



City of Chicago



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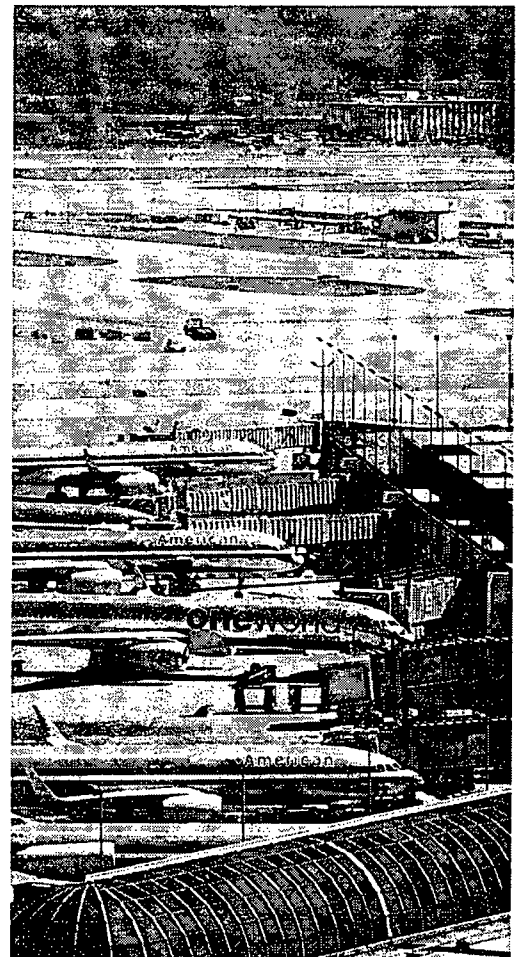
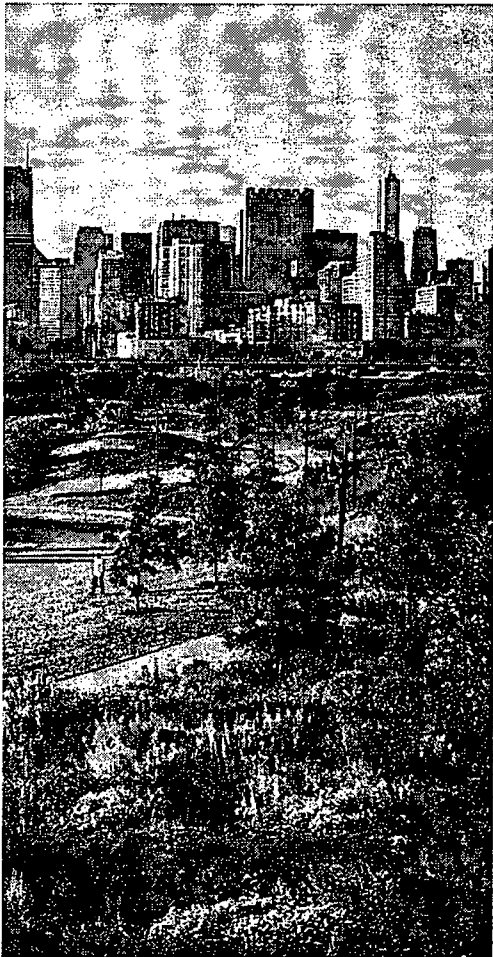
Office of the City Clerk

Document Tracking Sheet

Meeting Date:	1/27/2021
Sponsor(s):	Dept./Agency
Type:	Report
Title:	Inspector General's audit of Capital Improvement Program development and evaluation
Committee(s) Assignment:	

DECEMBER 2020

CITY OF CHICAGO
OFFICE OF INSPECTOR GENERAL
AUDIT OF THE CITY'S CAPITAL
IMPROVEMENT PROGRAM
DEVELOPMENT AND EVALUATION



JOSEPH M. FERGUSON, INSPECTOR GENERAL FOR THE CITY OF CHICAGO



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DECEMBER 22, 2020

TO THE MAYOR, 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 development and evaluation of the City's Capital Improvement Program (CIP). Our objective was to determine if the City develops and evaluates its CIP in accordance with leading practices described by the United States Government Accountability Office. Specifically, we examined whether the City aligns capital improvement decisions with organizational goals, selects capital projects using an investment approach, evaluates historic outcomes, and incorporates lessons learned into the capital decision-making process.

Based on the audit results, OIG concluded that the City's CIP development and evaluation largely mirrors leading practices for development but does not consistently evaluate goal achievement using performance measures or incorporate lessons learned from completed projects into future capital decision-making. We recommend that the Office of Budget and Management (OBM) define Citywide standards and increase transparency. In response, OBM stated that it agrees with our recommendations and has incorporated some into the 2021-2025 CIP, released in November 2020. OBM also intends to increase transparency by publicly sharing selection criteria and identifying additional opportunities for public engagement and input.

It is critical that the City fully implement leading practices for the selection and post-completion evaluation of capital projects, and apply lessons learned to future decision making. Moreover, given the size of the investment—\$8.5 billion in the 2019-2023 CIP increasing to \$11.7 billion in the new 2021-2025 CIP—it is equally important that the City increase transparency and invite public engagement in the decision-making process from communities throughout Chicago.

We thank OBM staff and management for their cooperation. We also appreciate the cooperation of various City departments who discussed their capital planning processes with us.

Respectfully,

A handwritten signature in black ink, appearing to be 'JF', written in a cursive style.

Joseph M. Ferguson
Inspector General
City of Chicago

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ACRONYMS

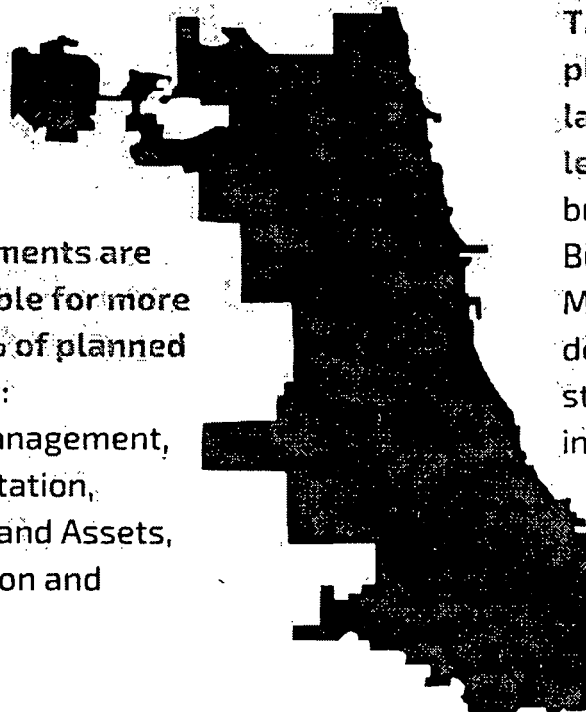
AIS	Department of Assets, Information and Services
CDA	Chicago Department of Aviation
CDOT	Chicago Department of Transportation
CIP	Capital Improvement Program
DWM	Department of Water Management
GAO	United States Government Accountability Office
OBM	Office of Budget and Management
OIG	Office of Inspector General

AUDIT OF THE CITY'S CAPITAL IMPROVEMENT PROGRAM DEVELOPMENT AND EVALUATION



Total funding for Chicago's 2019-2023
Capital Improvement Program: \$8.5 Billion

4 departments are
responsible for more
than 98% of planned
spending:
Water Management,
Transportation,
Aviation, and Assets,
Information and
Services.



The City's capital
planning processes
largely align with
leading practices,
but the Office of
Budget and
Management should
define Citywide
standards and
increase transparency.

I. EXECUTIVE SUMMARY

The Office of Inspector General (OIG) conducted an audit of the development and evaluation of the City's Capital Improvement Program (CIP), a five-year plan for infrastructure spending.

