TOPIC description: Street Maintenance and Pothole Repair

A. Executive Summary

While open to further conversations regarding study scope, the Public Works Department (Public Works) expressed hesitation undergoing any audit in 2026 or the first half of 2027, as management is in the process of reevaluating its own plans, policies, and procedures. Likewise, concerns of excessive resource demand on staff were flagged as being potentially problematic. Nevertheless, interviewers and Public Works both agreed an assessment of Public Works' winter parking pilot program may be worthwhile. Discussion also extended to street maintenance activities directly related to pothole prevention and remediation. An operationalized scope was not settled on, however. Community Advisor McVay suggested Public Works leadership review the memo he prepared for Councilmember Coleman on this matter, to better inform them of how other large- and medium-sized cities have previously designed performance audits for assessing street maintenance activities. Jurisdictions covered by this cursory review include the cities of New York, San Diego, Dallas, Fort Worth, Atlanta, Long Beach, Honolulu, Pittsburgh, Durham, and College Station. The content of those audit reports is what ultimately informs this study's proposed scope of work.

The interview panel for this topic consisted of Councilmember Molly Coleman, Community Advisor Noah McVay, and Committee Staffer Nhia Vang. The scope of work was prepared by Mr. McVay in consultation with Ms. Vang.

B. Scope

Evaluate the economy, efficiency, and effectiveness of Public Works' street maintenance responsibilities as they concern planning for, managing, repairing, and prolonging the lifespan of streets, in order to prevent and remediate potholes as well as reduce maintenance backlogs. The department subject to audit is Public Works and its Street Maintenance Division (SMD). The resulting engagement will attempt to address the following research questions:

Planning and asset management

1. Are streets selected for repair and resurfacing based on objective data rather than subjective requests?
2. Is SMD using objective metrics like the Pavement Condition Index for prudential asset management?
3. Does SMD maintain a comprehensive multi-year pavement management plan to maximize the lifespan of the street network?
4. How does SMD evaluate the cost-effectiveness of using internal crews versus contracting out major resurfacing projects?

5. Is SMD taking into account the cost, quality, and timeliness of goods and services required for street maintenance activities when developing multi-year plans and annual maintenance schedules?
6. Does SMD share data with Public Works' Street Engineering and Construction Division, and vice versa? If yes, what data is utilized and translated for performance measurement purposes?
7. Are utility street cuts consistent with Americans with Disabilities Act requirements?

Operational efficiency and backlog reduction

1. What street maintenance and pothole repair targets are used by SMD, and how do they compare with similarly-sized cities for the purposes of benchmarking?
2. Are work crews, equipment, and materials deployed efficiently to minimize response times and travel overhead?
3. Are operational controls over inventories of equipment and fixed assets satisfactory for the purposes of pavement management?
4. Does Public Works have adequate staffing levels, training, and resources to address the current maintenance backlog?
5. Are there technological or workflow bottlenecks in the work order system that hinder tracking, prioritizing, and completing repairs?
6. How effective has the alternate-street parking pilot program been for reducing traffic congestion and facilitating street sweeping, snow removal, and pothole repair?
7. Does a master list of constituent service requests and deferred maintenance backlogs exist and, if so, is it regularly monitored and updated?
8. To what extent is Public Works optimizing available resources to meet current maintenance backlogs, be it through an analysis of order completion rates, the deployment of high-tech pavement management systems, how quickly and cheaply the municipal asphalt plant produces patching mix, or other means?

Pothole prevention and remediation

1. Does SMD utilize cost-effective, evidence-based maintenance techniques to delay pothole formation and maximize surface longevity?
2. Are current preventative maintenance treatments (e.g., crack sealing, slurry seals) applied at optimal times in a street's lifecycle?
3. Do pothole repair methods (materials, temperature, and compaction techniques) adhere to industry best practices to prevent recurring failures?
4. What are the total labor, material, and equipment costs associated with reactive pothole patching compared to systemic resurfacing?
5. Conducting a cost-benefit analysis, are there any practices or policies available to enhance streets' resilience to more frequent and less predictable weather conditions on account of a changing climate?

