1.0 Introduction

1.1 Program Guide Purpose and Scope

The purpose and scope of this Model Program for Online Services (MPO) is to provide guidance for the implementation processes to issue permits, provide plan review and conduct inspections of projects remotely. While this MPO is not written in enforceable language, it may be adopted in whole or in part by any jurisdiction.

1.2 Online Permitting

Online Permitting. To improve customer service and streamline the permitting process, a building department may use an online building permit system. This allows customers to apply for and obtain commercial or residential building permits online.

Expedited Permitting. Expedited permitting programs restructure the regulatory processes to emphasize efficiency, predictability and cost savings for both the public and private sectors while still protecting the health, safety and welfare of the general public.

The functionality of a program can vary depending on the goals and policies of a jurisdiction. For example, it may include permit applications for affordable housing units, above-code sustainability provisions, electric vehicle charging or solar installations. Modern permitting programs typically allow configurable modifications to address specific local concerns and conditions.

It is important that a jurisdiction understand exactly what services are offered by the vendor, which are included with the purchase of the program and which are offered at additional expense. Jurisdictions should particularly be clear on what training is required and offered to use the program, how the program interacts with other stakeholder departments' programs, how updates and bug fixes are addressed, and what technical support is available to mitigate loss-of-service events.

1.3 Plan Review

Electronic Plan Review. Electronic Plan Review is an option for submitting plans and getting them reviewed without having to drop paper plans or thumb drives at the building department. Instead of submitting a paper copy of the plans, plan images and other required documents can be uploaded to the department's website or delivered through an electronic storage device, such as a thumb drive. Submittals will be assigned a plan tracking number and go through the same required approvals by affected departments (public works, land use and planning, emergency services, etc.) and review as a paper plan.

Automated Plan Review (APR). The APR (Automated Plan Review) software checks the building design against code requirements pertaining to building height and area, construc-

tion type, occupancy groups and use, means of egress, fire-resistive construction, fire protection features and others.

Expedited Plan Review. An expedited building plan review program offers owners and developers the opportunity to reduce the time necessary for a building department to issue a building permit. Programs offer a variety of criteria to qualify for the expedited plan review, but the goal is to cut building the department's time to issue a permit significantly without reducing code compliance.

1.4 Inspections

Field Inspections. Building inspections are essential to ensure that all work has been done in compliance with code requirements. A construction project is not approved until it has been inspected and accepted by a jurisdiction's inspection staff.

Construction inspections have traditionally been done by inspectors visiting the site during the project's construction progress at intervals not less than those specified in code and others as additionally required by the authority having jurisdiction (AHJ).

Remote Virtual Inspection (RVI). RVI is a form of visual inspection that uses visual or electronic aids to allow an inspector or team of inspectors to observe construction projects from a distance (typically the AHJ's office) to provide more efficient building inspection services. It may also be utilized because the sites are inaccessible or are in dangerous environments, or where circumstances or conditions prevent an in-person on-site field inspection.

Technological advances made RVI possible and the COVID-19 pandemic forced jurisdictions to find a way to use it on suitable construction projects, allowing them to provide vital services without impediment during the pandemic, thereby allowing the construction of safe buildings to continue and establishing a model for the future.

Special Inspections. Special inspections are mandated and defined in *International Building Code* (IBC) Chapter 17. Chapter 17 provides a variety of procedures and criteria for testing materials and assemblies, labeling materials and assemblies, and special inspection of structural and other assemblies. This chapter expands on the inspections defined in Chapter 1 of the IBC, by requiring special inspection where indicated and, in some cases, structural observation. It also spells out additional responsibilities for the owner, contractor, design professionals and special inspectors. Proper assembly of structural components, proper quality of materials used and proper application of materials are essential to ensuring that a building, once constructed, complies with the structural and fire-resistance minimums of the code and the approved design. To determine compliance often requires continuous or frequent inspection and testing. Chapter 17 establishes standards for special inspection, testing and reporting of the work to the building official.

Chapter 17 also charges the building official with reviewing and approving the qualifications of special inspectors. No individual can work in a jurisdiction as a special inspector without approval by the building official. Special inspectors typically have expertise that may not be available within the jurisdiction. Jurisdictions frequently maintain lists of special inspectors preapproved to work within their discipline in the jurisdiction.

