

# Capital Improvement Planning Services at ACOG: Program Description and Summary

## Abstract

[ORGANIZATION NAME] has requested a general description of Capital Improvement Planning (CIP) practice and a summary proposal of assistance detailing ACOG's CIP capabilities. Specifically, [ORGANIZATION NAME] is interested in GIS mapping of utility assets. As a response, this document describes CIP and its use in the effective management and planning of municipal infrastructure improvements. Typical State, Municipal and Contractor perspectives on the use of CIP are discussed, with special attention to ACOG's capabilities and role as CIP services contractor to its municipal clients.

## Introduction

Capital Improvement Planning, or CIP, is a process enabling municipalities to inventory capital investments and effectively plan for their maintenance and improvement. The primary goals of CIP include:

- (1) Reducing management effort by providing a standardized and comprehensive understanding of the municipality's capital assets to decision-makers. Tools provided by the CIP process assist municipal leadership in prioritizing and justifying capital improvements.
- (2) Reducing infrastructural maintenance effort by providing all municipal personnel with a standardized and comprehensive understanding of asset locations and associated asset characteristics. Tools provided by the CIP process assist municipal personnel in the maintenance and improvement of capital assets, reducing duplicated field effort and the potential for construction project conflicts.

## History of Capital Improvement Planning as a State Initiative in Oklahoma

The Oklahoma State Capital Improvement Planning Act of 1992 (HB 2375) established a statewide Long-Range Capital Planning Commission to *"...advise and assist the Legislature in providing for capital facilities in this state..."* HB 2375 represents the start of 25 years of State support for CIP efforts in Oklahoma communities; with funding administered by the Oklahoma Department of Commerce (ODOC) and associated CIP services contracted to Oklahoma's 11 Regional Councils of Government per ODOC guidelines. Over 400 Oklahoma municipalities have participated in this program since its inception. Funding for ODOC-administered CIP efforts are drawn from the Community Development Block Grant. In 2008, ODOC CIP Staff partnered with the OU Center for Spatial Analysis to develop and mandate the use of GeoCIP, a standardized database structure capturing all appreciable aspects of municipal assets as GIS data for CIP purposes.

## The CIP Process

Work activities parcel to the CIP process are typically expected to produce CIP deliverables constituting a 6-year plan of foreseeable capital needs for a given municipality. Deliverables yielded by the CIP process

include a CIP Plan Summary Document, maps, and a GIS dataset depicting municipal assets. Collectively, these deliverables, along with the work activities and administration tasks constituent to the practical CIP process are referred to as the “CIP Project.” Questions answered upon completion of a CIP Project include the following:

- What capital assets are owned by the municipality? What assets fall within the municipality’s area of responsibility?
- Where are these assets located?
- What characteristics describe the assets? What is the respective age, configuration, condition, and cost associated with each asset?
- How should we assign priority to these assets? When will assets require improvement?

CIP deliverables are derived from summary and analysis of departmental inventories of property, as-built documents or their equivalents and GPS datasets. These three sources of information, enriched by the information held in the individual memories and opinions of municipal staff, represent the raw materials used to develop the CIP Project deliverables.

The fundamental CIP data collection tasks of departmental inventorying, digitizing of as-built documents, collection of GPS field data and the collection of staff commentary work together to yield authoritative understandings of municipal asset features as GIS data. Departmental inventories of property are digital forms populated with characteristic information describing municipal assets. These include any buildings, equipment, utility assets, furnishings, pavements etc. For mapping purposes, information held in departmental inventories is linked to corresponding asset positions found using either map referenced as-built documents or field-collected GPS fix information.

Upon completion of these data collection tasks, thresholds on asset characteristics are established to group assets for prioritization of capital needs by department. Thresholds are set in consultation with municipal staff and councilmembers. Resulting from this prioritization, the preliminary list of capital needs is forwarded to a committee of citizens appointed by council to establish a preferred priority order of the capital needs. Once the committee has prepared the preferred priority list of capital needs, the committee will recommend it along with the CIP Project Deliverables for adoption at a council meeting. Adoption by council signifies the CIP Project has met municipal and ODOC requirements (if funded through CDBG-CIP). Once adopted, the municipality generally uses the CIP Project as a planning tool for its 6-year service life.

