Rethinking Functions and Workloads in U.S. DOTs

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September 5, 2025

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Executive Summary

Summary of Key Findings

Departments of Transportation (DOTs) are under increasing pressure to do more with constrained resources, while adapting to shifting policy priorities and rapid technological change. This review involves selecting relevant studies, news articles, and reports, and synthesizing their key themes and findings to provide an overview of best practices, opportunities, and considerations for a systematic framework for evaluating existing functions that can help agencies identify outdated, redundant, or lower-value activities and reallocate resources toward higher-impact goals such as safety, equity, multimodal integration, and sustainability. Key findings and case studies highlight that:

- **Systematic Inventorying is Essential:** Comprehensive catalogs of all programs, processes, and services allow agencies to objectively evaluate functions against relevance, demand, and resource use.
- **Clear Criteria Guide Decisions:** Functions should be assessed using structured measures such as strategic alignment, cost-benefit ratios, utilization rates, redundancy, legal requirements, and risks if discontinued.
- **Digital Transformation is a Force Multiplier:** Automated permitting systems, IoT data collection, and AI-driven asset management can significantly reduce workloads while improving service quality and decision-making.
- **Barriers Exist but Are Surmountable:** Legal mandates, cultural inertia, workforce concerns, and political pressures often hinder elimination of low-value work. Success depends on leadership sponsorship, transparent communication, workforce transition strategies, and stakeholder engagement.
- **Workforce Roles Are Shifting:** As routine tasks phase out, employees increasingly require analytical, digital, and interdisciplinary skills. Reskilling, continuous learning, and new roles (e.g., data scientists, AI system managers) are becoming critical for agency agility.

Recommendations for Caltrans

- **Institutionalize Continuous Review:** Build a recurring process for inventorying and evaluating all functions with standardized criteria (strategic alignment, demand, cost-benefit, duplication, and legal mandates).
- **Leverage Digital Tools Strategically:** Prioritize user-friendly automation in permitting, reporting, and asset management, ensuring interoperability across Caltrans systems.
- **Address Legal and Policy Constraints:** Engage state and federal partners to repeal or amend outdated statutory mandates, while automating fulfillment of unavoidable requirements.
- **Reframe "Stopping Work":** Position function elimination as a resource reallocation to higher-value efforts, not job loss. Strengthen retraining and redeployment programs to reassure staff.
- **Invest in Workforce Development:** Expand training in AI, data analysis, GIS, and digital literacy, paired with cross-disciplinary collaboration and change management skills.
- **Promote Transparency and Engagement:** Use evidence-based cases, pilot rollouts, and stakeholder outreach to build support for retiring outdated practices.

Implementation Mechanisms

- **Framework and Governance:** Establish a Caltrans "Function Review Framework" with agency-wide criteria, standardized tools, and annual reporting on discontinued, modified, or retained functions. Oversight can be centralized in a cross-functional task force within a dedicated modernization unit.
- **Digital Transformation Roadmap:** Develop a phased automation plan with pilot projects (digital permitting, AI-enabled asset management) before scaling statewide. Collaborate with IT, procurement, and data governance teams to ensure seamless integration.
- **Policy and Legislative Strategy:** Partner with legal counsel and legislative affairs staff to identify statutory barriers and prepare evidence-backed proposals for amendments or waivers. Where mandates persist, pursue automation to minimize burden.
- **Workforce Transition Planning:** Embed reskilling, redeployment, and HR collaboration in every discontinuation decision. Provide clear career pathways toward technical and analytical roles, reducing anxiety and union pushback.
- **Change Management and Communication:** Launch a branded modernization initiative to unify messaging. Equip managers with communication toolkits, highlight quick wins, and celebrate staff-driven improvements to normalize a "stop doing" culture.
- **Monitoring and Feedback:** Implement dashboards to track eliminated functions, workload savings, and reinvestment outcomes. Conduct post-implementation reviews and invite ongoing staff input to refine processes.

Next Steps for Caltrans

- **Pilot an Activity Inventory:** Begin with one division to catalog all functions, costs, and demand, then expand agency-wide.
- **Develop Criteria and Tools:** Create a standardized evaluation matrix aligned with Caltrans Strategic Plan priorities.
- **Form a Cross-Functional Task Force:** Establish a modernization team with representatives from DRISI, IT, HR, Legal, districts and other divisions to oversee the framework.
- **Launch Digital Pilots:** Prioritize a digital permitting pilot and AI-based pavement monitoring to demonstrate early savings and cultural buy-in.
- **Initiate Workforce Planning:** Conduct a skills inventory to identify training needs in AI, data, and interdisciplinary competencies. Begin reskilling programs in partnership with the California Department of Technology.
- **Engage Policymakers Early:** Brief legislative and regulatory partners on upcoming modernization needs, highlighting cost savings and opportunity costs of low-value work.
- **Communicate a Vision:** Frame the initiative as an opportunity to redirect staff talent toward safety and innovation, reinforcing Caltrans' leadership in modernizing transportation.

Detailed Findings

Departments of Transportation (DOTs) are under pressure to do more with limited resources while adapting to changing priorities and technologies. A growing imperative is to identify and "stop doing" activities that no longer provide sufficient value. This review outlines a framework for systematically evaluating DOT functions to flag those that are outdated, redundant, or lower-value and discusses how to inventory work, apply criteria for discontinuation, leverage digital transformation to reduce workload, address barriers to stopping work, manage workforce impacts, and learn from case studies of successful change. The goal is to help DOT leaders streamline operations and redirect effort to higher-value priorities, ultimately improving efficiency and service to the public.