Our objective was to determine if the City develops and evaluates its CIP in accordance with leading practices outlined in the United States Government Accountability Office's (GAO) *Executive Guide: Leading Practices in Capital Decision-Making*.¹ Specifically, we examined whether the City,

- aligns capital improvement decisions with organizational goals;
- selects capital projects using an investment approach; and
- evaluates historic outcomes and incorporates lessons learned into the capital decision-making process.

A. CONCLUSION

OIG concluded that the City's CIP development and evaluation process largely follows leading practices for development but does not consistently evaluate goal achievement using performance measures or incorporate lessons learned from completed projects into future capital decision-making.

B. FINDING

OIG surveyed four departments that are responsible for more than 98% of planned CIP allocations—Department of Water Management (DWM), Chicago Department of Aviation (CDA), Chicago Department of Transportation (CDOT), and Department of Assets, Information and Services (AIS)—and found that their capital decision-making practices largely follow GAO's guidance on CIP development and evaluation. In some cases, external funding sources, such as state and federal grants and loans, impose requirements that align with the leading practices.

GAO recommends that organizations monitor results after project completion, evaluate goal achievement using performance measures, and incorporate lessons learned into future capital decision-making. The City does not consistently follow these practices. Without evaluating results using performance measures, departments may not be able to establish—indeed, they may not even know—whether their projects have achieved goals, met needs, or used resources efficiently. A department that does not use performance measures may neglect to preserve

¹ United States Government Accountability Office, *Executive Guide: Leading Practices in Capital Decision-Making*, December 1998, accessed June 3, 2020, <https://www.gao.gov/assets/80/76/76r2a.pdf>

information regarding underperforming vendors that could help inform future contracting efforts.

Because OBM informs departments of their capital budgets and compiles their capital plans, it could play a more active role in defining Citywide standards, increasing transparency, and maximizing public engagement in the capital budgeting process. The City does not publicly share information about the project selection process; thus, Chicagoans are not fully informed of the justifications for selected and non-selected projects, and cannot assess whether the City adequately took into account equity considerations.

OBM informed OIG that it intends to improve CIP development and evaluation.

C. RECOMMENDATIONS

As OBM strives to improve the City's CIP processes, it should define, standardize, and document Citywide processes aligned with GAO leading practices, thereby providing a strong framework for capital decision-making independent of external funders' requirements. Specifically, OBM should guide departments to,

1. conduct comprehensive needs assessments to identify capital assets necessary to meet both program-specific and general City goals;
2. maintain inventories of capital assets that include updated status reports on their conditions;
3. compare current assets to needed assets and determine how to bridge the gap, including consideration of alternative approaches such as public-private partnerships;
4. establish review and approval frameworks, with pre-defined project ranking and selection criteria, that are both generally applicable and particular to each major program;
5. create multi-year plans that anticipate future resource needs and implementation priorities;
6. use performance measures to evaluate the results of completed projects in relation to general and program-specific goals; and
7. engage in post-completion evaluation processes that include sharing lessons learned within and across departments.

OBM should monitor departments' adherence to this guidance and provide further support and direction as needed. Additionally, to promote transparency and public engagement, OBM should,

8. initiate collaboration on capital planning with the City Council Committee on Economic, Capital, and Technology Development, consider re-establishing the Capital Improvement Advisory Committee, and resume the practice of hosting geographically diverse community meetings on the topic of capital planning; and
9. provide more information online about capital project selection criteria, project results, and opportunities for public input.

D. OBM RESPONSE

In response to our audit finding and recommendations, OBM stated that it agrees and has incorporated some of the recommendations into its 2021-2025 CIP, released in November 2020. OBM intends to increase transparency by publicly sharing selection criteria and identifying additional opportunities for public engagement and input. OBM will also increase departmental coordination by facilitating "discussions with and between the responsible departments" and establishing "a process and protocol for this review."

The specific recommendations related to the finding, and OBM's response, are described in the "Finding and Recommendations" section of this report.

II. BACKGROUND

The Capital Improvement Program (CIP) is a “five-year schedule of infrastructure investment that the City plans to make for continued support of existing infrastructure and new development.”² It expresses the City’s priorities for repair, replacement, and new construction of City-owned physical infrastructure and facilities with long, useful lives. The CIP covers a wide range of projects, ranging from, for example, \$200,000 in improvements to West Chicago Library and \$500,000 for art at the Cermak Green Line station to the \$73 million replacement of the Lake Street bridge downtown, \$129 million for improving neighborhood streetlights, and \$1.1 billion to replace sewers over 5 years. As stated in the CIP, “continued investments in infrastructure and facilities are critical to support and enhance neighborhoods, stimulate the economy, and improve services.”³

The CIP does not list all the City’s capital needs for the upcoming five years. Rather, it includes only “planned capital improvements given the projection of available financial resources.”⁴ CIP funding sources include general obligation bonds; tax increment financing; revenue bonds for Water, Sewer, and Aviation projects; and state and federal funding for transportation improvements. OBM prepares the CIP annually, and is responsible for updating the funding projections and status of all projects.⁵ The first year of each CIP is based on the capital budget for that year, while years two through five are based on budget projections.

A. MAJOR PROGRAMS AND ALLOCATIONS

As shown in Figure 1, Chicago’s 2019-2023 CIP totals \$8.5 billion, ranging from \$24 million for CitySpace—an open space preservation and development program—to more than \$2.6 billion for Aviation projects.⁶

² City of Chicago, Office of Budget and Management, “2019-2023 Capital Improvement Program,” 1, accessed June 3, 2020, https://www.chicago.gov/content/dam/city/depts/obm/supp_info/CIP_Archive/2019_2023CIPBook.pdf

³ “2019-2023 Capital Improvement Program,” 1

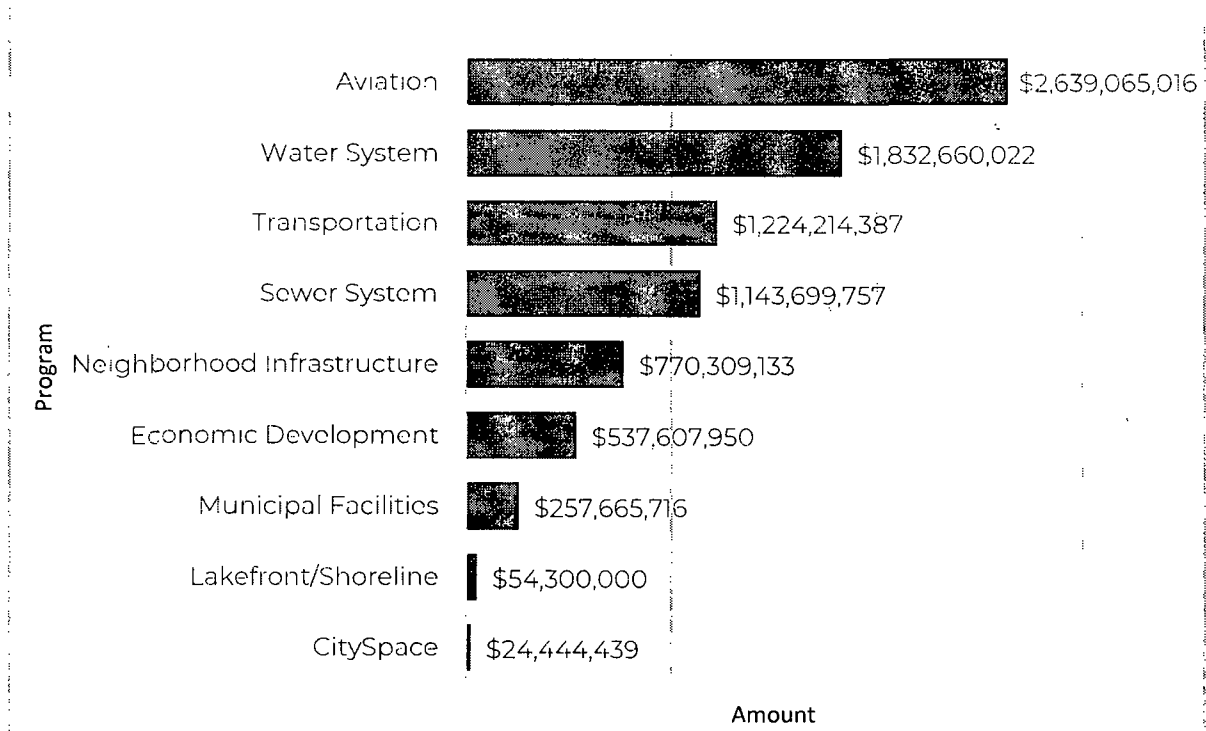
⁴ “2019-2023 Capital Improvement Program,” 1