A CIP project is most successful where communication between municipal stakeholders and the CIP contractor is frequent and clear. CIP project work relies heavily on the application of geospatial technologies (GIS, GPS) to facilitate communication and to track the progress of capital asset inventorying. A successful CIP project demands substantial effort from all parties involved, both municipal client and contractor. Often, communities may invest 100+ hours of staff labor assisting with data collection and review tasks or attending associated meetings. Some councilmember/municipal leadership labor is also required upon deliverables review and final plan adoption steps. Due to the significant demands of CIP, a shared commitment to the CIP Project between municipal staff and the

contractor represents the best route to meeting the typical CIP Project timeline and budget. Routine CIP projects, (often funded through ODOC) have a project lifespan of one calendar year from contracting to closeout. Production, Review and Adoption of the CIP Project within a single calendar year requires a consistent pace of work and clear communication among CIP Project stakeholders to avoid setbacks.

### Funding a CIP Project, Typical Project Timeline

CIP Projects may be funded via CDBG grant funding or may be self-funded by the municipality. The size of the municipality and available funding sources determine a CIP Project's scope and requirements. Additionally, the availability of CIP deliverables from prior project cycles may influence project scope. If a CDBG grant is used to fund the CIP Project, public hearings are required and a planning committee (LPAC) will need to be established to assist in determining the priority and timeframe of future projects noted in the CIP Project deliverables. Also, if grant funded, the scope of the CIP project must be approved by the Oklahoma Department of Commerce (ODOC). The following typical CIP timeline represents the CDBG-funded CIP Project case. Some overlap is possible between phases in this timeline:

- **Application and Contracting (1-2 Months)**
  - o This phase involves assessment of CIP project goals and a formal council resolution to seek funding through the CDBG-CIP program. A series of associated disclosure and housing inventory documents are required as part of the application package.
  - o If awarded funding, the Municipality will contract with ODOC to receive its CDBG-CIP funds. Municipality will establish a separate contract for CIP services/support with a qualified Contractor.
  - o Please note the 2017 ODOC deadline for CDBG CIP funding applications was July 5th. ACOG assumes the year-2018 deadline will also fall in early July.
- **Data Collection, Data Analysis, Summaries and Mapping (9 Months)**
  - o This phase constitutes most CIP Project work. During this time, Contractor and client municipality will work together to collect, analyze, summarize and visualize asset information. This is an interactive and iterative process meant to address the project goals developed in the Application and Contracting phase. Draft CIP deliverables are produced during this phase.
- **Plan Delivery and Adoption (1 Month)**
  - o This phase involves packaging and delivery of the CIP Project deliverables to a citizen committee. If review of the CIP Project is positive, the committee will forward a summary of needs to the city or town council along with a recommendation to adopt the CIP Plan.
- **Service Life and Updates (6 years)**
  - o A CIP Plan is capable of estimating capital needs 6 years into the future from the year of its publication. At the end of this 6-year service life, municipalities are encouraged to contact their preferred CIP Contractor and discuss the prospect of embarking on the CIP process once again, to develop an update to their original CIP deliverables.

## Typical CIP Project Scope of Services and Project Responsibilities

The following sample scope of services is meant as an illustration of the formal tasks required of each responsible party in a typical CIP Project.

### A Sample Scope of Services

#### I. CONTRACTOR'S DUTIES AND RESPONSIBILITIES

- A. Complete, correct and/or update the existing digital GIS map of the Town including Town-owned electric, gas, water and wastewater lines and appurtenances; public park boundaries, street centers and locations of administration, utility, fire and police buildings, as applicable. Completed GIS mapping shall meet or exceed current CIP standards and guidelines as established by Oklahoma Department of Commerce.
- B. Meet with a Town worker at the Contractor's Oklahoma City office and together complete, correct and/or update the Town's utility system, public building, park and corporate boundary map layers.
- C. Install ESRI ArcGIS Explorer map viewing software and the GIS map on at least one computer and/or mobile device as instructed by Town.
- D. Meet with representatives of the Town's various departments and hold at least one training session concerning proper completion of the CIP inventory forms.
- E. Advise and assist the Town's workers in the CIP inventory form completion process.
- F. After inventory is completed by each department, sort data by year and priority, and compile summary(s) of needs within that area and/or department.
- G. Complete a draft Total Capital Needs Summary showing the collective needs of the Town for at least the next six years and provide draft copies of the inventory to each LPAC member for their review.
- H. Meet with the Town's Local Planning Activities Committee (LPAC) and jointly discuss the needs of the Town as revealed through the completed inventory; costs of needed improvements; time frames and funding source options.
- I. If requested by the Town, be in attendance and be prepared to answer questions regarding Contractor's performance during the two remaining public meetings required under Department of Commerce CDBG-CIP requirements.
- J. Furnish at least one copy of the completed forms and one set of paper maps to the Town. The digital files will be provided in various electronic formats on a computer disk in addition to a paper copy. Additional paper drawings or disks may be ordered from Contractor priced per Contractor's current fee schedule for services. Contractor will NOT provide computer programs required to edit the electronic files provided.