Systematically Inventorying and Evaluating Work

The first step is creating a comprehensive inventory of current functions and processes across the agency. DOTs should catalog what work is being done (including programs, services, and internal processes), who performs it, the resources it consumes, and its purpose. This "activity inventory" enables a holistic evaluation. For example, the Virginia DOT (VDOT) undertook a strategic "VDOT of Tomorrow" program that began by identifying core strategic goals and analyzing all work to determine what should start, stop, change, or continue in the short, medium, and long term[1]. This kind of agency-wide review sets the stage for pinpointing functions that may no longer be needed.

Once the inventory is in hand, DOTs can evaluate each function through structured performance and relevance reviews. Key questions include: Is the activity mandated by law or regulation? Does it align with current strategic goals (e.g. safety)? What outputs or outcomes does it produce, and are they still valued? Are there duplicative efforts elsewhere? How have demand and usage changed over time? What are the costs (staff time, budget) versus benefits? By systematically assessing these factors, an agency can flag candidates for elimination or redesign. Some DOTs have even established dedicated roles or teams to drive this effort. For instance, the Arizona DOT (ADOT) created a position focused on training programs to identify and implement efficiencies (including process improvements, IT solutions, or even statutory changes) to streamline operations[2]. Similarly, the Colorado DOT (CDOT) has an Office of Process Improvement[3] that empowers front-line employees to examine their own processes and suggest improvements or elimination of wasteful steps[4]. These structures institutionalize continuous evaluation of work and encourage a culture of questioning the status quo.

It can also be useful to adopt techniques from private-sector management. Business guru Jim Collins famously advocates making a "stop doing list" (systematically reviewing activities and ceasing those that don't contribute to the mission)[5]. DOT leadership teams can incorporate this into strategic planning: every major goal or initiative should prompt the question, "What will we stop doing to free up capacity for this?" By treating work elimination as equally important as work addition, agencies ensure their portfolios of activities remain focused and relevant.

[1] https://www.nga.org/wp-content/uploads/2022/05/Deloitte-Workforce-Transformation-for-State-DOTs.pdf
[2] https://mdl.mndot.gov/_flysystem/fedora/2023-01/trs1410.pdf
[3] https://sites.google.com/state.co.us/process-improvement/home
[4] https://www.sixsigmadaily.com/colorado-department-of-transportation-provides-model-for-using-lean-to-make-government-more-efficient/
[5] https://www.jimcollins.com/article_topics/articles/good-to-great.html#articletop

Criteria for Identifying Outdated or Low-Value Functions

Not every legacy activity is "low-value" (many continue to be essential). Therefore, clear criteria are needed to determine which functions are truly candidates for phasing out. Key criteria include:

- **Lack of Strategic Alignment:** Functions that do not align with the DOT's current mission, strategic goals, or performance targets. If an activity does not clearly support priority outcomes (safety, mobility, etc.), its value is questionable[6]. Agencies should especially scrutinize programs that may have made sense under past goals but not under today's priorities.
- **Obsolete or Outdated Purpose:** Tasks originally created to address a problem that has since been solved or diminished, or to serve technologies no longer in use. For example, a reporting process might be obsolete if the information is now captured automatically, or a program may be based on conditions that have changed over time. Minnesota Statutes, section 14.05, subdivision 5[7] requires all state agencies (including the Department of Transportation) to submit by December 1 each year a list of any rules that are obsolete, unnecessary, or duplicative.
- **Duplicative Effort:** Functions that duplicate work done elsewhere (either within the DOT or by another agency)[8]. Redundancy is a strong signal of potential inefficiency. If multiple offices collect the same data or conduct similar reviews, it may be possible to consolidate or eliminate overlaps. The Trump Administration is expected to release a plan to streamline the U.S. Department of Transportation (USDOT) by cutting redundancies and staff. A similar 1995 GAO study of USDOT highlighted parallel administrative offices in different modal administrations and helped make the case for consolidating support functions[9].
- **Low Utilization or Demand:** Services or processes that are not widely used or needed by their "customers." For example, Valley Transportation Authority (VTA) is looking at ways to improve or replace its old light rail system, which doesn't get enough riders. Options include fixing the current trains, buying new ones, or switching to buses or other transit systems. A full change could take over 15 years, but the current trains can keep running until 2031 if maintained[10]. if a DOT maintains a public service that only a handful of people use (perhaps because needs have changed or an alternative exists), the agency should evaluate whether the service's benefits justify its upkeep.
- **Poor Cost-Benefit Ratio:** Activities that consume high amounts of staff time or budget relative to the benefits or outputs they produce. Some functions may be "nice to have" but resource-intensive. In times of constrained funding and workforce, those with marginal benefits are prime candidates to cut back or discontinue. The ADOT Low Volume State Routes Study[11] reviewed 22 state routes with low traffic (typically under 400 vehicles per day) covering 457 miles. It assessed each route's financial impact, physical characteristics, and effects on local and regional transportation. The study identified which routes could be transferred to other agencies and suggested ways to cut costs for those that stay in the state system.
- **No Legal Requirement:** If an activity is not legally or regulatorily required, it is easier to eliminate. Recently, federal guidance explicitly urged agencies to focus on eliminating functions not mandated by statute, so they can concentrate on efficiently delivering the legally required ones[12]. This doesn't