⁵ City of Chicago, “2020 Budget Overview,” 49 and 64, accessed June 3, 2020,

https://www.chicago.gov/content/dam/city/depts/obm/supp_info/2020Budget/2020BudgetOverview.pdf

⁶ Appendix A contains descriptions of the nine major programs. As noted in the Appendix A description of the Aviation Program, CIP does not include the O’Hare Modernization Plan, Terminal Area Plan, or Terminal 5 expansion.

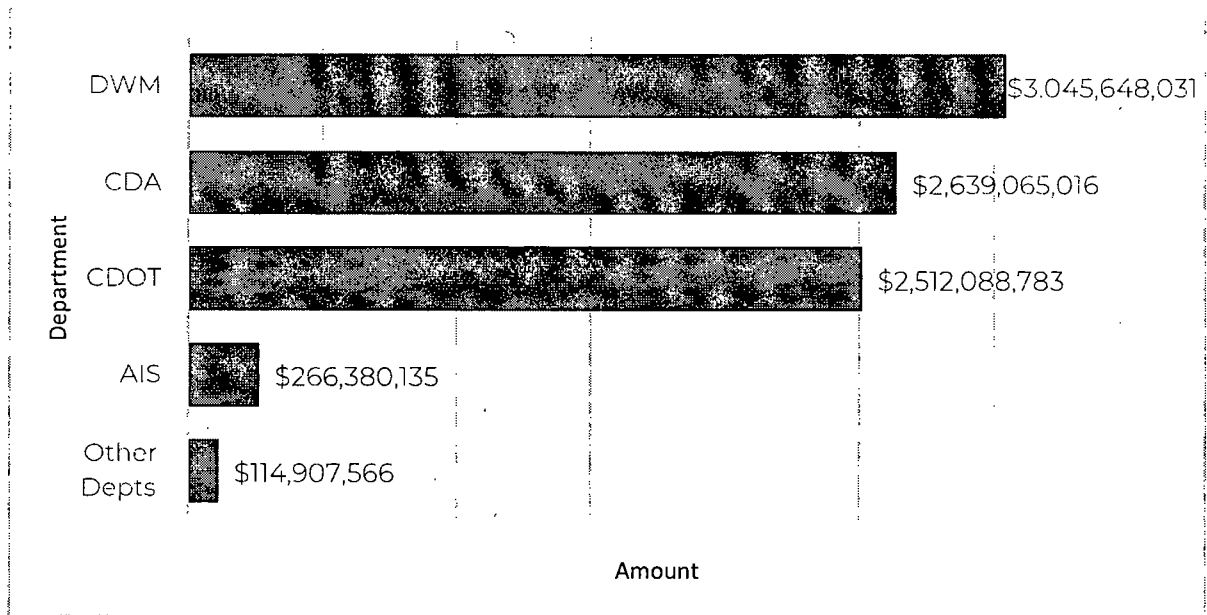
FIGURE 1: THE AVIATION PROGRAM HAS THE LARGEST PLANNED CIP ALLOCATION



Source: OIG analysis of the 2019-2023 CIP

While the CIP groups projects into programs, it is best viewed in relation to the City's operational departments. CDA is solely responsible for the Aviation Program. DWM is responsible for the Water Program and Sewer System Program. CDOT is responsible for multiple programs including Transportation, Neighborhood Infrastructure, Economic Development, and Lakefront/Shoreline. AIS is primarily responsible for Municipal Facilities but is also involved in CitySpace and Economic Development programs. As shown in Figure 2, DWM, CDA, CDOT, and AIS are responsible for more than 98% of planned allocations for the 2019-2023 CIP.

FIGURE 2: FOUR DEPARTMENTS ARE RESPONSIBLE FOR MORE THAN 98% OF CIP ALLOCATIONS

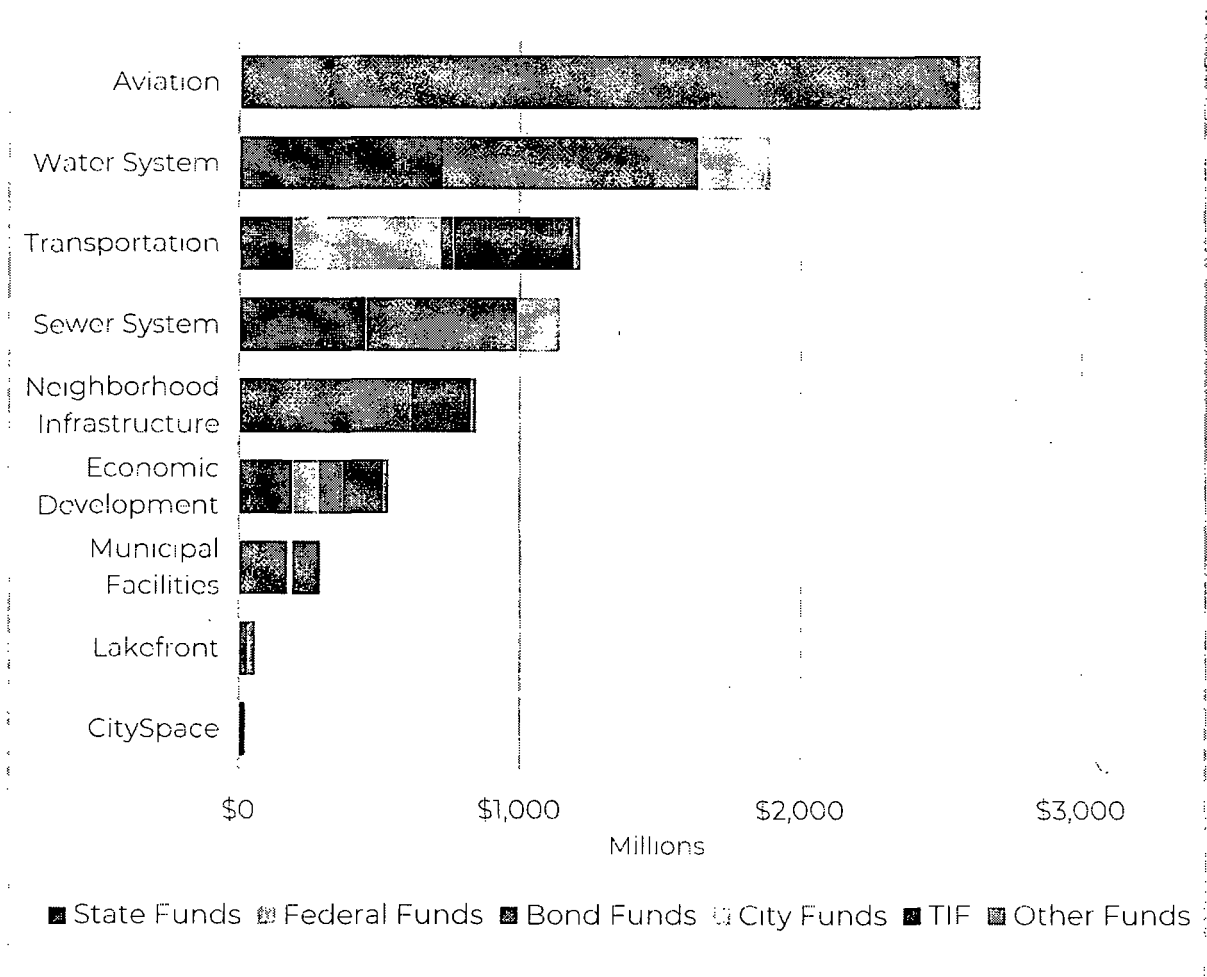


Source: OIG analysis of the 2019-2023 CIP

B. FUNDING SOURCES

The City funds capital projects through various sources. As shown in Figure 3, while Aviation is funded almost entirely by revenue bonds, significant portions of the Water, Sewer, and Transportation programs are supported by state and federal sources.

