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VALUE RIPPLES OUTWARD:

How agentic AI transforms government permitting for greater efficiency and impact

EXECUTIVE SUMMARY

A promising chapter is on the horizon where government agencies can transform permitting processes–making them more responsive, consistent, and effective for the communities they serve. By rethinking traditional approaches and embracing innovations such as agentic AI, agencies can transform permitting from a procedural obstacle into a catalyst for progress, public trust, and future-ready government services.

> ***Solutions such as Deloitte and Google Cloud's PermitAI are designed to help agencies at every level—local, state and federal—unlock these benefits, modernizing permitting for today's challenges and tomorrow's opportunities.***

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PERMITTING *AT A CROSSROADS*

Permitting processes – central to housing, environmental projects, transportation, and economic development – require collaboration among many stakeholders and can often involve securing multiple permits across different agencies or departments. Managing high application volumes, navigating diverse regulatory requirements and synchronizing efforts between various entities adds complexity. Manual reviews, unpredictable timelines, and inconsistent enforcement of regulations can stretch agency capacity and create bottlenecks that erode trust and stall progress.

In 2024, US local governments processed over 1.5 million building permit applications, a 7% increase over pre-covid permitting totals in 2019[1]. Costs for permitting affordable housing can reach $90,000 to $100,000 per unit[2], while delays of six months or more can hike total project costs by up to 20% and reduce affordable housing output by thousands of units annually[3] [4]. These delays can also hinder sustainability initiatives such as reducing carbon footprints, promoting energy-efficient construction, and supporting environmentally responsible development. The urgent need for transformation is clear. Permitting isn't just a step in construction or development. It's a central process affecting millions of projects nationwide, across sectors from zoning and infrastructure to environmental stewardship.

Figure 1 illustrates the breadth and cost of permitting activity annually in the United States, clearly showing why efficient, transparent permitting is essential for large-scale economic development and environmental progress[5].

Permits are a Gateway to Economic Development in the U.S.

Nearly 29 million permits are issued annually at the state and local level and permitting regulation acts as a critical gateway to U.S. economic development. Recent executive orders aim to spur state investment and growth by accelerating reforms, such as modernizing and streamlining approvals.