[6] https://www.jimcollins.com/article_topics/articles/good-to-great.html#articletop
[7] https://www.lrl.mn.gov/obsrules/
[8] https://extratransportation.com/u-s-dot-cuts-over-50-outdated-regulations-fmcsa-included/
[9] https://enotrans.org/article/reorganizing-dot-what-can-be-done-and-the-1995-example
[10] https://www.vta.org/sites/default/files/2022-03/VTA%20Next%20Gen%20Executive%20Summary%20Report_FInal_1.pdf
[11] https://azdot.gov/sites/default/files/media/2019/11/LVR-Final-Report-with-ES.pdf
[12] https://www.opm.gov/policy-data-oversight/latest-memos/guidance-on-agency-rif-and-reorganization-plans-requested-by-implementing-the-president-s-department-of-government-efficiency-workforce-optimization-initiative.pdf

mean every non-mandated function should be cut, but it underscores that legally optional activities deserve tough scrutiny. Conversely, if a function is mandated but no longer valuable, the DOT may consider seeking legislative or regulatory changes to amend or repeal that mandate. Minnesota Statutes, section 14.05, subdivision 5[13] requires all state agencies (including the Department of Transportation) to report obsolete, unnecessary, or duplicate rules by December 1 each year.

- **Risk If Discontinued:** As a counterpoint, consider what would happen if the function stopped. If the negative impacts are minimal or mitigable, that function is likely lower-value. If few stakeholders would notice its absence (or there are easy alternatives for them), it might be safe to retire. However, we need to look at more than just utilization and demand. For example, The FDOT Fleet Operations Review[14] explains that just because a vehicle doesn't rack up a lot of miles doesn't mean it's not important. Some vehicles are used often in small areas or for special tasks like security. While people often worry about vehicles not being used enough, using them too much can also be a problem (it wears them out faster and costs more to replace). Fleet managers need to look at more than just mileage to decide if a vehicle is really needed.

These criteria can be formalized into a screening tool for DOT managers. For example, the U.S. DOT recently applied similar criteria in a regulatory purge (scrapping over 50 federal rules that officials identified as "outdated, duplicative, or no longer relevant to current industry practices," some of which had lingered on the books for decades)[15]. If a rule doesn't meaningfully improve safety or the current transportation environment, and only adds burden, it can go. The same mindset can guide internal function reviews at state and local DOTs. Using such criteria, a DOT can rank functions by their continued relevance and value. Some functions might be obvious "keep" (clearly aligned and high-value), others obvious "cut," and many in a gray area requiring further analysis or perhaps modification rather than full elimination. The output of this step is a prioritized list of candidates for de-emphasis or discontinuation.

Leveraging Digital Transformation to Reduce Workload

A powerful enabler for retiring lower-value work is digital transformation. Modern technologies (from online services to automation and artificial intelligence) can either streamline labor-intensive processes or eliminate the need for certain tasks entirely. DOTs across the country are exploring digital tools that reduce manual workload for both staff and users. Not only does this improve efficiency, it often improves service quality and frees employees to focus on higher-value activities. Key areas where digital transformation is reducing workload include:

- **Digital Permitting and Approvals:** Replacing paper-based or in-person permit processes with online portals and automated workflows can dramatically cut processing times and staff involvement. For example, federal agencies are now required by presidential mandate to digitize environmental review and permitting with shared data standards[16] [17]. The goal is to streamline workflows, eliminate paper to the greatest extent practicable, and allow projects to be tracked in real time. A digital permit system can automatically flag incomplete applications, route tasks to the right reviewers, and update status dashboards, reducing the need for staff to do these steps manually. Early implementations have shown promising results (the Council on Environmental Quality highlighted the "tremendous potential" for technology to cut timelines in NEPA reviews)[18].

[13] https://www.lrl.mn.gov/obsrules/
[14] https://1library.net/article/fleet-utilization-rightsizing-fleet-operations-review-fleet-management.yjvd322y
[15] https://extratransportation.com/u-s-dot-cuts-over-50-outdated-regulations-fmcsa-included/
[16] https://www.whitehouse.gov/presidential-actions/2025/04/updating-permitting-technology-for-the-21st-century/
[17] https://blog.bluebeam.com/federal-digital-permitting-modernization/
[18] https://fas.org/publication/how-to-build-effective-digital-permitting-products-in-government/

For DOTs, digital permitting of things like access, oversized loads, or construction plans can free permitting staff from data entry and status inquiries, allowing them to concentrate on complex cases and customer service.

- **Automated Data Collection and Reporting:** DOTs traditionally devote substantial effort to collecting data (traffic counts, road conditions, etc.) and producing reports (annual summaries, compliance reports). Automation and sensor technology are transforming this. Many agencies now use IoT sensors, drones, and connected vehicles to gather data continuously, with minimal human involvement. Reporting can be auto-generated by software that compiles data and even drafts narrative insights. For example, transportation management centers aggregate real-time data and automatically produce incident reports and performance dashboards, reducing tedious manual reporting. This not only saves staff hours but also provides more timely information for decision-making. For example, at Colorado Department of Transportation (CDOT), a manager suggested a "Fuel PIN" system that replaced paper fuel purchase receipts with a digital PIN-based logging, eliminating piles of paperwork and saving $30,000 a year (just in printing costs) while preventing fraud[19]. In this case, a digital solution killed two birds with one stone (stopping an antiquated paper process and freeing staff from processing receipts).
- **AI-Enabled Asset Management and Operations:** Artificial intelligence is emerging as a game-changer for asset management, maintenance, and traffic operations. AI and machine learning can sift through large datasets to predict maintenance needs, optimize asset lifecycles, and even perform real-time monitoring tasks that formerly required human inspection. State DOTs are actively exploring these opportunities. The Texas DOT, for instance, has identified over 200 potential AI use cases and is already using AI in 22 areas of work (from analyzing traffic camera feeds to detect crashes faster (thus reducing incident response time) to prioritizing infrastructure projects and managing budgets)[20] [21]. By layering AI on top of its camera network, TxDOT was able to automate detection of wrong-way drivers and weather emergencies, tasks that previously might have relied on staff monitoring or calls from the public. Similarly, AI-based pavement monitoring (using image recognition on video data) can continuously flag road distress, reducing the frequency of manual road inspections. The productivity gains can be substantial: one study by McKinsey estimated AI could boost productivity significantly in some cases[22]. For DOTs, this means field crews and engineers can shift from routine inspection or data-crunching roles to supervisory and decision-making roles (focusing on what the data means rather than spending time collecting it).