FIGURE 3: WHILE BOND FUNDS SUPPORT MANY PROGRAMS, SEVERAL ALSO RECEIVE FEDERAL AND STATE FUNDING



Source: OIG analysis of the 2019-2023 CIP.

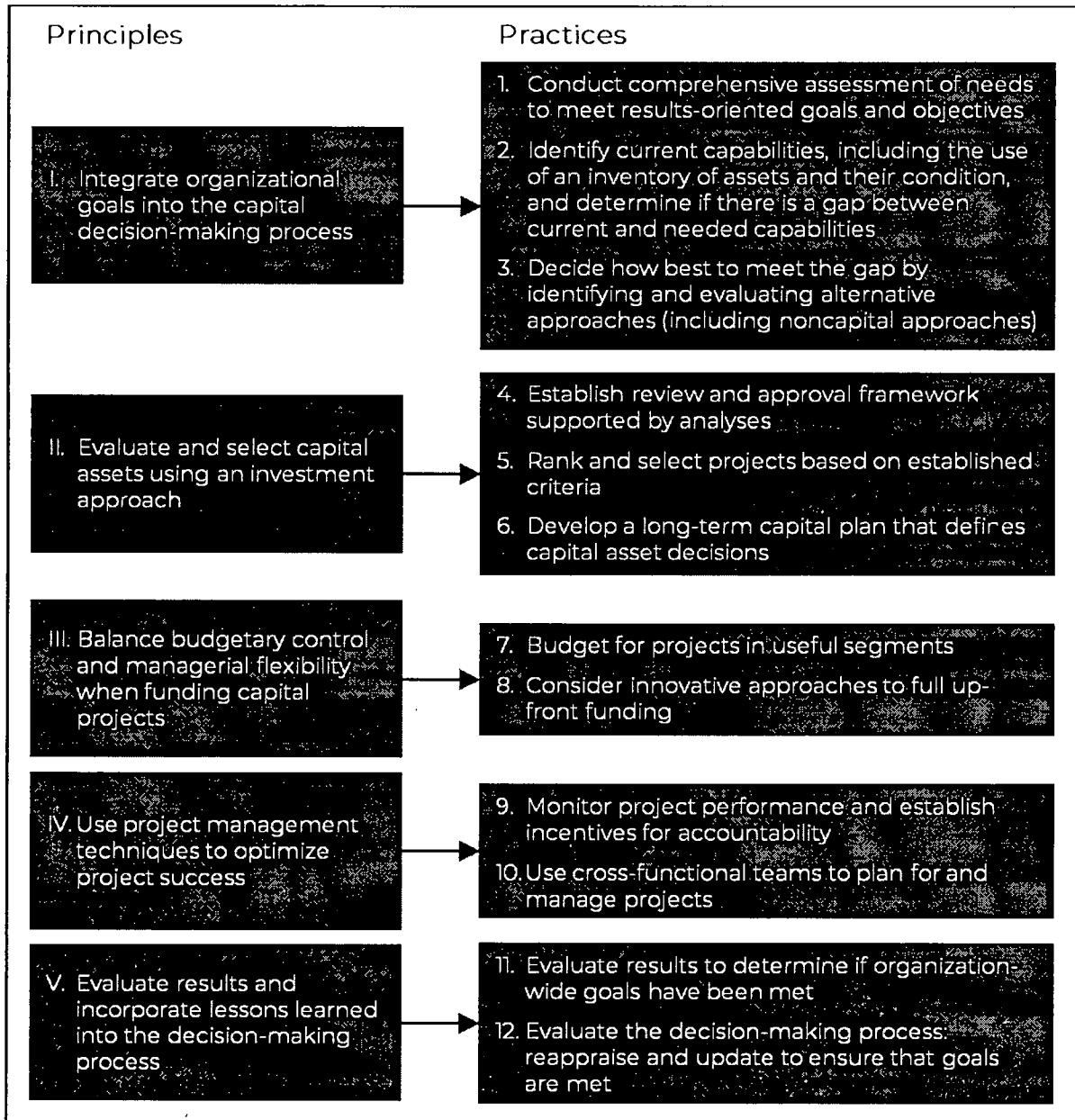
C. LEADING PRACTICES FOR MAKING CAPITAL INVESTMENT DECISIONS

The United States Government Accountability Office's (GAO) *Executive Guide: Leading Practices in Capital Decision-Making* describes 5 principles and 12 associated practices that public and private sector organizations use to make capital investment decisions.⁷ Principles I and II emphasize analyzing the entity's needs and selecting projects that best meet them. Principles III and IV provide budgetary and project management guidance to maximize project benefits. Principle V describes

⁷ United States Government Accountability Office, *Executive Guide: Leading Practices in Capital Decision-Making*, December 1998, accessed June 3, 2020, <https://www.gao.gov/assets/30/76425.pdf>.

evaluating completed projects and applying lessons learned to future capital planning. Figure 4 summarizes the principles and practices.

FIGURE 4: GAO CAPITAL INVESTMENT DECISION-MAKING PRINCIPLES AND PRACTICES

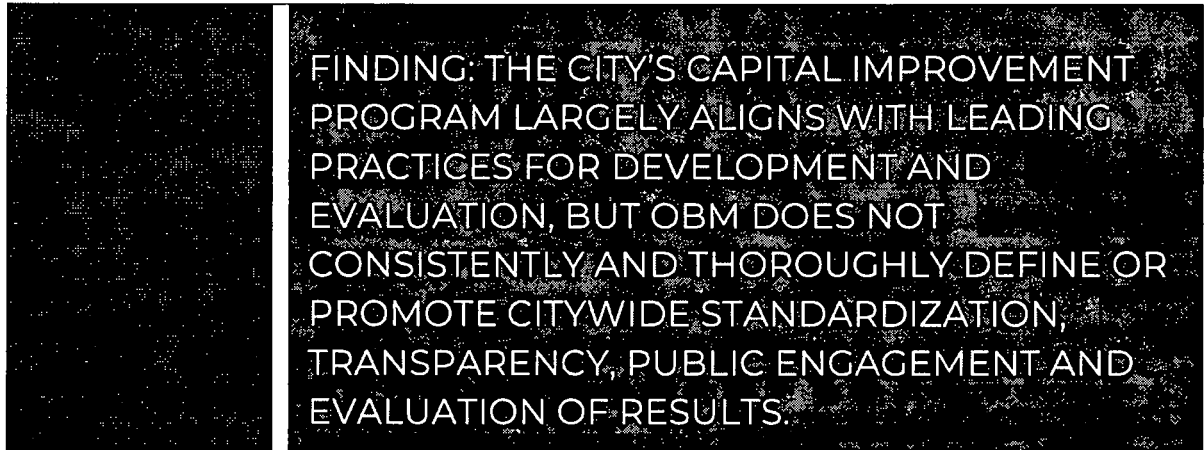


Source: GAO Executive Guide *Leading Practices in Capital Decision-Making*⁸

⁸ Government Accountability Office, *Executive Guide: Leading Practices in Capital Decision-Making*, 23, December 1998, accessed June 3, 2020, <https://www.gao.gov/assets/80/76/76-25.pdf>

For this audit, OIG focused on Principles I, II, and V regarding CIP development and evaluation. We intend to conduct a later audit to review the City's implementation of specific capital projects in relation to Principles III and IV.