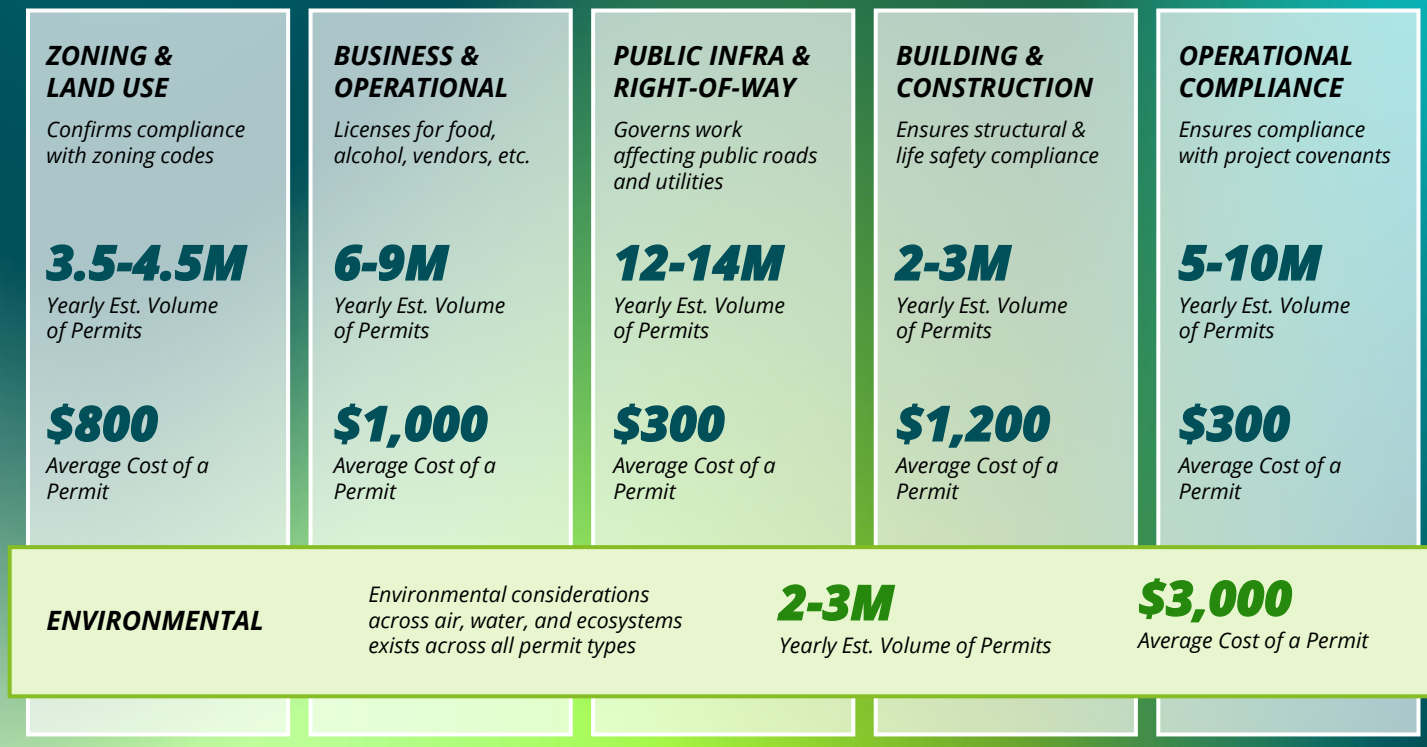

Figure 1. Annual U.S. permit volumes and costs by type[5].

Beyond the impact on housing and traditional infrastructure, permitting delays have significant consequences for the local environment and public well-being—
such as slowing efforts to improve air and water quality, address ecological concerns, and meet community needs—as well as for large-scale projects essential to the digital economy.

Permitting challenges are especially acute in complex, high-value projects like data centers, but the impacts are seen just as sharply in domains such as ports, energy and affordable housing. For instance, when permitting processes stall the construction of high-capacity data centers operated by hyperscalers, a state may lose up to $1.5 million per day in foregone economic activity[6]. This isn't just about dollars: it represents missed opportunities to accelerate sustainable practices, power new clean technologies, and deliver digital services critical to public and private sectors alike.

The permitting process itself often becomes a barrier to development goals, with up to 95% of permits requiring rework due to incomplete or missing information at the time of submission[6].

As one stakeholder noted,
"Between concept and shovels in the ground, 60% of the time is permitting" *—*
a stark illustration of how much these processes dominate project lifecycles and can inadvertently slow progress toward cleaner, greener, more efficient infrastructure.

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To appreciate the complexity and scale of permitting barriers, Figure 2 presents a detailed example focused on data centers. Consider the typical steps involved in building a hyperscaler data center near an environmentally sensitive area. Figure 2 tracks not just the number of approvals required, but also how timelines can stretch over several years—making clear why rethinking these processes is critical for environmental, economic, and digital progress[7].

Scenario: Building a New Data Center Near a Wetland

To pursue a development project such as constructing a 50,000 sq ft data center on a 5-acre site with partial wetlands and tree cover, commercial firms must navigate a complex permitting and regulatory ecosystem, shown down below.

Note: Some steps can overlap or take place at the same time. The process for a more efficient build is outlined in the steps below. It is important to note that some of these steps can overlap or occur simultaneously. For additional detail, source references for this process are available in the notes section.

