying permitted owners.

OIG was unable to determine the total number of project coordination opportunities identified through dotMaps because, as CDOT staff explained, true coordination opportunities cannot be determined from dotMaps alone; rather, staff with engineering knowledge must review civil plans for each project to ensure they are compatible. This accounts for much of PCO's work. For this reason, we could not use the dotMaps software as a definitive record of all coordination opportunities, and therefore we could not calculate the percentage of total opportunities that were, in fact, coordinated. Additionally, we were unable to determine the exact percentage of street cut restorations inspected, or the amount of time it took CDOT to complete follow-up inspections, because the Department did not track this data.

D. Standards

We conducted this audit in accordance with generally accepted Government Auditing Standards issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our

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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.

E. Authority and Role

The authority to perform this audit is established in the City of Chicago Municipal Code § 2-56-030 which states that OIG has the power and duty to review the programs of City government in order to identify any inefficiencies, waste, and potential for misconduct, and to promote economy, efficiency, effectiveness, and integrity in the administration of City programs and operations.

The role of OIG is to review City operations and make recommendations for improvement.

ⁱ
City management is responsible for establishing and maintaining processes to ensure that City programs operate economically, efficiently, effectively, and with integrity.

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IV. Findings and Recommendations

Finding 1: CDOT's project coordination efforts saved the City at least \$18.1 million in 2016 and have reduced unnecessary roadwork, but opportunities for additional coordination still exist.

CDOT's Project Coordination Office has developed an effective program to identify and coordinate work in the public way. In 2016, project coordination saved the City at least \$21.7 million in materials costs. This figure does not include additional savings from other sources, such as lower labor costs and maintenance savings resulting from reduced street deterioration. The savings estimate does not account for the cost of CDOT's contract with Collins Engineers to support the PCO, which was \$3.6 million in 2016.¹⁷ OIG concludes that the coordination program yields a net savings for the City of at least \$18.1 million and reduces disruptions of the public way. However, CDOT has not maximized the potential benefits of the project coordination program. OIG identified several areas where the Department could potentially improve project coordination and realize significant additional savings to the City.

First, some OUC members did not meet the five-year capital plan requirement described in the MCC and CDOT Rules and Regulations.¹⁷ Through discussions with utilities and telecommunications companies, OIG learned that, for some stakeholders, the nature of their business prevents them from providing a full five-year capital plan to CDOT. For example, while electric and gas utilities generally have long-term project plans, a highly competitive market drives telecommunications companies to react quickly to changes in market conditions and consumer preferences. Consequently, many telecommunications companies do not have long-term plans encompassing all projects.

OIG also found that CDOT's coordination with other public agencies, DWM, DPD, and PBC, could be improved. DWM's Water Bureau, in particular, provided construction plans to CDOT only one year in advance of its projects, despite having a multi-year water main replacement plan. Although DPD and PBC are not members of OUC, CDOT estimated that it encounters 10 to 30 DPD and PBC projects per year in the context of its coordination program. While these projects are integrated into dotMaps for coordination through CDOT's EFP process, the Department faces a relatively short, 30-day period to obtain plans and properly coordinate schedules with other stakeholders. CDOT staff stated that coordination with other City departments can be difficult because it effectively lacks compliance and enforcement authority. CDOT cannot issue a citation to another City department for failure to comply with CDOT Rules and Regulations. While CDOT does have the authority to withhold public way opening permits from other City departments, CDOT staff stated that this was difficult as a practical matter,

¹⁷ The contract provides for a maximum compensation totaling \$22 million from 2015 through 2019. According to the City's contracting website, the City paid Collins Engineers \$2.2 million in 2015, \$3.6 million in 2016, and \$4.3

million in 2017 under this contract.

<https://webapp.slcitgovofchicago.org/VCSearch/VWeb/ortt/citvolchicauoA'osearch/coniroller/aaencySelction/begin.do>. "MCC ij 2-120-300 (a) requires OLC to "coordinate the exchange, review and planning of the annual and five-year capital improvement plans and schedules of the office's member agencies." CDOT Rules and Regulations specify that this is one of PCO's core responsibilities. Chicago Department of Transportation, "Rules and Regulations for Construction in the Public Way," March 2016. 2.4, accessed November 20, 2017. <https://www.citgovofchicago.org/cilv/eri/dcpts/cdot/supp> <<http://www.citgovofchicago.org/cilv/eri/dcpts/cdot/supp>> m

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because doing so might prevent the City from accomplishing program goals in areas other than public way maintenance, such as the water main replacement program.