Overall, digital transformation efforts act as a force-multiplier for the workforce. They automate routine, low-value tasks, allowing employees to devote time to higher-value work that truly requires human judgment. In a DOT context, this could mean planners and engineers spending less time filling forms or compiling spreadsheets, and more time solving problems, engaging with stakeholders, or innovating. Embracing technology also helps ensure that functions which are retained are carried out with maximum efficiency and minimum burden. That said, technology implementations must be user-friendly and well-integrated (fragmented or poorly designed systems can frustrate staff and fail to deliver promised savings)[23]. DOTs should therefore approach digital tools with a focusing on tech that truly streamlines workflow rather than adding complexity.

[19] https://www.sixsigmadaily.com/colorado-department-of-transportation-provides-model-for-using-lean-to-make-government-more-efficient/
[20] https://www.smartcitiesdive.com/news/ai-texas-transportation-department-strategy/750132/
[21] https://www.txdot.gov/content/dam/docs/division/str/ai-strategic-plan-09-20-2024.pdf
[22] https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/the%20economic%20potential%20of%20generative%20ai%20the%20next%20productivity%20frontier/the-economic-potential-of-generative-ai-the-next-productivity-frontier.pdf
[23] https://fas.org/publication/how-to-build-effective-digital-permitting-products-in-government/

Barriers to Stopping Work and Strategies to Overcome Them

Identifying an outdated or low-value function is one thing; actually stopping it can be quite another. Public agencies face a range of barriers to discontinuing work, including legal constraints, organizational inertia, and cultural resistance. It's crucial to anticipate these barriers and plan strategies to overcome them, in order to successfully phase out the targeted functions.

- **Legal and Policy Barriers:** Government agencies often perform functions because of statutory or regulatory mandates. If a task is required by law (e.g. a federally mandated report or a state statute requiring a certain program), the DOT cannot unilaterally stop it without risking non-compliance. Legal barriers are a significant issue (one federal efficiency directive urged agencies to focus cuts on non- mandated functions, precisely because required functions could only be changed via legislation or rule changes)[24]. To overcome this, DOTs need to engage policymakers: they might seek statutory amendments to remove or update outdated mandates[25], or petition federal partners for waivers or rule changes. Building a evidence-based case is key (for example, data showing that a mandated report is no longer useful[26] can support eliminating that requirement). Congress passed the Eliminate Useless Reports Act of 2024 (H.R. 5301)[27] and agencies must recommend if these recurring reports should be ended, modified, consolidated, or reduced in frequency. Until laws change, some agencies try to minimize the burden of low-value mandated tasks (for instance, automating a required report to make it essentially zero-effort, even if it still must be produced). Close coordination with general counsel and regulators is advised to navigate these hurdles.
- **Cultural and Organizational Inertia:** Public-sector cultures sometimes develop a "we've always done it this way" mindset. Employees take pride in their work, even in processes that may no longer be needed, and may resist messages that their function is low-value. There can be fear of the unknown (concern that stopping a task might lead to mistakes, service gaps, or job losses). Additionally, mid-level managers might fear losing budget or staff if a function is eliminated, creating disincentives to volunteer any work as unnecessary. Overcoming this inertia requires strong change management. Leadership must clearly articulate why an activity should stop (for example, how those resources will be redirected to higher- priority efforts that deliver better public outcomes). Building a compelling vision helps: employees need to see that eliminating low-value work is not about punishing them or reducing headcount arbitrarily, but about enabling the agency to succeed in its core mission. It's also vital to involve employees in the process: front-line staff often know which processes are wasteful and engaging them can turn potential resisters into allies. The article organizational culture in public sector organizations[28] argues that while culture strongly shapes employee behavior and organizational effectiveness, public sector organizations face unique challenges due to bureaucracy, rules, and multiple stakeholders. The authors propose two strategies to promote cultural change: training, which builds awareness, reduces resistance, and helps employees understand the need for adaptation, and leading by example, where leaders model desired behaviors, use symbols, and reinforce values through daily actions. Together, these approaches can foster trust, buy-in, and long-term transformation in public sector organizations. Colorado DOT's experience is instructive. It fostered a culture where every employee is a "problem solver" encouraged to improve or eliminate inefficient processes, backed by training in Lean methods[29].

[24] https://www.opm.gov/policy-data-oversight/latest-memos/guidance-on-agency-rif-and-reorganization-plans-requested-by-implementing-the-president-s-department-of-government-efficiency-workforce-optimization-initiative.pdf
[25] https://www.lrl.mn.gov/obsrules/
[26] https://www.sciencedirect.com/science/article/abs/pii/S0190740924000719?via%3Dihub
[27] https://www.congress.gov/bill/118th-congress/house-bill/5301/text
[28] https://www.emerald.com/lodj/article-abstract/26/6/492/269512/Organizational-culture-in-public-sector?redirectedFrom=fulltext
[29] https://www.sixsigmadaily.com/colorado-department-of-transportation-provides-model-for-using-lean-to-make-government-more-efficient/

CDOT officials note that successful change depends on factors like sponsorship and leadership by example, as well as coaching employees through transitions.