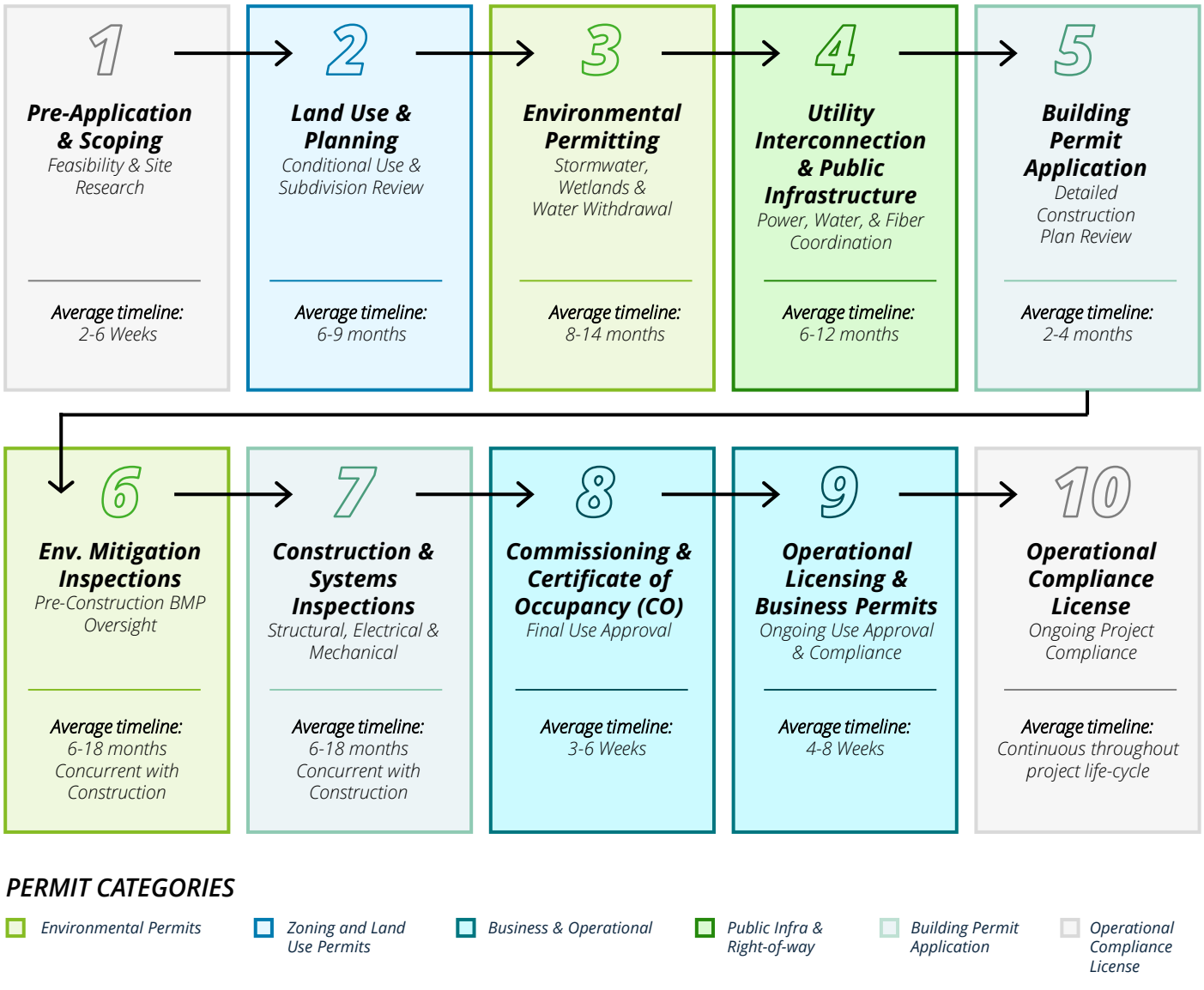

Figure 2. Typical permitting steps and timelines for a data center[7].