The Aldermanic Menu Program also poses coordination challenges. CDOT stated that Menu projects are typically posted to dotMaps only two to four weeks before construction begins. CDOT is able to compare the locations of proposed Menu projects to other projects in dotMaps and submit them for OUC review prior to this time, and maintains ongoing discussions with ward offices about their proposed projects. However, the annual nature of Menu precludes multi-year coordination with other stakeholder projects.

Finally, OIG found that CDOT's permitting process allowed contractors to circumvent project coordination by obtaining emergency dig tickets in non-emergency situations.¹⁸ The Department acknowledged that this kind of contractor abuse is common, and that more robust enforcement of CDOT Rules and Regulations is necessary to discourage it. During the course of, this audit, CDOT stated that, in accordance with the recent Chicago Underground Facilities Damage Prevention Ordinance,¹⁹ the Department is creating new enforcement tools to prevent and detect this kind of abuse.

Recommendation:

To maximize the potential savings to the City and minimize disruptions of the public way, CDOT should continue to improve its project coordination efforts. Specifically, OIG recommends that CDOT,

1. While remaining mindful of each stakeholder agency's needs and constraints, work with such agencies to determine how far in advance they can realistically devise and share plans involving work in the public way. CDOT should request that stakeholders provide the most forward-looking plans possible in order to better facilitate coordination and avoid unnecessary and redundant work.
2. Improve project coordination with DWM and ensure that DWM provides a five-year capital plan to better facilitate coordination with other stakeholder agencies.
3. Involve PBC and DPD in project coordination efforts. This could include inviting PBC and DPD to join OUC, or requesting that PBC and DPD provide development plans in the same manner as OUC members. At a minimum, CDOT should routinely communicate with PBC and DPD to inquire about any projects that may provide opportunities for coordination among OUC stakeholders.

"" CDOT does not currently utilize a separate permit category for emergency openings of" the public way. In an emergency, a contractor must first obtain a dig ticket from "Digger," a service that notifies utilities of the contractor's intent to excavate (see <https://ipi.citvol'cllicat;o.oru/Dit;t;er> for more information). Within one business day of obtaining a dig ticket, the contractor must request a public way opening permit from CDOT. "" Sec MCC Chapter 10-21.

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4. Assume full responsibility for core infrastructure planning, as recommended in OIG's Aldermanic Menu Program Audit, by removing it from the Aldermanic Menu.²⁰ Such centralized planning would provide more opportunities for coordination among stakeholders.
5. Implement procedures to ensure that emergency dig tickets cannot be used to circumvent the project coordination process. This may include, among other reforms, staffing an inspection function designed to ensure that work performed under emergency dig tickets actually results from emergency circumstances, as required under the Underground Facilities Damage Prevention Ordinance.

Management Response:

"Thank you for recognizing the \$18.1M savings in 2016 alone from CDOT project coordination efforts. Since improved project coordination of construction permits began in 2012, CDOT has saved the City over \$10JM. This is a result of the Division of Infrastructure Management's (DIM) constant engagement efforts with public way stakeholders. By offering training on the latest regulations and requirements and engaging all agencies at weekly PCO meetings, stakeholders are better able to maximize their opportunities while minimizing disruptions to the public way. Keeping stakeholders informed also allows them to share more forward-looking plans with CDOT.

"CDOT will review our rules and regulations to provide guidance to stakeholders on the level of detail needed throughout the required five-year capital plan. For example, the fifth year of a submitted capital plan may not require the same level of detail needed in the second year. This will encourage stakeholders to submit more forward-looking plans while acknowledging that the nature of some industries make capital planning years in advance difficult.

"To further encourage stakeholder agencies to meet the five-year capital plan requirement, CDOT will formally notify non-compliant agencies and work with them to set a timeline for compliance. If parties are non-compliant, CDOT will develop benchmarked consequences, including holding future OUC submissions and holding permit issuance, until the agency has been brought into compliance.