2.0 Acronyms and Definitions

2.1 Acronyms

1. RVI: Remote virtual inspection
2. EPR: Electronic plan review
3. EPA: Electronic permit application
4. AHJ: Authority having jurisdiction

2.2 Definitions

1. Customer: Project owner, owner's representative, architect, engineer, contractor, or anyone responsible for any or all parts of the project.
2. Applicant: Customer.
3. Jurisdiction or Authority having jurisdiction: Local, county, state, federal or other governmental division that has been given authority over construction projects through a law or regulation, such as a local ordinance or state or federal statute.

3.0 Building Department Technology

3.1 Technology Use

Information technology enables building departments to automate and streamline the building permit process by using a set of digital tools or services. The intent of electronic solutions is to improve customer services through improved processes and records management by allowing customers to apply online, reducing permitting timelines, eliminating paper printing and storage, and minimizing carbon and environmental footprints. Electronic solutions improve customer service and staff efficiency, enhance quality and make operating funds more productive. An electronic solution system typically replaces traditional paper and file-card systems. In short, information technology can benefit both the building department and its constituency. It can consist of a simple software tool for tracking permits, reviewing plans and scheduling inspections or it may contain a broad array of task-specific tools for:

- plan review.
- issuing and tracking permits.
- inspection scheduling.
- performing inspections.
- posting inspection results.
- project tracking.
- fee calculation and collection.
- workflow management.
- reporting.
- record keeping.
- coordination with other government departments.

These options can be implemented to allow customers to interact with the building department via Web or voice interfaces. Mobile devices can be used to facilitate communication and management within and between departments.

Implement a Solution. The primary reason for implementing technology should be to improve processes, save money, increase productivity, fix a specific problem or improve the level of service offered to customers. Just as building departments come in many shapes and sizes, there is a permitting tool appropriate for the circumstances of just about any jurisdiction. Regardless of the catalyst, information technology can provide a broad range of benefits, including:

- standardized building site information.
- improved record keeping and reliable archiving of permitting activities.
- enhanced communication between customer and staff that produces higher-quality plan submissions and reviews, permit applications and customer service.
- defined workflow and project tracking that allows review of plans and approval of permits more quickly.
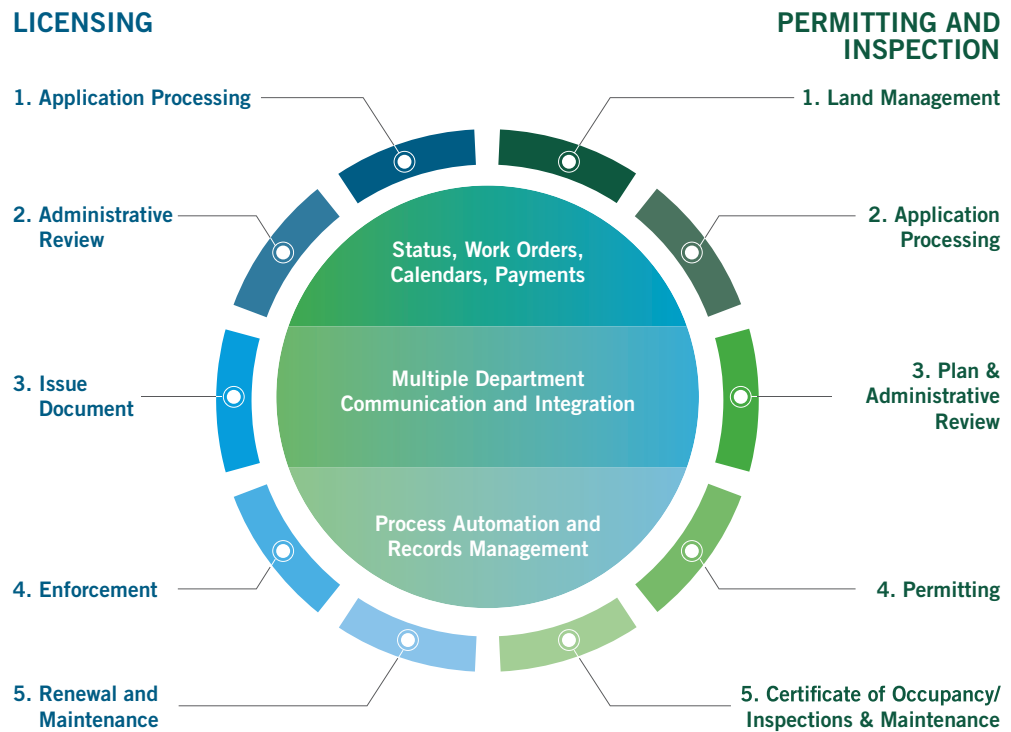
- higher-quality inspections with better scheduling and improved reporting.
- more efficient use of staff time and less duplication of effort.
- better internal management tools for gauging department efficiency and identifying problems.
- improved financial tracking of permitting, plan review and inspection fees.
- flexible reporting capabilities that document the volume of work completed and the revenue generated by the department.
- exemption from duplicate data entry and improvement in consistent data capture and recording.
- verifiable electronic audit trail with signature capture.
- expedited posting of inspection results to clients.
- early flagging and notification of failures and noncompliance.
- enhanced customer ease of use and convenience by providing 24/7 online Internet access.
- reduced customer printing and transportation costs.