The underlying permitting barriers shown in the data center example are common to all major projects. *Addressing these challenges, which include lengthy multi-stakeholder reviews and unpredictable timelines, is essential for unlocking progress across infrastructure, sustainability, and housing.*

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THE OPPORTUNITY:
AGENTIC AI

Agentic AI presents an important opportunity to redefine how permitting is managed—going beyond efficiency gains to deliver intelligent guidance, dynamic feedback and richer collaboration between agencies and applicants from the very beginning. By providing real-time guidance and feedback, this technology helps applicants get it right the first time—reducing errors and resubmittals before applications ever reach agency staff. ***This means agency staff can spend less time correcting errors or seeking requests for clarification, and more time advancing reviews on complex cases.*** Additionally, automating routine tasks and interpreting visual plan submissions allows agencies to increase capacity, accelerate reviews, and bring greater consistency to regulatory processes.

THE CHALLENGE:
COMPLEXITY, CAPACITY, AND CITIZEN EXPECTATIONS

Permitting sits at the heart of government's ability to unleash critical markets—such as energy—foster innovation and tackle complex societal issues such as homelessness and energy independence. Yet, for many agencies, the process has become a bottleneck.

APPLICANT EXPERIENCE*:* Applicants face a maze of forms, shifting standards, and limited visibility into the status of their submission. The U.S. has nearly 20,000 permitting jurisdictions according to recent Census data, each with its own set of standards and processes[8], but the number of permitting authorities is much higher when accounting for specialized boards, regional commissions, and agencies responsible for sustainability, environmental review, and infrastructure

STAFF CAPACITY*:* Agencies are stretched by growing volumes and evolving requirements, often requiring specialized knowledge just to move projects forward. This complexity has spawned a support network of consultants and expediters, but it often takes significant time to onboard new resources.

PUBLIC IMPACT*:* Chronic delays and unpredictability can drive up costs, deter investment, and erode public trust. For example, 40% of local permitting offices report chronic understaffing, worsening backlogs and review times[9].

TRANSPARENCY*:* A 2022 GovTech survey found that 68% of applicants navigating state permitting processes rated their experience as "difficult" or "very difficult," citing lack of transparency and inconsistent requirements[10].

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WHY NOW? *THE CASE FOR PERMITTING TRANSFORMATION*

Permitting processes are at a crossroads. For years, incremental improvements—digitizing forms, basic automation, and temporary staffing bumps—have mostly treated symptoms while leaving fundamental issues unresolved. Fragmented workflows, inconsistent regulatory interpretation, and the absence of real-time guidance persist, frustrating both applicants and reviewers. Meanwhile, technological constraints, siloed data, limited coordination, staffing shortages, and funding uncertainties all compound the challenge.

For the first time, a unique convergence of advances in agentic AI, digital platforms, and data integration finally makes radical change possible. Agencies can now harness the data they already collect in new ways — **delivering timely, accurate guidance, continuously evolving processes as regulations shift, and eliminating costly, manual bottlenecks.**

This shift goes beyond efficiency gains. Applicants benefit from **greater clarity and predictability**, able to self-assess submissions against requirements before formal review. Agency staff are freed to focus on complex, value-added work instead of routine checks. The result is accelerated approvals, fewer errors and delays, and new levels of transparency and public trust.

Inaction risks deepening backlogs, eroding confidence, and stalling the very initiatives permitting is meant to enable. Now is the moment to act - **rethinking permitting from the ground up and turning aspiration into reality.**

> ***Agentic AI's unique advantage:***
>
> Agentic AI approaches—built on teams of intelligent, collaborative agents—mirror the nuanced, multi-step work of experienced human reviewers. These platforms can handle routine checks, surface critical issues, and provide real-time feedback, enabling agencies to move smarter, not just faster.

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A NEW PARADIGM: *AGENTIC AI AND THE TECH-CENTERED VALUE CHAIN*

Agentic AI, built on teams of intelligent, collaborative agents, mirrors the complex, multi-step work of experienced human reviewers. Unlike single-task automation or static rules engines, agentic AI orchestrates a team of specialized agents—each focused on a specific aspect of the permitting process:

ROOT ORCHESTRATION AGENT:
Manages the end-to-end workflow, routing tasks to downstream agents.