"CDOT will be sharing this audit and our response with DWM. Efforts to improve coordination between CDOT and DWM are showing early returns, as DWM has provided CDOT with their 2018 Capital Improvement Plan (CIP) for water main projects and their three year CIP for sewer main projects. This is an earlier submittal than years past. CDOT will continue to work with DWM to obtain longer-term water main and sewer main CIPs.

"CDOT will share these findings with PBC and DPD and discuss options to better streamline project coordination, including incorporating both entities into current PCO distribution and inviting both to weekly 2018 PCO meetings. However, because DPD does not develop or own

²⁰ City of Chicago Office of Inspector General. "Chicago Department of Transportation Aldermanic Menu Program Audit," April 2017, accessed November 20, 2017. <<http://chicagoinspectorgeneral.org/publications-and-press/cdot-aldermanic-menu-program-audit/>>

projects and PBC does not own the projects it develops neither agency possesses or maintains a long-term database of underground plans for projects. Therefore, CDOT believes including either into OUC will not provide a material benefit

to either agency or the City. Per CDOT rules and regulations, contractors working on DPD and PBC projects are already required to submit their projects for OUC review.

"DIM has been in discussions with DPD about including standard restoration requirement language in planned development agreements. We will have a Perimeter Restoration Agreement (PRA) for the planned development process finalized in 2018. We have also been working with DPD to establish better communication workflows to ensure that utilities and their contractors receive more advance notice so they can complete the new services to projects prior to final restoration.

"Consistent with CDOT's response to the OIG's CDOT Pavement Management Audit and CDOT Aldermanic Menu Program Audit, we believe that the current decision-making structure for the Aldermanic Menu Program provides ample opportunity for coordination with stakeholders in the public way. The \$18.1 [million] in savings to the City through our coordination efforts is evidence of the effectiveness of the current structure. Aldermen currently use CDOT analysis and guidance to make informed decisions for their respective communities. In addition, we are committed to continuous process improvement and working with the Aldermen on ways to enhance the execution of the program.

"Coordination in the public way is built into the Menu Program from the beginning. Annual Menu briefings take place at the beginning of each year. There, Aldermen are provided with upcoming CIP plans, planned utility work, existing street moratorium information, and street condition rating for all streets in their Ward. CDOT also provides the aforementioned information along with street opening and use and special event permits to Aldermen year-round through the Aldermanic DotMaps portal. By providing this information early in the Menu process, CDOT minimizes the chances that a selected project will create a conflict in the public way.

"After a project is selected by an Alderman, it is required to undergo OUC review prior to being approved. This occurs well before project construction.

"In 04 2017, CDOT began enhanced emergency dig ticket enforcement through the Chicago Damage Prevention Ordinance. Additional personnel continue to be hired for 811 enforcement, including emergency dig inspections.

"In recent months, CDOT has worked to emphasize to utilities their responsibilities under CDOT rules and regulations regarding emergency dig tickets. This requires the entity requesting an emergency dig ticket to call in the request via the OEMC command center. In addition, CDOT inspectors are reviewing emergency dig notifications to ensure compliance. In addition, the public way permit office is in contact with the requesting entity to ensure a public way opening permit is applied for by the next business day. Failure to apply for the permit will result in citations. CDOT will continue to fine tune our procedures to ensure the emergency dig requests are not being used to circumvent the coordination process. "

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Finding 2: CDOT did not consistently hold public way opening permittees accountable for poor-quality restoration work.

OIG found that CDOT fell far short of the MCC requirement to inspect all public way restorations for adherence to CDOT standards.

CDOT acknowledged that it inspects only a small portion of street cut restorations,²¹ but could not produce a reliable

figure for the number of inspections it had actually completed, because most inspection records were stored in paper files rather than tracked electronically in Hansen 8. OIG concluded that CDOT was not in compliance with MCC § 10-20-155, which states that "all [restoration work] shall be inspected by a field service specialist designated by the commissioner of transportation."

OIG identified several potential causes of CDOT's low inspection rate:

- CDOT management stated that the Department did not have enough inspectors to perform all of the inspections mandated by MCC § 10-20-155. During the audit, CDOT employed 25 inspectors who were responsible for inspecting over 60,000 public way openings annually, in addition to other job duties related to the public way..
- CDOT relied on paper, rather than electronic, inspection and citation forms. This required inspectors to spend at least 6 hours per week, or 15% of their work time, processing paperwork in the office rather than conducting inspections in the field, at an estimated annual cost of \$490,105.²²
- CDOT focused almost exclusively on responding to complaints received through the City's 311 system. It did not develop strategies to ensure that all projects, not just those receiving 311 complaints, had a chance of being inspected.