- **Workforce Impact and Unions:** A specific aspect of cultural resistance is fear for jobs. Stopping a function might mean a team has less to do, raising anxiety about layoffs or role elimination (especially if automation is involved)[30] [31]. Labor unions or employee associations may object to reductions or redeployments. To address this, DOTs should approach "stopping work" as shifting work more than cutting jobs. Whenever possible, agencies can retrain and reassign staff from the old functions to new or higher-value functions (skill shifts will be discussed in the next section). Involving HR early to develop workforce transition plans is important[32]. If employees see that eliminating an old task will be coupled with opportunities to work on more interesting or rewarding new tasks (with training provided), they are far more likely to support the change. Also, early and transparent communication with unions can help[33] (for example, negotiating how automation will be introduced in a way that avoids involuntary layoffs (perhaps through attrition or by upskilling staff for new tech-focused roles)). In short, mitigating the personal impact on staff reduces barriers dramatically.
- **External Stakeholders and Political Concerns:** Some DOT functions exist because stakeholders (legislators, local governments, the public) expect them. Proposing to drop them can trigger political pushback (for instance, trying to close a low-usage rest area might upset a group that represents motorists and truckers even if the numbers say it's low-value)[34]. Overcoming this requires stakeholder engagement and sometimes compromise. DOTs should gather data to demonstrate why the function is low-value and communicate that clearly: e.g. "This program costs $X per year but serves very few people[35]; we can invest those dollars in road safety where they will prevent injuries." Showing the opportunity cost of keeping a low-value function (what beneficial work isn't getting done as a result) can sway opinions. In some cases, gradual phase-out or pilot trials can make change more palatable. If legal mandates or funding riders are tied to the function, the DOT may consider seeking legislative or regulatory changes[36].

In overcoming all these barriers, a few general strategies emerge. Championship from top leadership is essential (agency heads need to set the tone that it's not only acceptable but desirable to stop doing low-value work, and they need to back up managers who make those tough calls). Change efforts should be well-planned: using project management and change management techniques[37] (clear timelines, training, feedback loops, celebrating quick wins). Many agencies find that establishing a formal initiative (with a name, team, and goals) helps drive momentum. For example, when VDOT launched its future workforce initiative, it created an Advisory Board and "Accelerator Network" of change champions to facilitate buy-in for new ways of working[38]. This kind of structured approach can be applied to any transformational change. Lastly, patience and empathy are key (even after a decision is made to end a function, there will be a transition period). Agencies should monitor for any unintended consequences and be ready to adjust (for instance, if stopping one report accidentally leaves a data gap, perhaps a smaller replacement task is needed). In summary, while barriers to stopping work are real, they can be surmounted with strong leadership, inclusive planning, clear communication, and support for the workforce through the change[39].

[30] https://www.ijfmr.com/papers/2025/2/40048.pdf
[31] https://www.resume-now.com/job-resources/careers/ai-disruption-report
[32] https://www.roberthalf.com/us/en/insights/research/strategies-to-prepare-the-workforce-of-the-future
[33] https://www.forbes.com/sites/forbesbooksauthors/2024/07/01/how-to-prepare-employees-for-upcoming-automation/
[34] https://stateline.org/2017/03/31/old-fashioned-rest-stops-disappearing-in-some-states/
[35] https://iowadot.gov/media/3282/download?inline=
[36] https://www.lrl.mn.gov/obsrules/
[37] https://link.springer.com/chapter/10.1007/978-3-031-55669-2_9
[38] https://www.nga.org/wp-content/uploads/2022/05/Deloitte-Workforce-Transformation-for-State-DOTs.pdf
[39] https://www.emerald.com/lodj/article-abstract/26/6/492/269512/Organizational-culture-in-public-sector?redirectedFrom=fulltext

Impact on Staff Roles and Skill Sets

As DOT functions evolve (with some tasks phased out and others automated or transformed) the roles of DOT staff inevitably change. The workforce implications are significant, and they call for proactive planning in talent development and management. Overall, the trend is a shift away from routine transaction-based roles toward more analytical, technical, and oversight roles. Several impacts on staff roles and required skills are emerging:

- **Transition from Manual to Analytical Work:** When manual or repetitive tasks are reduced, employees' job descriptions can shift toward interpreting results and making decisions. For example, instead of manually compiling data, a planner might spend more time analyzing automatically generated reports and developing action plans from them. AI will quickly produce draft planning documents, environmental analyses, and even public hearing presentations, which humans will then customize[40]. This requires stronger analytical and critical thinking skills. DOTs need to train staff in data analysis, problem-solving, and using new software tools effectively. The focus becomes managing the processes that machines handle and adding human judgment on top. In the maintenance arena, if AI schedules repairs, maintenance supervisors may need to deepen skills in asset management strategy rather than scheduling logistics. Predictive AI models, fed by IoT sensors and inspection data, will optimize maintenance schedules[41]. Rather than relying purely on set cycles, a future asset manager might get an AI-generated weekly list of "top 10 assets at risk of failure" drawn from real- time data. Crews could receive AI-prioritized work orders (e.g. which potholes or signals to fix first based on risk). Some DOTs will employ drones and robots for inspections (a trend already emerging), with AI analyzing imagery to detect cracks or hazards[42] [43].