III. FINDING AND RECOMMENDATIONS



Based on descriptions and documents from the 4 departments that spend 98% of CIP funds—DWM, CDA, CDOT, and AIS—we conclude that the City follows most leading practices in developing the CIP, but does not consistently evaluate goal achievement using performance measures or incorporate lessons learned from completed projects into future capital decision-making. In some cases, departments follow the practices because they are required to by external funding sources, such as state and federal grants and loans.

Because OBM informs departments of their capital budgets and compiles their capital plans, it could play a more active role in defining Citywide standards, increasing transparency, and maximizing public engagement in the capital budgeting process. OBM informed OIG that it intends to improve CIP development and evaluation.

Figure 5 summarizes OIG's assessment—based on the practices described by DWM, CDA, CDOT, and AIS—of the City's alignment with the pertinent GAO principles. Details on each principle are in the following subsections; Appendix B contains a summary of each department's alignment at both the principle and practice level.

FIGURE 5: THE CITY LARGELY ALIGNS WITH GAO PRINCIPLES RELATED TO THE DEVELOPMENT AND EVALUATION OF CAPITAL PLANS

GAO Principles	CDOT	DWM	AIS	CDA
Principle I: Integrate organizational goals into the capital decision-making process	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment
Principle II: Evaluate and select capital assets using an investment approach	Complete Alignment	Complete Alignment	Complete Alignment	Partial Alignment
Principle V: Evaluate results and incorporate lessons learned into the decision-making process	Complete Alignment	Complete Alignment	Partial Alignment	No Alignment

A. PRINCIPLE I: ASSESS NEEDS TO MEET GOALS

Managers at DWM, CDA, CDOT, and AIS described capital decision-making processes that take into account departmental goals. The departments use surveys, studies, and regular assessments to identify current capabilities and determine needs.⁹ When applicable, the departments also consider alternative approaches, such as public-private partnerships.

In some cases, departments perform comprehensive analysis of their assets to justify requests for federal and state funds. For example, CDOT is required to assess and rank its assets to request federal Surface Transportation Block Grants,¹⁰ and CDA is required to conduct assessments for the five-year plan it submits to the Federal Aviation Administration. OBM defers to departmental expertise in the assessment of needs and relies on the departments to follow best practices within their respective fields.

B. PRINCIPLE II: SELECT CAPITAL PROJECTS USING INVESTMENT APPROACH

The City does not always evaluate and select capital projects using an investment approach. According to GAO, an investment approach includes comparing potential projects to each other and determining which will provide the best long-term value consonant with agency goals. Such an approach requires,

⁹ OIG did not evaluate the quality of these assessments.

¹⁰ Prior to February 2016, this federal funding source was called the Surface Transportation Program and is still referred to by that name in CIP <https://www.fhwa.dot.gov/lastact/act/sheets/stbgls.cfm>

- a management review and approval process supported by thorough financial, technical, and risk analyses;
- project ranking and selection based on preestablished criteria; and
- a multi-year plan that helps entities anticipate future resource needs and implementation priorities.

CDOT, AIS, and DWM use review and approval frameworks supported by analyses, rank and select projects based on established criteria, and develop long-term plans.¹¹ CDA does not rank or select projects based on established criteria; however, most major capital projects require approval from airlines leasing space at the City's airports.

A department that does not use an investment approach may select projects that do not meet its goals or identified needs, and may not optimize capital investments to return the greatest value over the long term. The City may also be forced into a reactionary, "worst first" approach, instead of a preventive and proactive strategy.¹² Furthermore, because the City does not publicly share information about the project selection process, Chicagoans are not fully informed of the justifications for selected and non-selected projects, and cannot assess whether the City adequately took into account equity considerations.

OBM defers to the departments' technical expertise in selecting capital projects. It neither requires them to establish formal project review and approval frameworks, nor does it require the use of pre-established selection criteria. It required such criteria in the past, however. The 1998 "A Guide to Chicago's Capital Improvement Programs" not only included program-specific project selection criteria, but also required capital projects to meet at least one of the following six general criteria:

¹¹ DWM is still working from its 2012-2022 sewer and water main replacement plan, it has not developed a new long term plan. However, the Department regularly creates three-year capital plans to apply for Illinois Environmental Protection Agency loans. In OIG's assessment, this meets the spirit of long-term planning under Principle II Practice 6.

¹² A "worst-first" approach to infrastructure management is one where all resources are spent repairing or replacing the assets that are in the worst condition, rather than allocating some resources to extend the life of assets in less severe condition. Over the long term, a worst-first approach is more expensive and results in poorer asset condition systemwide than a preventive, life cycle-based approach. See Federal Highway Administration Asset Management Expert Task Group, "Linking Performance and Asset Management - A White Paper Produced by the Federal Highway Administration Asset Management Expert Task Group," July 1, 2019, accessed August 6, 2020 <https://www.fhwa.dot.gov/asset/etg/pubs/whitepaper2.pdf>, and Federal Highway Administration, "Bridge Preservation Guide: Maintaining a Resilient Infrastructure to Preserve Mobility," Spring 2018, accessed August 6, 2020 <https://www.fhwa.dot.gov/bridge/preservation/guide/guide.pdf>.

- "Projects that are necessary for the public's health, safety, or general welfare;
- Projects that are necessary to meet legal and/or federal, state, or local requirements;
- Projects that enhance the City's economic viability;
- Projects that enhance neighborhood vitality;
- Projects that minimize future operation and maintenance costs; and
- Projects that support development efforts and the objectives of an adopted plan."

C. PRINCIPLE V: EVALUATE RESULTS AND INCORPORATE LESSONS LEARNED

GAO recommends that organizations monitor results after project completion, evaluate goal achievement using performance measures, and incorporate lessons learned into future capital decision-making. The City does not consistently follow these practices.

- CDOT and DWM evaluate results against organizational goals and regularly examine their decision-making processes.¹³
- AIS has developed measures of success for projects and examines whether projects meet milestones but does not regularly examine its decision-making process.
- CDA relies on airline satisfaction rather than formal quantitative or qualitative measures of success and does not regularly examine its decision-making process.

Without evaluating results using performance measures, departments may not be able to establish—indeed, they may not even know—whether their projects have achieved goals, met needs, or used resources efficiently. A department that does not use performance measures may neglect to preserve information regarding underperforming vendors that could help inform future contracting efforts. In the same vein, a department that does not adjust its processes based on lessons learned may have trouble improving its performance in future projects. Finally, the City cannot leverage lessons learned from effective project management if departments do not evaluate their results and share successful strategies and methods with each other.

¹³ DWM is working to develop broad measures of success. To address contractor quality issues, the Department relies on strict contract terms such as "liquidated damages" to disincentivize bad behavior.

OBM does not currently require consistent and standardized processes for monitoring project results, developing performance measures, or conducting post-completion evaluations.

D. TRANSPARENCY

The City does not publish information describing the CIP development process, explaining what projects were or were not selected and why, or instructing the public how to get involved in the process. OIG spoke with subject matter experts from the University of Illinois at Chicago, University of Chicago, Government Finance Officers Association, Metropolitan Planning Council, Civic Federation, and Chicago Metropolitan Agency for Planning, who emphasized the importance of transparency in capital decision-making. Especially when resources are thinly stretched, transparency is critical to enable the public to engage in the process and understand the difficult allocation choices made for capital improvement.