QUALITY ASSURANCE AGENTS:
Validate application completeness and document sufficiency.

COMPLIANCE AGENTS:
Evaluate submissions against local, state, and federal regulations (detecting locality-based nuances), referencing precise regulations using Retrieval-Augmented Generation (RAG).

RECOMMENDED ACTIONS:
Retrieve insights from best practices and past adjudicated permits to suggest targeted improvements, including recommendations that may help applicants qualify for additional benefits such as identifying eligibility for relevant energy credits or incentives.

SUPPORT PIPELINES:
Handle data extraction (e.g., PDFs, GIS, utility data), integrating with agency systems through secure APIs.

These agents operate on curated regulatory data, standard operating procedures (SOPs), and manuals—stored as machine-readable embeddings and accessed by specific agents designed to bring in the relevant data needed for each component of the application. Institutional knowledge and reviewer SOPs become automated, repeatable protocols, ensuring consistency, traceability, and preservation of expertise across staff transitions.

Agentic AI's parallel and sequential processing logic adapts to the needs of each application, bridging the gap between static regulations and dynamic, real-world submissions. Findings and compliance checks are always traceable back to source documents.

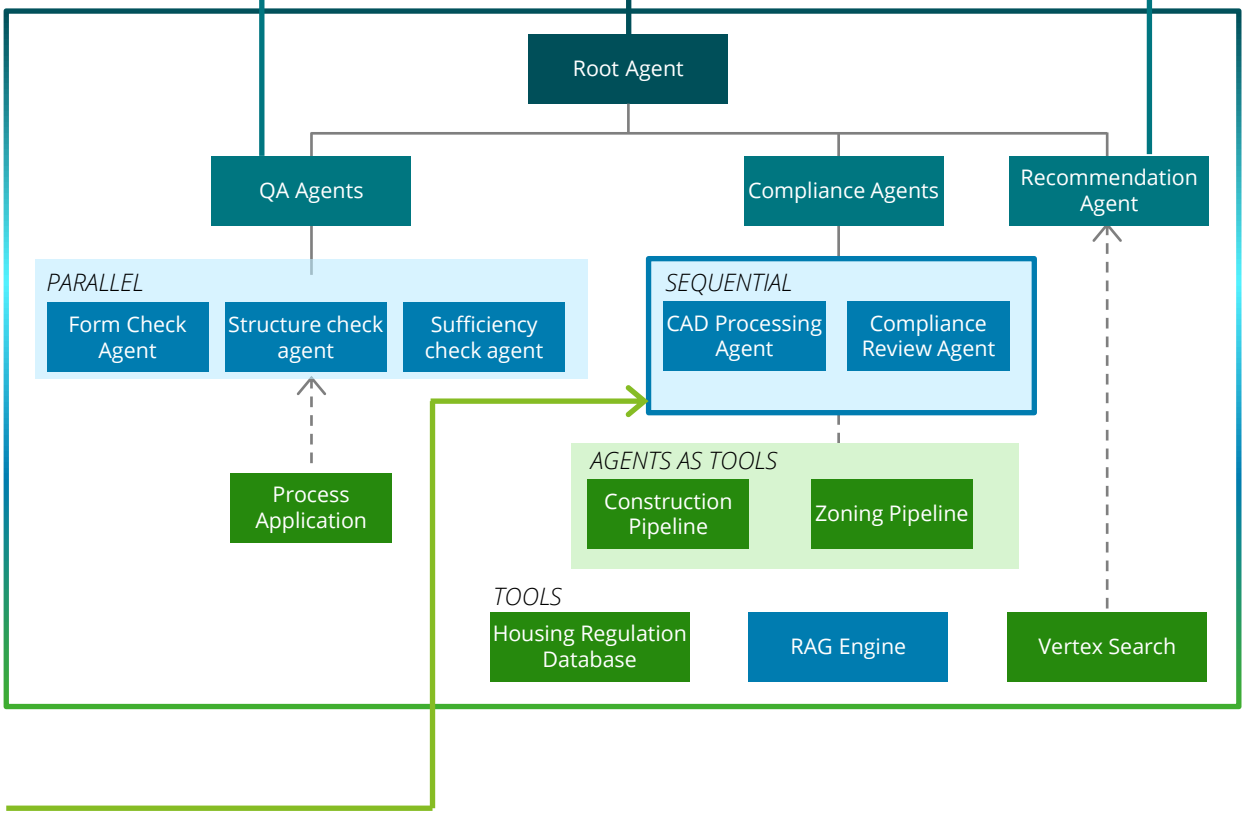
Visualizing agentic AI in action:

Figure 3 demonstrates how modular agents and the agent development kit combine to drive speed, accuracy, and traceability throughout the permitting lifecycle.

QA AGENTS
Verifies application completeness, validate required documentation, and perform detailed drawing reviews to identify missing components, inconsistencies, and insufficiencies.

ROOT AGENT
Orchestrates the entire review process, intelligently routing applications to specialized agents.

RECOMMENDATION AGENT
Leverages vertex search to identify industry best practices and precedents, generating actionable mitigation strategies for identified issues.



COMPLIANCE AGENTS
Analyzes applications against relevant local housing regulations, building codes, and zoning requirements using the Retrieval-Augmented Generation (RAG)Engine to identify and flag compliance issues.

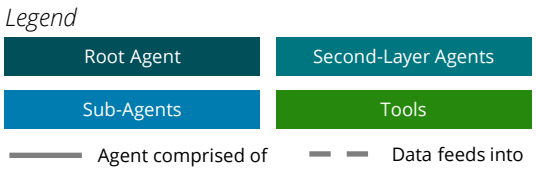


Figure 3. Agentic AI architecture for modular, end-to-end permitting review.

PermitAI: *DELOITTE AND GOOGLE CLOUD'S VISION FOR GOVERNMENT PERMITTING INNOVATION*

Building on this paradigm, Deloitte—in alliance with Google Cloud—has developed PermitAI, a solution designed to bring the power of agentic AI to government permitting.

PermitAI leverages Google Cloud's robust AI infrastructure, integrating Gemini LLMs, vector databases, and secure APIs, to create an agentic architecture for intelligent and adaptable permitting. This advanced system transforms intricate code into automated intelligence, offering agencies and applicants immediate insights, optimized workflows, and demonstrable results.

GOOGLE CLOUD TECHNOLOGY SPOTLIGHT:
PermitAI utilizes Google Cloud Vertex AI Vector Search for advanced reasoning and search, Firebase for secure data storage, and Google Cloud API Gateway for seamless integration with legacy permitting systems. The system is containerized for portability and aligns with modern cloud-native deployment practices, supporting scalability and resilience.

APPLICANTS: PermitAI offers AI-driven scanning and data extraction, immediate feedback on submission quality and eligibility, clear guidance on next steps. Actionable recommendations, informed by historical information and regulatory best practices, help applicants quickly address issues or advance eligible applications.

AGENCIES: Integration tools connect to local data sources for scalable deployment and interoperability. Automated and consistent reviews, robust eligibility and compliance checks, and actionable recommendations—grounded in historical information and regulatory best practices—empower agencies to make informed decisions and maintain consistency.

PermitAI's API-based flexibility extends across a wide range of government needs—such as building permit reviews, environmental impact assessments, business license approvals, and housing assistance applications— enabling integration with existing systems without requiring major shifts or replacements. Whether automating the evaluation of plan documents, summarizing applicant data, or analyzing sensor data for compliance, PermitAI adapts to diverse operational environments, enhancing citizen experiences and supporting scalable innovation.