Improper restorations create surface hazards and lead to accelerated street degradation. Given the low inspection rate, permittees have little incentive to assume the expense of properly restoring street cuts. By relying on 311 complaints, CDOT effectively exempts from inspection restorations with flaws that are not perceptible to the untrained eye. Furthermore, the current system may give rise to inequitable enforcement by favoring those parts of the city where residents demonstrate a greater propensity to file complaints.

~ CDOT estimated that it inspects approximately five percent of the projects for which it issues permits. OIG attempted to validate this figure using data from CDOT's Hansen 8 permits database. As of July 18, 2017, CDOT had recorded inspections in Hansen 8 for 4.4%, or 2,915, of the 66,889 public way opening projects for which permits had been issued between March 2, 2016 and March 2, 2017. This total figure included 23,626 permits issued to City departments, of which 919 (3.9%) had associated inspection records. CDOT stated that departmental projects are supervised by City engineering personnel, who monitor the projects for compliance with City standards. The remaining 43,263 permits were issued to non-City applicants, including private entities, of which 1,996 (4.6%) had associated inspection records. CDOT stated that non-City projects present a higher risk of failure to comply with City standards.

" OIG estimated this cost by calculating 15% of the 25 inspectors' annual compensation comprising salary and fringe benefits.

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OIG did find that the terms of the permittee restoration warranty included in the letter of credit meet best practices as described by the Federal Highway Administration." However, the City does not make full and effective use of the permittee restoration warranty. In order to be successful, this approach requires a robust system for inspecting street restorations, citing deficiencies, notifying the permittees responsible, and drawing from letters of credit where appropriate. CDOT currently lacks such a system.

During the audit, CDOT stated that it is moving its inspections recordkeeping from paper to the Hansen 8 platform, as well as exploring technology to record and issue citations in real time. These steps could help increase CDOT's capacity to perform restoration inspections by reducing or eliminating the time inspectors spend processing paperwork.

Recommendation:

To improve CDOT's public way restoration compliance program, OIG recommends that the Department,

1. Develop a strategy to align its operational goals with the MCC requirement to inspect all . public way restorations. To that end, CDOT should conduct a staffing analysis to determine how many inspectors are needed to meet this mandate, and work with the City's Office of Budget and Management to staff this function appropriately, with possible consideration of devoting a small percentage of savings to date to expanded inspection staffing. While developing this strategy, and in light of the limited resources available, CDOT should immediately implement processes for random and risk-based restoration inspections in order to provide at least the possibility that any particular restoration will be subject to inspection.
2. Schedule, record, and track all inspections and citations by associated permit number in Hansen 8, rather than in paper records. Recording inspections directly in the system should reduce redundant paperwork, minimize the chance of errors in the database, and increase the total number of inspections per inspector.

[Management Response:

"In addition to the inspections on finished projects and complaint-based inspections, CDOT field inspectors make unplanned, in-progress inspections on project sites that are in the vicinity of their assigned wards. These random spot checks do ensure restoration is being performed to proper standards. CDOT also agrees that using risk-based assessments would improve the effectiveness of field inspectors and will consider how to best formalize both random and risk-based inspections as department practice. CDOT is also reviewing the staffing needs for the appropriate amount of field inspectors needed to manage the public way for compliance and will share our findings with OBM for future staffing considerations. As referenced by the OIG in the audit, work done in the ROW by City departments is recptired to have quality control and

² Federal Highway Administration, "Manual for Controlling and Reducing the Frequency of Pavement Utility Cms," 3.5 2, updated June 27, 2017. accessed November 20, 2017, <https://www.lliwa.dol.i;ov/ulililies/utilliivcuts/mantoc.crm> <<http://www.lliwa.dol.i;ov/ulililies/utilliivcuts/mantoc.crm>>.

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restoration signed-off by supervising City personnel. Because supervision already occurs on City projects, CDOT is maximizing current inspector staffing levels by focusing inspection efforts on non-City projects.