By improving transparency, the City could improve the capital needs assessment and project selection processes. Past practices promoting transparency and public engagement included,

- Appointment of a Capital Improvement Advisory Committee to engage the public in the capital planning process.¹⁴
 - The Committee consisted of 15 community leaders and professionals from public finance, engineering, economic development, and architecture.
 - According to the 1998 "A Guide to Chicago's Capital Improvement Programs," the Committee assisted the City in holding annual public hearings in locations across Chicago to "solicit citizen testimony to assist the City in setting its capital improvement priorities." The City also distributed "Citizen Request for Capital Improvement" forms to solicit suggestions at these hearings.
 - The Committee reviewed the CIP draft and advised the City on the CIP process.

The Capital Improvement Advisory Committee no longer exists. To provide CIP input, community members must contact their aldermen, call 311, or contact City departments directly.

¹⁴ City of Chicago, Office of the Mayor, "Executive Order 90-2," October 1990, accessed June 3, 2020 <https://www.chicagoclerk.com/legislation-records/journals-and-reports/executive-orders>

- Creation of a publicly available guide with the following specific sections supporting transparency:
 - “Needs Assessment & Evaluation: Explain[ed] the ways in which the responsible department systematically evaluate[d] capital needs and identify[d] the kinds of capital improvements required.”
 - “Project Selection Criteria: List[ed] the standards used by each department to determine project priority.”
 - “Opportunities for Community Input: “Explain[ed] the ways in which individuals and community groups [could] participate in the assessment of capital needs and the selection of capital projects for [each] program.”

According to the City Council's Rules of Order, the Council's Committee on Economic, Capital and Technology Development has “jurisdiction over the consideration, identification, goals, plan, and approach to the annual and five-year Capital Improvement Programs.” Furthermore, it “may hold community hearings to determine the priorities to be considered in the formulation of such programs.”¹⁵ The Committee does not currently hold such hearings.¹⁶ The current chairman stated that he intends to increase the Committee's involvement with CIP.

RECOMMENDATIONS

Although the City follows many GAO leading practices in CIP development and evaluation, in some cases departments follow the practices because external funders require it, not because of City guidance. As OBM strives to improve the City's CIP processes, it should define, standardize, and document Citywide processes aligned with GAO leading practices, providing a strong framework for capital decision-making independent of external requirements. Specifically, OBM should guide departments to,

1. conduct comprehensive needs assessments to identify capital assets necessary to meet both program-specific and general City goals;
2. maintain inventories of capital assets that include updated status reports on their conditions;
3. compare current assets to needed assets and determine how to bridge the gap, including consideration of alternative approaches such as public-private partnerships;

¹⁵ City of Chicago, City Clerk, “Rules of Order and Procedure of the City Council, Rule 37,” 2019, accessed June 3, 2020, http://www.chicityclerk.com/city-council-news-central/rules_order

¹⁶ The Committee held a meeting on August 18, 2020 to hear testimony from OBM, DWM, CDOT, and AIS regarding the City's infrastructure needs

4. establish review and approval frameworks, with pre-defined project ranking and selection criteria, that are both generally applicable and particular to each major program;
5. create multi-year plans that anticipate future resource needs and implementation priorities;
6. use performance measures to evaluate the results of completed projects in relation to the general and program-specific goals; and
7. engage in post-completion evaluation processes that include sharing lessons learned within and across departments.

OBM should monitor departments' adherence to this guidance and provide further support and direction as needed. Additionally, to promote transparency and public engagement, OBM should,

8. initiate collaboration on capital planning with the City Council Committee on Economic, Capital, and Technology Development, and consider re-establishing the Capital Improvement Advisory Committee, resuming the practice of hosting geographically diverse community meetings on the topic of capital planning, and holding public hearings on the draft CIP; and
9. provide more information online about capital project selection criteria, project results, and opportunities for public input.

MANAGEMENT RESPONSE

"OBM agrees that, to the extent feasible, the City's CIP process should align with GAO leading practices.

1. *"With a varied and complex infrastructure portfolio that cuts across all 77 community areas of the City and across multiple departments, absent significant funding necessary to hire additional internal staff or consultants necessary to conduct a comprehensive needs assessment of all of the City's capital needs is improbable. Notwithstanding the challenges inherent in such a survey, some of the City departments already undertake a needs assessment of some of their more critical assets. For example, CDOT already utilizes a Pavement Condition Index (PCI) that allows the department to make sound street resurfacing decisions. CDOT also utilizes National Bridge Inspection Standards (NBIS) developed by the Federal Highway Administration (FHWA) to rate bridge structural conditions. CDOT scores every bridge structure in Chicago using NBIS and bases many of their decisions to repair and replace bridges using those scores. Finally, AIS utilizes their Asset Works system that generates algorithms to score each vehicle in the City fleet*

to determine when a vehicle should be replaced. AIS utilizes this information as part of their decision-making process relative to fleet replacement.

2. "As noted above, as examples, CDOT already uses the PCI for street conditions, NBIS for bridge scoring, and AIS utilizes Asset Works to help make informed decisions on fleet replacements. In addition, CDOT has an inventory of streetlights that was undertaken as part of the SMART Lighting initiative and that includes a generic pole condition assessment. CDOT has an inventory of traffic signals and their ages, which generally corresponds to their conditions. CDOT also maintains an inventory of Works Project Administration (WPA) streets that generally require replacement or significant repairs. CDOT has not had the funding necessary to undertake an assessment of all CDOT assets such as sidewalks, vaulted sidewalks, or alleys. AIS also maintains an inventory of all City-owned facilities. As part of the continued capital planning, AIS prepared a facility-by-facility assessment of many City facilities to determine the scope of needed facility repairs.
3. "OBM, CDOT, and AIS have undertaken a preliminary assessment of the current asset needs and the funding gap necessary to implement a capital plan to address these needs. The City recently approved a \$1.4B capital bond to begin to address this gap and anticipate continual assessment efforts moving forward.
4. "As noted above, CDOT already uses the PCI for street conditions, NBIS for bridge scoring, and AIS utilizes Asset Works to help make informed decisions on fleet replacements. Additional work would be required to develop ranking and selection criteria for all major capital programs.
5. "OBM, DOF, CDOT and AIS, in cooperation with the Mayor's Office, recently developed a multi-year capital bond to address City infrastructure needs with an annual funding cycle. The first two-years, funded at \$1.4 billion, was approved by City Council in November 2020. The five-year plan totals \$3.7 billion. This plan will address a decades-long backlog of infrastructure needs. The five-year capital plan priorities were developed on needs-based condition assessments and data-driven processes conducted by CDOT and AIS. In addition to deferred maintenance, the City will work with Aldermen and the community in planning new neighborhood investments that enhance communities and promote economic development. Additionally, CDA and DWM also have multi-year plans. All of these will be factored into the CIP.
6. "This is a long-term effort that will require all departments to track their project goals. Enhancements would need to be made to the Capital Program Management (CPM) System and performance measures would need to be established for each program.

7. *"Lessons learned and collaboration across departments are worthwhile efforts that can provide important value for subsequent projects. OBM will work to facilitate discussions with and between the responsible departments.
"OBM will establish a process and protocol for this review and continue to work with all relevant departments.*
8. *"In August 2020, OBM collaborated with the City Council Committee on Economic, Capital and Technology Development and co-hosted an online forum with the City Infrastructure Departments to discuss the City's infrastructure needs. This collaboration started a working group that is now looking at a comprehensive citywide strategy to address the most critical safety needs with a goal of reaching a regular replacement cycle of the City's assets. OBM will continue to work with the City Council Committee and the Mayor's Office of Community Engagement to look for additional opportunities for public engagement and input. OBM's experience with the Capital Improvement Advisory Committee was that it was not an effective approach for input on the capital program. OBM will continue to work with the City Council Committee on Economic, Capital and Technology Development and the Mayor's Office of Community Engagement to find additional opportunities for community outreach.*
9. *"OBM concurs that publishing project selection criteria would enhance the public's understanding of how projects are selected for funding. OBM will incorporate this language into the CIP document itself so that it accompanies each program."*

IV. OBJECTIVE, SCOPE, AND METHODOLOGY

A. OBJECTIVE

The objective of the audit was to determine if the City develops and evaluates its Capital Improvement Plan (CIP) in accordance with leading practices. Specifically, OIG examined whether the City:

- aligns capital improvement decisions with organizational goals;
- selects capital projects using an investment approach; and
- evaluates historic outcomes and incorporates lessons learned into the capital decision-making process.