- **Greater Emphasis on Digital Literacy and Technology Skills:** A more digitized DOT needs a workforce comfortable with digital tools (whether it's GIS systems, project management platforms, or AI-based applications). Digital fluency becomes a core skill for many positions that traditionally did not require it. In response, DOTs are placing greater emphasis on training programs for existing employees to learn new technologies. The Virginia DOT explicitly identified tech fluency and data science as part of its future workforce preparation, launching mentoring and training efforts to build those competencies[44]. Likewise, TxDOT's strategic plan[45] explicitly calls for an AI Training Plan tailored to different staff roles, ensuring each role (from maintenance technician to executive) gets relevant training on AI applications[46]. This might involve e-learning modules, hands-on workshops, and certification programs. The California Department of Technology[47] also offers technical AI training for state employees.

- **Interdisciplinary and Soft Skills:** As straightforward tasks are automated, many remaining problems are complex and cross-disciplinary (for instance, coordinating an integrated mobility program, or communicating technical information to the public). Skills such as collaboration, project management, communication, and innovation become more important in job roles. NASCIO[48] reports, scaling GenAI requires procurement, IT, legal, finance, and line agencies to "collaborate in agile multidisciplinary teams" to deploy solutions faster. This represents a cultural shift for

[40] https://www.pnnl.gov/sites/default/files/media/file/PolicyAI%20Comment%20Processing%20White%20Paper%20V1.pdf
[41] https://fantasticit.com/how-iot-and-ai-are-revolutionizing-predictive-maintenance/
[42] https://arxiv.org/pdf/2401.02343
[43] https://www.wired.com/story/poop-drones-are-keeping-sewers-running-so-humans-dont-have-to/
[44] https://www.nga.org/wp-content/uploads/2022/05/Deloitte-Workforce-Transformation-for-State-DOTs.pdf
[45] https://www.txdot.gov/content/dam/docs/str/ai-strategic-plan-09-20-2024.pdf
[46] https://ourpublicservice.org/blog/launching-the-ai-center-for-government/
[47] https://cdt.ca.gov/workforce-development/generative-ai-training/
[48] https://www.nascio.org/wp-content/uploads/2024/04/NASCIO_McKinsey_GenAI-and-Impact-on-State-IT-Workforces_2024.pdf

many government agencies used to siloed operations. Staff may need to navigate new roles like working with IT departments or external vendors for technology deployments. Change management skills themselves can be valuable at all levels (employees who can adapt and help others adapt are assets).

- **Need for Continuous Learning:** The rapid pace of technological change means staff skill sets must be continually updated. DOTs should foster a culture of continuous learning and provide ongoing opportunities for professional development. Some agencies are creating future-focused skill inventories and assessments (VDOT, for example, implemented a future skills survey for employees to gauge their proficiency in emerging skill areas, which then informed training and hiring plans)[4] [4] . By identifying gaps (say in cybersecurity or in data analytics) early, the agency can target those through reskilling or recruitment. Currently, federal programs like the GSA's AI Training Series[49] and the C3 AI Fellows[50] Program provide models for equipping government employees with practical AI skills. States are also launching their own initiatives.

- **Workforce Reduction vs Redeployment:** It is possible that automating low-value functions leads to a smaller workforce need in certain areas. However, DOTs are expected to operate with more technologically skilled workforces, as AI-driven productivity enables agencies to meet rising transportation demands without proportional staff increases. For instance, clerical roles (file clerks, typists, data entry) will be largely obsolete[51] (those tasks will be fully automated or self-service for users). Even roles like traffic monitoring staff could decrease if AI systems manage traffic signals and TOC (Traffic Operations Center) functions autonomously. However, rather than abrupt layoffs, this will likely come through gradual attrition and reskilling. According to the World Economic Forum's 2025 Future of Jobs Report[52], 77% of employers plan to retrain their workforce to work alongside AI, and 47% aim to transition employees from declining roles to new positions within their organizations. As highlighted by McKinsey Global Institute[53], combining generative AI with other automation tools could significantly boost productivity, enabling agencies to accomplish more with the same number of employees. The overall size of a state DOT workforce might contract somewhat or remain steady even as service demand grows, thanks to AI-driven productivity.

- **New Roles in Data and Technology:** We also see entirely new job roles emerging in DOTs (e.g., data scientists, automation specialists, GIS analysts, and AI system managers). a May 2024 survey[54] found that 67% of mature organizations are creating new roles for GenAI, with 87% having dedicated AI teams. Additionally, agencies might tap "prompt engineers" or AI system trainers on a pilot basis to fine-tune prompts and models for agency-specific needs, though these may be temporary roles often filled by consultants or upskilled IT staff. Embracing Generative AI in Local Governments[55] explores how local governments are addressing the skill gap associated with generative AI by investing in upskilling programs for current employees. State DOTs are creating dedicated innovation or technology integration teams to lead digital initiatives. Thus, part of workforce planning involves deciding which new skills to hire versus train from within. Many agencies adopt a mix of both, sometimes contracting out initially while building internal capacity

[49] https://coe.gsa.gov/communities/AITraining.html
[50] https://c3.ai/c3-ai-fellows/
[51] https://www.wric.com/news/u-s-world/the-10-jobs-expected-to-decline-over-the-next-decade/amp/
[52] https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf
[53] https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/the%20economic%20potential%20of%20generative%20ai%20the%20next%20productivity%20frontier/the-economic-potential-of-generative-ai-the-next-productivity-frontier.pdf
[54] https://www.gartner.com/en/newsroom/press-releases/2024-05-14-artificial-intelligence-is-creating-new-roles-and-skills-in-data-and-analytics
[55] https://patimes.org/embracing-generative-ai-in-local-governments-prompt-engineering-and-upskilling/

long-term.