## II. TOWN'S DUTIES AND RESPONSIBILITIES

- A. Be sufficiently familiar with the most current *Oklahoma Department of Commerce CDBG Project Management Guide* to assure the Town's compliance with all applicable requirements.
- B. Maintain all records required by the Grant at the Town Hall and complete and submit all documents required for the successful and timely closeout of the Grant.
- C. The Mayor shall actively coordinate and oversee the project and be sufficiently familiar with its ongoing status to assure its timely completion.
- D. As requested by the Contractor, contact current or previous contractors, surveyors, or engineers and as possible obtain copies of any existing drawings, aerial photos, smoke tests, line inspections or land surveys that may exist from other projects in paper and/or electronic format that may be required by the Contractor for rendering the services provided for in this Contract.
- E. Review existing maps, drawings, aerial photos, land surveys, log books, smoke test results, invoices or other such records and data to determine the location, size, material of construction, present condition and remaining useful life of the Town's utility systems as needed to complete the applicable Department of Commerce GeoCIP Toolkit forms.
- F. Provide a Town utility worker to physically lead Contractor to all gas, water and wastewater appurtenances for the purpose of GPS recording their location.
- G. Meet with the Contractor at the Contractor's Oklahoma Town office and assist, as needed, to complete, correct and/or update the existing digital GIS map of the Town including Town-owned electric, gas, water and wastewater lines and appurtenances; public park boundaries, street centers and the locations of administration, utility, fire and police buildings
- H. Fully review draft maps and note errors or incomplete areas and communicate these to Contractor and aid in their correction as needed.
- I. Complete, correct and/or update the most recent CIP Update inventory and key this data into the current version of the Department of Commerce GeoCIP Toolkit digital forms, including any Town Owned:
  - Electric, gas, water and wastewater treatment plants, lagoons, buildings, lines and appurtenances, equipment and rolling stock
  - Street pavement types
  - Park areas, buildings, facilities, equipment and rolling stock
  - Police, fire and/or emergency management buildings, tornado sirens, equipment and rolling stock
  - Administration buildings, equipment and rolling stock

- J.** Said inventory of all Town-Owned equipment and rolling stock will include the item, description including size, model and type, location, present value, remaining useful life, priority and replacement cost. Specialized forms such as those dealing with a structure, facility and plant forms will include addition information such as room sizes and space use; condition of roof, heat and air systems; flooring type, lighting, flow capacities, etc. The Town will collect this data and key it into Excel forms provided by the Contractor for this purpose. Additional fields may be added to fit the Town's unique needs.
- K.** Create a temporary Local Planning Activities Committee (LPAC) in accordance with Department of Commerce guidelines as requested by the Contractor.
- L.** The LPAC shall review the draft asset inventory as completed by the Town's staff and provided by the Contractor.
- M.** The LPAC shall meet with the Contractor at least twice and discuss the Town's needs and future projects as listed on the Capital Improvement Plan Summary Form. This will include the discussion of project priorities, time frames, costs of needed improvements and preferred funding source options.
- N.** After the asset inventory and Capital Improvement Plan Summary has been reviewed by the LPAC; and project priorities, time frames, costs of needed improvements and preferred funding source options have been revised; the LPAC will vote to recommend the Capital Improvement Plan to the Town Council for its adoption.