B. SCOPE

OIG examined current City practices for CIP development and evaluation, which included the procedures and processes from the departments who submit projects.

We did not examine CIP implementation or assess whether departments included the proper projects in CIP. We also did not review the budgeting process, how the City funds projects, or the accuracy of published amounts.

C. METHODOLOGY

To understand the City's process for CIP development, OIG reviewed the City's 2010 through 2019 CIPs and OBM's 1998 "A Guide to Chicago's Capital Improvement Programs."

We also interviewed OBM management and the chairs of the following five City Council committees: Budget and Government Operation; Economic, Capital, and Technology Development; Aviation; Workforce Development; and Finance.

To learn about best practices in capital planning, we interviewed subject matter experts from the University of Illinois at Chicago, University of Chicago, Government Finance Officers Association, Metropolitan Planning Council, Civic Federation, and the Chicago Metropolitan Planning Agency. We also reviewed written guidance from GAO, the federal Office of Management and Budget, the National Advisory Council on State and Local Budgeting, and the Government Finance Officers' Association.

To determine whether the City's CIP development adheres to the GAO *Executive Guide*, we interviewed managers from AIS, CDA, CDOT, and DWM. We chose these departments because they account for over 98% of planned CIP allocations. We compared the processes described by the departments to GAO principles and

leading practices. We corroborated the departments' descriptions by reviewing their written procedures or plans. However, we did not assess the quality of the departments' processes or their adherence to them.

We considered four components of internal control in our evaluation of the departments' alignments with leading practices. Specifically, we examined principles associated with risk assessment, control activities, information and communication, and monitoring. As part of the broader analysis of OBM's oversight of CIP development, we also examined the control environment. We discussed identified deficiencies in the finding.

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 finding and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our finding 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.

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

APPENDIX A: 2019-2023 CIP MAJOR PROGRAM DESCRIPTIONS

The following City of Chicago 2019-2023 CIP excerpts describe major programs.

A. AVIATION

"The Department of Aviation is responsible for the operation and maintenance of both Midway and O'Hare International Airports. The operation and maintenance of both airports necessitates a capital program to rehabilitate and expand facilities and infrastructure. Both airports' Capital Improvement Programs include projects that improve runways, taxiways and aprons, terminal buildings, access roadways, parking lots, and parking garages. Projects listed here are capital projects only and does not include programs such as the O'Hare Modernization Plan (OMP), or the Terminal Area Plan (TAP), or the Terminal 5 (T-5) expansion that is part of TAP. Those programs are envisioned as larger multi-year budgets and have already been formally announced and thus not included in these CIP numbers. Aviation capital funding is used exclusively for projects at the City's two international airports."

B. CITYSPACE

"The CitySpace Program coordinates the creation of new, open space in neighborhoods with the greatest need for parkland; the acquisition and preservation of existing wetlands; natural resources, and river edges; and the reuse of railroad infrastructure for trails and parks."

C. ECONOMIC DEVELOPMENT

"The Economic Development Program includes demolition, streetscaping, viaduct improvement, and other programs. Many of these programs are administered by the Department of Transportation (CDOT) in collaboration with the Department of Planning and Development (DPD). These City departments work with area businesses, community organizations, and other governmental bodies to create and retain jobs as well as encourage new investment.

- *The Demolition Program* is designed to safely clear hazardous building sites to facilitate development. The proper disposal of hazardous materials and leveling of unsafe structures is managed by the Department of Buildings and is a key component in the City's economic development program.
- *The Streetscape Program* plays an important role in the livability, vitality, and character of our neighborhoods and commercial areas. The design and revitalization of streets, public spaces, and transportation corridors are the heart of the program's mission. The program promotes the economic and

social development of communities through renovating and improving the quality of our public spaces, infrastructure, and transportation network. The program implements small and large-scale capital improvement projects incorporating CDOT's Streetscape, Complete Streets, Sustainable Infrastructure, Placemaking in the Public Way, and Vision Zero guidelines and policies. Projects include streetscapes, multimodal improvements, off-street trails, recreation and riverfront, neighborhood plazas, small gathering spaces, landscape beautification, sustainable infrastructure, community identifiers, site furnishings, master plans, and framework plans.

- *The Viaduct Improvement Program* addresses the safety needs of the 174 viaducts throughout the city. The Viaduct Improvement Program upgrades viaduct structures addressing lighting, sidewalks, roadway, and clearance issues.
- *The Other Economic Development Program* encourages economic development projects that involve joint financing with other jurisdictions, such as the Federal Government, State of Illinois or Chicago Park District, as well as with the private sector. The City also uses its own resources to finance smaller scale developments designed to enhance an area's economic viability such as improving industrial areas by improving roadway infrastructure and removing hazardous conditions that limit the operation and growth of industrial firms."

D. LAKEFRONT/ShORELINE

"The City of Chicago in partnership with the Chicago Park District and the U.S. Army Corps of Engineers have developed a plan to protect the City's shoreline and other public facilities from erosion and deterioration."

E. MUNICIPAL FACILITIES

"Municipal Facilities are an essential component of the City's infrastructure, providing space to deliver government services. The Department of Fleet and Facility Management (2FM) is responsible for the maintenance of these facilities and is also charged with the responsibility of designing new facilities and modernizing existing buildings."¹⁷

F. NEIGHBORHOOD INFRASTRUCTURE

"The Neighborhood Infrastructure Program is administered by CDOT and consists of capital improvements to the local street system of Chicago (residential streets, sidewalks and lighting).

¹⁷ In 2020 2FM merged with the Department of Innovation Technology to form AIS

- *The Aldermanic Menu* allocates \$1,320,000 per ward whereby aldermen may choose capital improvement of streets, alleys, curbs, sidewalks, American with Disabilities Act (ADA) ramps, and traffic calming depending on their local infrastructure needs. The Aldermanic Menu Program also includes traffic signal modernization, alley lighting, streetlight upgrades and replacement, as well as beautification projects, and investment in the public-use spaces of schools and parks.
- *Lighting* includes the improvement of the lighting in the public way, replacement of deteriorated street light poles and bases, installation of lighting in viaducts, re-lamping of street and alley lights, and street light cable replacement throughout the City's inventory of over 334,000 street, alley and viaduct lights. This program also includes upgrades of the lighting system that are occurring as part of other capital projects such as New Street Construction, Major Streets, and Streetscaping Programs.
- *The New Street Construction Program* replaces existing, unimproved streets. Benefits of this program include new pavement, curbs and gutters, and upgrades to sewer, water, and electrical facilities. Unimproved streets are those without curbs and gutters or a concrete base and are commonly called "WPA Streets" since most were built under the Federal Works Progress Administration. This program also installs new streets for Chicago Housing Authority's Plan for Transformation developments.
- *The Other Neighborhood Improvements Program* is comprised of various types of capital improvements that enhance neighborhoods. Improvements such as Vision Zero improvements and other small projects grouped together to maximize impact in the neighborhoods.
- *Residential Street Resurfacing* upgrades deteriorated local streets by removing the existing roadway surface and replacing it with an overlay of new asphalt. Also included are the adjustment to drainage structures, installation of ramps at crosswalks. Resurfacing results in a better riding surface, improved drainage, and enhancement of the neighborhood's appearance.
- *Sidewalk Construction Program* replaces and repairs sidewalks through three programs:
 - *Shared Cost Sidewalks Program* replaces deteriorated sidewalks. The City, through CDOT, and property owners each pay part of the construction costs of the needed sidewalk improvements. When the property owner is a senior citizen, the City pays a greater share of the construction cost. Also, the City pays for the entire cost of sidewalk replacement at locations for which the City is solely responsible, such as alleys and crosswalks

- o *The 311 Hazardous Sidewalks Program* funds the replacement of sidewalks that have been entered, inspected and determined hazardous through the City's 311 system.
- o *The Vaulted Sidewalks Program* involves filling in deteriorated vaulted sidewalks. Vaulted sidewalks were installed in some Chicago neighborhoods at the time when streets and sidewalks were raised five to six feet to avoid flooding due to the high-water table. These sidewalks are located primarily in the Near Northwest, Near Southwest, Lower West Side, and South Chicago communities."