In short, as lower-value and outdated functions phase out, the workforce shifts to higher-value functions. This is an opportunity to increase job satisfaction (fewer boring rote tasks) and to attract new talent with modern skill sets, but it requires thoughtful change management. Agencies must support their people through these transitions (providing training, clear career pathways, and reassurance that the goal is better jobs, not fewer jobs). Those DOTs that actively manage this evolution (focusing on skills development and organizational agility) will be best positioned to thrive.

Case Studies of Successful Function Sunsetting

To illustrate how these principles come together in practice, consider a few examples where transportation agencies have successfully retired or revamped lower-value functions:

- **Virginia DOT "Workforce of Tomorrow" Initiative**[56]: Since 2018, the Virginia Department of Transportation (VDOT) has partnered with Deloitte to prepare for the future of work through its "VDOT of Tomorrow" initiative. Launched as a strategic effort to address evolving trends and disruptions, the program focuses on reimagining VDOT's work, workforce, and workplace. In Phase 1, VDOT identified five key focus areas and analyzed how work will start, stop, change, or continue in the short, medium, and long term. In subsequent phases, VDOT gathered input from employees and leadership to develop a roadmap of initiatives focused on reskilling, hiring, and improving workforce capabilities. A future-focused skills survey and a pilot reskilling program are currently being implemented, with plans for agency-wide expansion to ensure VDOT is equipped with the skills needed for long-term success. This case underscores the value of a structured framework: inventory, criteria-based analysis, broad engagement, and action plan. It also shows that culture change (mentoring, Accelerator Network) was integral to actually sunsetting old ways.
- **Colorado DOT Lean Process Improvements**[57]: The Colorado Department of Transportation (CDOT) has successfully used Lean principles to improve government efficiency by focusing on employee empowerment and continuous process improvement. Through Lean Six Sigma training and their Lean Everyday Ideas program, employees are encouraged to develop and share innovative solutions, leading to significant cost savings and operational improvements. Notable successes include a new hydraulic modeling approach that cut project costs in half, a tool to speed up roadside fence repairs, and a Fuel PIN system that reduced theft and saved $30,000 annually. CDOT's efforts have earned national recognition for innovation in government. The lesson is that empowering staff can uncover dozens of outdated practices ripe for elimination and that recognizing and sharing those successes accelerates agency-wide adoption.
- **California DOT Assessment of the Performance**[58]: The SSTI Independent Review of Caltrans (2014) assessed the department through a mix of extensive document reviews, over 100 confidential interviews with staff and stakeholders, and benchmarking against other state DOTs. The findings concluded that Caltrans remained overly highway and project-oriented, with outdated mission and goals, weak planning and asset management capacity, rigid design standards, and inadequate performance management, leaving it misaligned with California's sustainability, equity, and multimodal policy goals. The report recommended modernization through a new mission/vision centered on sustainability and system preservation, stronger planning and freight focus, updated design guidance, performance-based management, improved

[56] https://www.nga.org/wp-content/uploads/2022/05/Deloitte-Workforce-Transformation-for-State-DOTs.pdf
[57] https://www.sixsigmadaily.com/colorado-department-of-transportation-provides-model-for-using-lean-to-make-government-more-efficient/
[58] https://libraryarchives.metro.net/DB_Attachments/140130_SSTI_Caltrans_Review.pdf

communication, and a culture shift toward innovation and accountability.

- **U.S. DOT Regulatory Streamlining**[59]: At the federal level, the U.S. DOT's regulatory purge provides a macro-scale example of shedding low-value work. The U.S. DOT announced the repeal of over 50 outdated federal regulations, including several tied to the Federal Motor Carrier Safety Administration (FMCSA). This move is part of a broader effort to streamline oversight, reduce bureaucratic red tape, and make compliance easier for the trucking and logistics industries. The eliminated rules were considered obsolete, duplicative, or no longer relevant to modern practices. The DOT aims to modernize regulations without compromising highway safety, potentially reducing paperwork and compliance costs for carriers and drivers. The success of this effort hinged on rigorous review criteria and the willingness to take political action to remove regulations (something state DOTs can mirror within their own authority by updating internal policies and manuals to strike out requirements that no longer make sense).
- **Abolishment of the Interstate Commerce Commission (ICC)**[60]: As a broader case in the transportation realm, the elimination of the ICC in the mid-1990s is a classic example of phasing out an entire agency whose functions had largely become redundant or outdated. The ICC's remaining essential duties were transferred to newer organizations, and the rest were discontinued. This was a politically driven process, but it demonstrates that even century-old functions can be successfully retired when they no longer align with current needs. The ICC case required Congress to act (showing the importance of legal authority), and it highlighted the need to manage workforce impacts (many staff were reassigned or retired). For today's DOTs, while you might not be eliminating entire agencies, the principle is similar (plan for what happens to every essential piece of a function before you drop it entirely).

Each of these cases reinforces elements of the framework discussed above: clear criteria and leadership in VDOT's case, employee-driven identification in CDOT's, top-down policy change in USDOT's, and legal restructuring in the ICC's. For U.S. DOTs seeking to undertake a similar journey, these examples provide reassurance that it can be done and yield significant benefits. The exact approach will vary by agency size and context, but the successes show that an intentional, well-communicated effort to streamline can result in a more agile, effective organization.

Summary of Findings

In summary, U.S. DOTs can greatly enhance their efficiency and effectiveness by systematically identifying and eliminating functions that no longer justify their costs and goals. This involves taking an honest inventory of what the agency does, applying rigorous criteria to evaluate the relevance and value of each activity, and leveraging modern technology to automate away low-value tasks. Equally important is addressing the human and organizational side: overcoming barriers through strong leadership, clear communication, and supportive transition plans for staff. By doing so, DOTs free up resources (budget, employee time, managerial attention) that can be redirected to high-priority missions such as improving safety, maintaining infrastructure, and innovating for the future.