### **ACOG's Capabilities and Approach to CIP**

As a regional council of governments providing CIP Contractor services, The Association of Central Oklahoma Governments' CIP department (ACOG CIP) has developed a project philosophy and systematized approach to the administration and execution of CIP Projects. ACOG CIP staff are proficient with current GIS/GPS technologies and associated theoretical considerations. ACOG CIP consistently seeks to improve the CIP process through self-assessment and task automation.

### **ACOG's Notion of Plan Utility: Critical Success Factors for CIP Clients**

ACOG CIP considers return on investment the central indicator of CIP Project success. In addition to savings yielded by effective needs prioritization, this return is represented by labor savings for municipalities through secondary uses of the CIP project deliverables. For example, reliable location information for water valves may aid utility workers in field maintenance tasks. While the CIP process is subject to ODOC requirements (if funded through CDBG-CIP) ACOG regards the client municipality as the first-line consumer and owner of the CIP Project deliverables; we want to develop deliverables that effectively meet expressed needs. This notion of plan utility informs our project planning and directs our attention first to tasks which will maximize return for client departmental staff.

## Secondary Administrative CIP Plan Uses

A completed CIP Plan can be leveraged in support of future grant applications. Since the CIP plan reflects careful evaluation of capital needs at a given municipality, its findings can be supplied to evidence needs on future grant applications (Oklahoma REAP, CDBG).

## CIP Project Administration, Communication and Client Engagement

A considerable portion of CIP Project labor is used in project administration, including filing of forms with ODOC. Most CIP Project administrative forms, for example, Advance Requests for disbursement of project funding, are processed by ODOC using the OKGRANTS document management system. As a CIP Project Contractor, ACOG CIP may assist clients with the entire CIP Project Administration cycle, from Application to Closeout. The most important component to this assistance is ensuring accuracy, effective timing and sequencing of submissions with respect to CIP administrative paperwork. ACOG CIP seeks to ensure paperwork is prepared ahead of need, when possible.

In terms of client communications and engagement, ACOG CIP seeks to maintain a productive dialog with CIP project stakeholders. ACOG CIP understands municipal staff often work under multiple deadlines outside of the CIP project, and seeks to remain flexible with respect to scheduling of periodic CIP project meetings. Clear and frequent communication of any relevant comments, concerns or needs can only improve the overall CIP process experience.

## GPS Field Data Collection

ACOG CIP GIS staff are adequately trained in GPS field collection techniques, best practices, interpretation of GPS error measures, etc. ACOG CIP is capable of GPS (RTK) data collection at centimeter accuracy in favorable conditions. In situations where accuracies in the 3-4 meter range are sufficient, ACOG is capable of performing GPS data collection and GIS data capture at-once using mobile devices coupled with a popular GIS cloud platform. Municipal staff can be trained to participate in this mobile-device based GPS data collection as well, multiplying the pace at which collection tasks may be completed. As part of the project assessment phase, required accuracies for any GPS data will be considered prior to any field collection effort.

## As-Built Data Collection

AGOG CIP staff are experienced in the routine large-format scanning, georeferencing, and feature capture (tracing) of utility assets from as-built construction documents. In situations where as-built information is authoritative, this scan-reference-trace data collection represents a much less labor intensive alternative to field collection via GPS.

## Departmental Inventorying

Departmental inventories represent a labor intensive task in the CIP Process. ACOG CIP seeks to reduce associated labor costs by providing web or mobile-based forms streamlining the departmental inventorying process. This approach introduces a means to assert version control on the incoming information and centralizes the inventory in one place.

## Mapping and Visualization

Since CIP data is held in GIS, maps are used to represent a summary view of the CIP Project's progress. ACOG CIP deploys a free GIS map viewing and markup solution to clients for this purpose. It is imperative that ACOG CIP and its clients share a current and identical view of the CIP Project Data and other deliverables as they develop, this approach reduces error due to versioning issues and promotes discovery of mistakes in the data. ACOG CIP routinely trains municipal staff in the use of our selected GIS map viewing software as part of this effort. A greater understanding of GIS technologies on the part of municipal staff increases the likelihood errors will be discovered and remedied early in the data collection process.

For map publication, ACOG CIP uses map templates to streamline the process. This reduces gaps in the Create-Review-Edit cycle, and allows municipal staff to review map documents in quick iteration for markup.

For questions concerning CIP program activities at ACOG, contact:

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