BEYOND TECHNOLOGY:
THE DELOITTE AND GOOGLE CLOUD ADVANTAGE

PermitAI stands out for its technical sophistication and qualitative depth. Deloitte's decades of transformation experience combine with Google Cloud's world-class AI, security, and scalability. Together, we help government clients deliver faster permitting, strengthen workforce planning, elevate citizen experience, and respond nimbly to emerging challenges.

Successful transformation demands more than technology—people, process, and policy must align. PermitAI is designed as a solution that fits the broader government value chain, amplifying human knowledge and delivering enduring value across stakeholder groups.

HOW IT WORKS:
THE AGENTIC PERMITTING WORKFLOW

Agentic architecture is powered by scalable AI infrastructure, combining large language models (LLMs), vector databases, and secure APIs to deliver intelligent, traceable, and adaptive permitting.

Imagine a permitting process where:

1. ***Applicant uploads plans and documents.***
   Visual/CAD agents convert drawings into actionable data for compliance review.

2. QA Agent checks for completeness; the Compliance Agent then reviews the relevant regulations—whether zoning, housing, water, land-use, air quality or other requirements—as applicable to the specific project, agency, and jurisdiction. The solution is designed to adapt to the structure and scope of each agency's unique codes and permitting responsibilities, supporting the complexity of real-world regulatory environments.

3. Recommended Actions suggest plan improvements based on prior successful permits, official best practices, and past environmental evaluation reports.

4. Applicant receives immediate, actionable feedback before formal submission, reducing rework, and accelerating approvals.

5. Institutional knowledge—historical permits, environmental reports, local regulatory nuances—is digitized and applied, informing better decisions every step of the way.

Pilot deployments demonstrate these capabilities can reduce review cycles from over three months to as little as one day, dramatically accelerating affordable housing delivery.

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REAL-WORLD IMPACT:
INFRASTRUCTURE AND ENVIRONMENTAL PERMITTING

Agentic AI isn't just a theoretical advancement; it's already reshaping permitting outcomes in real communities. By applying its team-based automation and expert-driven logic to housing and environmental review workflows, agencies are lowering barriers, accelerating approvals, and driving measurable improvements across stakeholder groups. The following examples highlight how agentic approaches deliver tangible results in two of government's most critical domains.

INFRASTRUCTURE:
Agentic AI enables digitized document checks, plan analysis, and tailored feedback, streamlining reviews and increasing throughput. Across infrastructure domains, these tools have significantly reduced permit review times and rework rates. By automating routine compliance, agencies have successfully compressed review cycles from months to as little as a single day.

ENVIRONMENTAL:
Agentic AI can evaluate dozens of cross-cutting regulations, integrate local GIS/ecological data, and verify mitigation strategies—bringing consistency and speed to even the most complex environmental applications.

Value ripples outward, applicants move faster, agencies allocate resources more effectively, *and communities benefit from faster project delivery and enhanced public trust.*

LOOKING FORWARD: *A FOUNDATION FOR GOVERNMENT MODERNIZATION*

Agentic AI's promise extends beyond permitting. As agencies confront new demands—from public health to infrastructure renewal—the ability to orchestrate intelligent, adaptable workflows will be vital. By fusing AI capabilities with human insight, agencies can transition from reactive, manual processes to more consistent, transparent, and responsive service delivery—ensuring constituents receive the right support and outcomes. This approach enhances efficiency and equity, enabling a more trustworthy and people-focused public sector.

While other solutions may address permit evaluation, PermitAI sets a new benchmark for flexibility and impact. Unlike tools that are limited to static assessments or single-use workflows, PermitAI empowers agencies to build and rapidly tailor adaptable AI agents—working in close collaboration with subject matter experts. This approach allows agencies to configure agentic systems for a wide range of uses, delivering actionable options and recommendations, not just verdicts.

With PermitAI, Deloitte and Google Cloud deliver secure, scalable solutions focused on what matters most: ***people, outcomes, and public trust .***

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