"CDOT agrees that moving from paper to electronic record keeping will increase public way inspection efficiency, accuracy, and productivity. In 2018, CDOT will work with ROW inspectors to increase the number of inspections recorded into the Hansen system. CDOT will also work with DoIT and OBM to determine the resources necessaiy to implement the technology upgrades required for a complete transition to electronic record keeping. "

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V. Appendix A: OUC Members

The list below shows the OUC membership as of February 1, 2016.

1. Abovenct
2. ACD
3. AT&T
4. CDOT Division of Electrical Operations
5. CDOT Division of Infrastructure Management

6. CDOT Division of Project Development
7. CDOT Engineering
8. CDOT Red Light Cameras
9. Chicago Department of Water Management: Sewer
10. Chicago Department of Water Management: Water
11. Chicago Park District
12. Chicago Transit Authority
13. Comcast
14. ComEd
15. Department of Streets & Sanitation Bureau of Forestry
16. Digital Realty Trust
17. JC Decaux
18. Level 3
19. MCI
20. MDE/Thermal Chicago
21. Metropolitan Water Reclamation District
22. Office of Emergency Management & Communications
23. Peoples Gas
24. RCN
25. Sidera/Lighttower
26. Sunesys
27. T-Mobile
28. Verizon
29. Wide Open West

Source: CDOT 2016 Rules and Regulations²⁴

"Chicago Department of Transportation. "Rules and Regulations for Construction in the Public Way," March 2016, 3 10. accessed November 20, 2017, <[https://www.cityofchicago.org/content/dam/city/depts/cdot/Construction%20Guidelines/2016/2016 CDOT Rules and Regulations I 2316.pdf](https://www.cityofchicago.org/content/dam/city/depts/cdot/Construction%20Guidelines/2016/2016%20CDOT%20Rules%20and%20Regulations.pdf).

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VI. Appendix B: Public Way Coordination and Management Process The following chart illustrates the steps of CDOT's project coordination process.

crx>T01vrfstonofInfrastructure Managementot ^:PublkVJay Construction Management ProcessM:-

Office of Underground Coordination* \ ■v*Project Coordination Office ■■

*Entity submits CIP or Work * Permit application (online) ■

Project Info j addedxq- ~ dotMa"p"i:: /

■ ~ @&&kz/

information Retrieval fIRI ^ Applicant submits basic:: ■ project info to database y. ■ OUC members review and , respond with their facilities ■, near.location- i:" ■Project location confirmed ■ ■

~Is the project near.any * existing utilities~? ly'

f
Yes

! Existinf Facility Protection (EFPI) ! • Applicant submits certified " " drawings to database' " " [: • OUC members review and")^ ! ■ ■ ~ submit potential conflicts^.

■ Project Coordination Meetings ■ ~ ~ Conflictsmediated

• ~: Memoranda Of ~f:::~

~^Understandingdrafted ■ Ax&sbetween parties^~ ~ ~^w.

• ~^Permit Issue Authorization ~. ~ ~s given by each member ~ ^~.

~ Do the plansshbw v ~C. conflicts with'existing * **V ' facilities?.

~. ' Is the project on a X Moratorium Street

Restoration Agreement signed

Restoration ~v ■ Agreement signed ■ (Aldermanic approva may be needed)

Is a complaint filed: against project:

■ ^Restoration .. Ro&urvey (Inspection) genj ated

Is project in ~ ■ ~ co m i> l i a n cIV. wi t h . permit reef? . '■

■ Gullion Issued, cja"v~: hioes to DOAH

. Does permittee iusolvit issue'

Source: OIG illustration of information provided by CDOT.

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The City of Chicago Office of Inspector General (OIG) is an independent, nonpartisan oversight agency whose mission is to promote economy, efficiency, effectiveness, and integrity in the administration of programs and operations of City government. OIG achieves this mission through,

administrative and criminal investigations; audits of City programs and operations; and reviews of City programs, operations, and policies.

From these activities, OIG issues reports of findings and disciplinary and other recommendations to assure that City officials, employees, and vendors are held accountable for the provision of efficient, cost-effective government operations and further to prevent, detect, identify, expose and eliminate waste, inefficiency, misconduct, fraud, corruption, and abuse of public authority and resources.

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