Crucially, stopping something is not a sign of failure; it is a sign of a learning organization that adapts to change. As one guidance put it, agencies should focus on eliminating what is not truly needed and enable staff to focus on higher-value work. The experience of peer agencies demonstrates that this can mean cutting red tape, sunsetting outdated programs, or simply nixing steps in a process that add no value. The

[59] https://extratransportation.com/u-s-dot-cuts-over-50-outdated-regulations-fmcsa-included/
[60] https://www.congress.gov/crs-product/R47897

payoff is often substantial: reduced workloads, faster delivery of services, cost savings, and a more motivated workforce engaged in meaningful activities.

For the target audience (leaders and managers in U.S. DOTs) the message is to make "stop doing" a part of your strategy. Just as you plan new projects and initiatives, plan what existing work will be scaled back or stopped to make room. Encourage your teams to continuously ask, "Is this task still necessary? Is there a better way to achieve the goal?" And when the answer is no or yes respectively, be willing to act on it. Whether through formal programs like VDOT's Workforce of Tomorrow or informal empowerment of innovation like CDOT's Lean initiatives, create channels for identifying low-value work and mechanisms to phase it out.

The transportation landscape is evolving with rapid technological advancements, changing traveler behavior, and new policy goals. DOTs that periodically prune the withering branches of their operations will be more resilient and agile in responding to these changes. By contrast, clinging to every legacy function "just because" can lead to inefficiency, staff frustration, and mission drift. Thus, implementing a framework to assess and retire outdated, redundant, or low-value functions is not just a cost-cutting exercise (it is a strategic modernization imperative). In the end, stopping what no longer works is as important to organizational success as starting new initiatives. Achieving this will help transportation agencies better serve the public with the resources they have, focusing energy on the work that truly matters for the new mobility challenges ahead.

Recommendations

Institutionalize a Systematic Review Process

- Develop a structured, recurring process for inventorying and evaluating all agency functions, using clear criteria such as strategic alignment, cost-benefit ratio, utilization, and legal mandates.
- Establish dedicated teams or roles to champion continuous evaluation and build a "stop doing" culture.

Adopt Digital Transformation Strategically

- Prioritize investments in digital permitting, automated data collection, and AI-enabled asset management to reduce staff workload and improve service delivery.
- Ensure new technologies are user-friendly, interoperable, and integrated across systems to avoid fragmentation or creating new inefficiencies.

Address Legal and Policy Barriers Proactively

- Engage with legislators and federal partners to modify or repeal outdated statutory and regulatory requirements that force agencies to maintain low-value functions.
- When legal mandates cannot be eliminated, automate their fulfillment to minimize staff burden.

Manage Organizational Culture and Workforce Impacts

- Position "stopping work" as shifting resources to higher-value functions rather than cutting jobs.
- Provide robust reskilling and retraining opportunities to help staff transition into analytical, technical, or oversight roles aligned with future needs.
- Communicate clearly and consistently with employees and unions to reduce resistance and build trust.

Foster Continuous Learning and New Skills Development

- Expand training programs in data analysis, digital literacy, AI applications, and interdisciplinary collaboration.
- Create future-focused skills assessments to identify capability gaps and prioritize targeted workforce development.

Engage Stakeholders Transparently

- Build evidence-based cases for retiring functions by demonstrating opportunity costs and highlighting reinvestment in higher-value outcomes such as safety or mobility improvements.
- Use pilot projects, phased rollouts, and clear communication strategies to ease political or community resistance.

Replicate and Scale Successful Models

- Draw on proven initiatives like VDOT's "Workforce of Tomorrow" and CDOT's Lean programs to design agency-specific approaches.
- Publicize and celebrate successful function retirements or process improvements to encourage wider adoption across the organization.

Implementation Mechanisms

Framework Development and Governance

- Create an agency-wide "Function Review Framework" that standardizes the criteria, tools, and timelines for evaluating activities.
- Assign a central office or cross-functional task force to oversee the process, track progress, and report annually on functions discontinued, modified, or retained.

Technology Integration Roadmap

- Develop a phased digital transformation plan that identifies specific functions to automate or digitize (e.g., permitting, data collection, reporting).
- Use pilot projects to test tools such as AI-enabled asset management before scaling up across divisions.
- Partner with IT and procurement offices to ensure solutions are interoperable, secure, and staff-friendly.

Policy and Legislative Engagement

- Establish a structured process for identifying functions constrained by legal mandates and preparing evidence-based recommendations for statutory or regulatory change.
- Coordinate with legal counsel and legislative affairs staff to pursue amendments, waivers, or sunset provisions for obsolete requirements.

Workforce Transition Planning

- Build workforce transition strategies into every function discontinuation decision. This includes

retraining staff, identifying redeployment opportunities, and developing new job descriptions that emphasize analytical and technical skills.

- Collaborate with HR and unions early in the process to secure buy-in and minimize workforce disruption.

Change Management and Communication

- Launch a branded agency-wide initiative to signal leadership commitment and provide a unifying narrative.
- Provide managers with change management training and communication toolkits to explain the rationale and benefits of retiring low-value work.
- Share success stories and quick wins to reinforce momentum and normalize “stopping work” as part of the culture.

Monitoring, Evaluation, and Feedback Loops

- Introduce performance dashboards that track eliminated functions, workload reductions, cost savings, and reinvestment outcomes.
- Conduct post-implementation reviews to identify unintended consequences and adjust strategies.
- Institutionalize a cycle of continuous improvement where staff and stakeholders can suggest additional candidates for elimination or redesign.