G. SEWER SYSTEM

"The Department of Water Management (DWM) is responsible for approximately 4,500 miles of sewers, 205,000 drainage structures and 148,000 manholes Citywide. DWM's Sewer System Capital Improvement Program provides for the replacement of deteriorated or undersized sewers based upon hydraulic evaluation, maintenance and repair records, and hydraulic evaluation. Construction costs are about \$5-\$6 million per mile for most sewers with yearly goals to reline or rebuild 699 miles of sewer lines and reline 95,000 sewer structures. Larger sewers and sewers in the Central Business District can cost substantially more to reconstruct. Sewer lining and rehabilitation of large diameter sewers are also covered in the Sewer System's Capital Improvement Program."

H. TRANSPORTATION

"The Transportation Program, administered by CDOT, consists of capital improvements to the major street systems under the City's jurisdiction and enhancements to the transit systems that serve Chicago.

- *Bridge Improvements Program* maintains 243 bridges, including 36 moveable bridges, in safe, operable condition on the arterial street system. The benefits of this program are a reduction of maintenance costs, an increase in dependability of movable bridges, and improved safety. This program also involves repair, rehabilitation, and reconstruction of bridges that carry streets and pedestrian traffic.
- *Intersection/Safety Improvements Program* maintains the safe movement of vehicular and pedestrian traffic along the City's 1,055 miles of arterial streets. In many cases, safety impediments such as narrow intersections and deteriorated railroad crossings cause traffic congestion and safety hazards to the public. CDOT seeks to remedy these problems by widening intersections to provide turning bays, rehabilitate railroad crossings, and

install new traffic control devices (traffic signals and railroad crossing gates) where necessary.

- *Major Streets Program* is responsible for 1,055 miles of major streets, known as arterial streets. The Major Streets provides for the resurfacing, reconstruction, or widening of arterial streets. These projects maintain a safe, efficient street system and reduce maintenance costs. ADA ramps are also installed or updated as part of this program.
- *Railroad Improvements Program* is the City working to enhance rail infrastructure by participating in the Chicago Regional Environmental and Transportation Efficiency (CREATE) Program. This is a partnership between the City, the U.S. Department of Transportation, the State of Illinois, Metra, Amtrak, and the freight railroads to invest in critically needed improvements to increase the efficiency of the region's passenger and freight rail infrastructure. The goal of CREATE is to:
 - Improve passenger rail service
 - Reduce freight rail congestion to boost regional and national economic competitiveness
 - Reduce motorist delay due to rail conflict at grade crossings
 - Enhance public safety
 - Promote economic development
 - Create and retain jobs
 - Improve air quality
 - Reduce noise from idling or slow-moving trains
- *The Traffic Signal Program* includes the design and installation of new traffic signals where none exist as well as modernizing the existing signals, which may also include minor upgrades such as the installation of a left-turn arrow and pedestrian countdown signals. This program is designed to improve motorist and pedestrian safety, and to improve the traffic flow.
- *The Transit/Bicycle/Pedestrian Program* includes the building of new in-fill CTA stations, rehabilitation or replacement of select CTA stations, and extensions of other at-grade, subway, and elevated CTA facilities. The goal of CDOT's Transit/Bicycle/Pedestrian Program is to ensure safe and efficient transit service to the users and to determine the best means of solving transit problems. The Program also includes bicycle and pedestrian facilities that provide access to transit or an alternative option to motor vehicle travel for an entire trip."

I. WATER SYSTEM

"DWM is responsible for delivering potable water from the filtration plants, to pumping stations, to the Chicago consumer, and to adjacent suburban communities. The Water Program includes maintaining the City's two purification plants, maintenance and upgrades to 13 pumping stations, increasing available water supply through installation of new and replacement of old grid mains and various appurtenances and replacing unreliable meters to ensure proper accountability of water usage. The DWM has the goal of replacing 880 miles of aging water pipes."

APPENDIX B: THE CITY'S PRACTICES FOR CIP DEVELOPMENT AND EVALUATION

The following table summarizes, at both a principle and practice level, OIG's assessment of the City's capital improvement processes, based on discussions with CDOT, DWM, AIS, and CDA.

	CDOT	DWM	AIS	CDA
Principle I: Integrate organizational goals into the capital decision-making process	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment
<i>Practice 1 – Conduct comprehensive assessment of needs to meet results-oriented goals and objectives</i>	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment
<i>Practice 2 – Identify current capabilities, including the use of an inventory of assets and their condition, and determine if there is a gap between current and needed capabilities</i>	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment
<i>Practice 3 – Decide how best to meet the gap by identifying and evaluating alternative approaches (including noncapital approaches)</i>	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment

	CDOT	DWM ¹⁵	AIS	CDA
Principle II: Evaluate and select capital assets using an investment approach	Complete Alignment	Complete Alignment	Complete Alignment	Partial Alignment
<i>Practice 4 – Establish review and approval framework supported by analyses</i>	Complete Alignment	Complete Alignment	Complete Alignment	Complete Alignment
<i>Practice 5 – Rank and select projects based on established criteria</i>	Complete Alignment	Complete Alignment	Complete Alignment	Partial Alignment
<i>Practice 6 – Develop a long-term capital plan that defines capital asset decisions</i>	Complete Alignment	Partial Alignment	Complete Alignment	Complete Alignment

¹⁵ DWM is still working from its 2012-2022 sewer and water main replacement plan; it has not developed a new long-term plan. However, DWM regularly creates three-year capital plans in order to apply for Illinois Environmental Protection Agency loans, therefore we conclude that it meets the spirit of long term planning under Principle II Practice 6.

	CDOT	DWM	AIS	CDA
Principle V: Evaluate results and incorporate lessons learned into the decision-making process	Complete Alignment	Complete Alignment	Partial Alignment	No Alignment
<i>Practice 11 – Evaluate results to determine if organization-wide goals have been met</i>	Complete Alignment	Complete Alignment	Complete Alignment	No Alignment
<i>Practice 12 – Evaluate the decision-making process: reappraise and update to ensure that goals are met</i>	Complete Alignment	Complete Alignment	No Alignment	No Alignment

MISSION

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 by its Investigations Section;
- performance audits of City programs and operations by its Audit and Program Review Section;
- inspections, evaluations and reviews of City police and police accountability programs, operations, and policies by its Public Safety Section; and
- compliance audit and monitoring of City hiring and human resources activities and issues of equity, inclusion and diversity by its Diversity, Equity, Inclusion, and Compliance Section.

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 violations of laws and policies;
- to improve the efficiency and cost-effectiveness of government operations; and
- to prevent, detect, identify, expose, and eliminate waste, inefficiency, misconduct, fraud, corruption, and abuse of public authority and resources.

AUTHORITY

OIG's authority to produce reports of its findings and recommendations is established in the City of Chicago Municipal Code §§ 2-56-030(d), -035(c), -110, -230, and 240.

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