Jurisdictions may choose to implement a solution that is department-specific or may opt for an enterprise system that serves many departments within a local government. Enterprise systems can coordinate a broad range of activities, such as building safety, planning, development, geographic information system (GIS) services, finance, public utilities, fire safety and public health. Before deciding on the optimal solution, jurisdictions should consider their needs and evaluate the capacity of the system required for their circumstances as well as the corresponding price.

Each building department faces unique challenges and must find a solution to best suit its needs. Solutions generally fall into three categories—stand-alone function-specific solutions, independent integrated solutions and enterprise platform solutions.

Independent integrated solutions generally have a robust community development software solution as a hub system that supports the key building functions as well as a few very closely related departments, such as Property Code Enforcement, Planning and Zoning, and others. Other key functions, such as plan review, finance, Department of Public Works and Asset Management, and 311 Call Center operations, may have their own solutions but can be integrated with the Community Development Solution to share data as well as coordinate work functions. Typically, the Community Development software vendor is responsible for establishing requirements for developing and implementing the integrations. All software involved in this configuration must allow for access to the software via an application programming interface.

The advantage of an independent integrated solution is that multiple systems are connected and work together to share data and operational workflow while meeting the more specific individual needs of the departments and functions involved. A disadvantage can be the maintenance of the integration between the programs. Software upgrades carried out independently by each software vendor can negatively affect integration. Addressing this can be expensive, as other programs may need to be changed or upgraded.

LICENSING

1. Application Processing
2. Administrative Review
3. Issue Document
4. Enforcement
5. Renewal and Maintenance

PERMITTING AND INSPECTION

1. Land Management
2. Application Processing
3. Plan & Administrative Review
4. Permitting
5. Certificate of Occupancy/ Inspections & Maintenance

Status, Work Orders, Calendars, Payments

Multiple Department Communication and Integration

Process Automation and Records Management

3.2 Software Implementation

Whichever solution is chosen, the challenges of implementing new software within the framework of a busy, often-under-resourced local government operation is frequently overlooked when jurisdictions consider a software solution. Successful deployments of the software will typically be complete in a few months, but it will often take 18 to 24 months before the new application is seen as user friendly and adopted as "the way we do it."

The evolutionary development of a building department permitting program requires that it be very flexible in its design. While all building and code enforcement departments issue permits, conduct inspections, manage complaints and more, every department also operates under different policies and procedures. Therefore, the software and its construction of work processes, form types, information fields, etc. must be responsive and flexible.

Leadership commitment and involvement in the implementation of a new software implementation is critical to successful implementation. Vendors can only do so much to address resistance to change, which is a natural part of the implementation process. Leadership reinforcement throughout the process is required to ensure that the decisions made to move to a new platform, while creating short-term pain, will lead to longer-term productivity. Leadership also must commit to the amount of time that will be involved in migrating to the new platform. Software users must be reassured that while there will be discomfort and some disruption for them, it is a necessary part of the change process and will eventually become easier once the learning curves are surpassed.