Asphalt plant operations

1. How does the total per-ton cost of self-produced asphalt (including plant depreciation, labor, utilities, and raw aggregates) compare to local commercial market rates?
2. Is the plant's production volume high enough to justify its fixed overhead costs, or is it cheaper to buy from private suppliers during low-demand seasons?
3. Are raw material procurement contracts (for liquid asphalt cement and aggregates) competitively bid to secure the lowest possible input costs?
4. What is the plant's capacity utilization rate, and how much unutilized capacity or idle time exists during peak pothole repair seasons?
5. Are plant operating hours and production schedules dynamically synchronized with work crew deployments to minimize crew waiting times at the yard?
6. How does the city manage the logistical efficiency of transporting hot-mix asphalt from the central plant to various city sectors before the material loses optimal compaction temperature?
7. Does the municipal plant have a rigorous quality assurance program to ensure asphalt mixes meet state dot engineering specifications?
8. Are specific mix designs tailored properly for durable pothole patching (e.g., high-performance cold mix for winter, durable hot mix for summer) to prevent premature patch failure?
9. What is the breakdown and maintenance history of the plant, and do unexpected shutdowns cause project delays or forced commercial purchases?

C. Cost

This study topic has a narrower scope when compared to other engagements under consideration this audit cycle. It is expected to take approximately eight months to complete and cost in the range of $20,000-25,000.

D. Ability to Effect Change

Public Works generally and SMD in particular are in the midst of a transition, with both a new department director and new division manager only recently being installed in post. An audit tailored to the needs of street maintenance is welcomed by Public Works leadership, but may not be timely as business operations are being reevaluated to better align with service delivery needs over the coming year. In the opinion of Public Works leadership, this may lead to moving targets which are hard to assess in the course of an audit. Nevertheless, Audit Committee Staff are convinced ample data are available over multiple time series to undertake and complete a reliable audit product now through 2027. In this vein, Public Works' stands ready to have further conversations as the Committee progresses through its topic selection process.

E. Key Challenges

Saint Paul's street maintenance activities face several hurdles, including severe freeze-thaw weather cycles that spawn potholes, deferred infrastructure maintenance estimated at nearly $1 billion, and budget shortfalls. Court rulings have severely restricted the city's ability to levy special assessments on property owners for routine upkeep, forcing a scramble for sustainable funding. Those challenges are discussed in greater detail below:

- *Harsh Minnesota weather:* Extreme temperature fluctuations during winter lead to continuous freeze-thaw cycles that severely damage asphalt and cause heavy pothole formation on the city's 850 miles of streets.

- *Funding and legal constraints:* Following a 2022 Ramsey County district court ruling, the city is prohibited from charging property owners individual fees for routine street maintenance. This eliminated millions in assessment revenue and forced Saint Paul to shift upkeep costs entirely onto general property taxes.

- *Aging infrastructure:* The city has a massive deferred maintenance backlog. Many residential streets were built decades ago over worn-out brick or cobblestone, denying the city of a strong engineering base for modern resurfacing.

- *Balancing competing needs:* Public Works struggles with balancing limited resources across multiple competing demands, including seasonal street sweeping, snow and ice removal, and Americans with Disabilities Act (ADA) ramp upgrades in addition to daily pothole patching.

- *Logistical realities:* Managing ongoing maintenance like seasonal street sweeping and alternate-side street parking requires coordination to ensure residents move their vehicles without disrupting daily traffic flow.

F. Study Approach

To address this scope of work, it is proposed the performance audit take a results-oriented, risk-based approach to objectively assessing inputs, processes, and outcomes across the asset lifecycle. Emphasis is placed on various research methodologies, be they literature reviews, case studies of other jurisdictions, interviews with Public Works personnel, resident surveys, or quantitative analyses of select data. Specific approaches the Audit Committee may take include:

1. Planning and data validation.
    a. Evaluate Public Works' pavement management system (PMS). Assess whether the city uses objective data, such as Pavement Condition Index (PCI) scores, to dictate maintenance priorities rather than reactive, ad-hoc requests.
    b. Test the accuracy of Public Works' work-order data. Cross-reference recorded pothole repair dates, crew logs, and material usages against financial records to ensure reliability.

2. Process evaluation.
    a. Map out the end-to-end pothole remediation and street repair workflows. Assess if the department is employing resources economically (e.g., comparing in-house crew productivity, overtime costs, and equipment downtime against outsourced contractor costs).
    b. Analyze the allocation of the street maintenance program budget. Evaluate if the city is emphasizing cost-saving preventive treatments (e.g., crack sealing, resurfacing) over costly reactive emergency patching.
    c. Compare the department's actual response times against service-level agreements (SLAs), e.g., percentage of potholes filled within three days).
3. Performance measurement and root cause analysis.
    a. Measure the historical growth or reduction of the deferred maintenance backlog and track the longevity of past street repairs (e.g., "doing it right the first time").
    b. When goals are missed, investigate underlying constraints like mismatched employee skill sets, equipment shortages, or fragmented funding strategies.

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