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Asphalt Grind and Overlay Operations in Spokane Region

The Spokane metropolitan area encompasses multiple jurisdictions with distinct road maintenance programs that utilize grind and overlay techniques to preserve their extensive asphalt infrastructure. Based on current data, the combined annual grind and overlay operations in Spokane County and the City of Spokane represent a modest but strategically important component of regional pavement preservation efforts, totaling approximately 7-8 miles of roadway treatment annually across both jurisdictions.

Spokane County Grind and Overlay Program

Spokane County operates one of the largest county road systems in Washington State, maintaining over 2,527 miles of roads that include 1,388.43 miles of oil and paved roads[1]. Within this extensive network, the county's asphalt overlay program represents a targeted preservation strategy focused on high-priority routes. According to official county documentation, Spokane County overlays approximately one to two miles of road per year through its Asphalt Overlay Program[2].

The county's approach to grind and overlay work follows a methodical process that involves grinding some of the old asphalt surface and relaying new asphalt material[2]. This technique serves as a preservation method specifically designed for urban arterials where maintaining smooth, durable surfaces is essential for accommodating heavy traffic volumes and supporting regional connectivity. The county prioritizes these projects based on traffic patterns, pavement condition assessments, and available funding resources.

Spokane County's road maintenance budget reflects the significant investment required to maintain such an extensive system. The county's 2023-2028 Transportation Improvement Program indicates substantial annual expenditures, with the 2023 Annual Road Construction Program showing total expenditures of $37,673,000 for construction projects, supported by $11,301,000 in county funds and $17,998,000 in additional funding sources[3]. While these figures encompass all construction activities beyond just grind and overlay work, they demonstrate the scale of investment required to maintain the county's road infrastructure.

County Road System Composition

The diversity of Spokane County's road network requires varied maintenance approaches. The system consists of 7.28 miles of concrete roads, 150.37 miles of dirt and summer roads, 980.97 miles of gravel roads, 0.32 miles of combination asphalt and concrete roads, and 1,388.43 miles of oil and paved roads[1]. This composition indicates that approximately 55% of the county's road mileage consists of paved surfaces that potentially require grind and overlay maintenance over their operational lifespan.

City of Spokane Grind and Overlay Operations

The City of Spokane maintains a more intensive grind and overlay program relative to its road network size. According to the city's Six Year Comprehensive Street Program documentation, the Streets Department performs approximately six lane miles of grind and overlay work per year[4]. This figure represents a baseline level of activity, with city officials expressing goals to increase this capacity as funding and resources permit.

The city's approach to grind and overlay work follows a comprehensive four-step process that maximizes the effectiveness of each project. The first step involves removal or lowering of manholes, surface storm-water, and sewer structures to protect infrastructure during grinding operations[5][6]. The second step encompasses grinding down or milling the top layer of existing asphalt to remove damaged or worn material, creating a smooth foundation surface. The third step involves raising and replacing surface structures to align with the new road elevation, while the fourth step applies a new asphalt layer that restores structural integrity and provides enhanced durability[5][6].

City Investment and Resource Allocation

The City of Spokane's commitment to grind and overlay work represents a significant annual investment. Recent project data indicates the city spends over $3.4 million annually on grind and overlay projects[7]. For comparison, the 2024 grind and overlay street maintenance program had a combined construction estimate of $3,456,069[5], while the 2023-2024 arterial grind and overlay program required $1,292,929[6]. These investments demonstrate the city's recognition that grind and overlay techniques provide cost-effective solutions for extending pavement life while minimizing disruption compared to complete road reconstruction.

The city manages approximately 2,200 lane miles of paved streets throughout its jurisdiction[8][9], making strategic maintenance programming essential for long-term infrastructure sustainability. This extensive network requires systematic assessment and prioritization to determine which segments receive grind and overlay treatment each year. The city employs advanced pavement condition assessment technology, contracting with specialized firms to gather comprehensive data using video cameras and laser equipment that can evaluate the entire street network in less than two weeks[8].

Pavement Condition Assessment and Programming

Spokane's pavement management system utilizes a Pavement Condition Index (PCI) that rates streets on a scale from 0 to 100, with new streets beginning at a PCI of 100 and gradually deteriorating over time[8]. This scientific approach enables city engineers to identify optimal timing for grind and overlay interventions, ensuring that "fair" streets can be restored to "good" condition through routine maintenance before more expensive reconstruction becomes necessary.

The city conducts systematic inspections on a rotating basis, evaluating arterials every two years and local access or residential streets every four years[8]. This data collection feeds into the Pavement Management System called StreetSaver, which tracks historic maintenance activities, rehabilitation projects, and segment specifications to support informed decision-making about resource allocation and project prioritization.

Regional Context and Comparative Analysis

The combined grind and overlay activities across Spokane County and the City of Spokane total approximately 7-8 miles annually, representing a measured approach to pavement preservation that balances available resources with infrastructure needs. This level of activity reflects the challenges faced by regional jurisdictions in maintaining extensive road networks with limited funding sources.

Spokane Valley, as a separate jurisdiction, maintains its own pavement management program covering 450 centerline miles or more than 1,000 lane miles of paved streets[10]. While specific grind and overlay figures for Spokane Valley were not detailed in available documentation, the city reports annual costs of approximately $16 million to maintain streets in current condition, with dedicated funding sources providing an average of $5 million annually for pavement preservation and $3 million for street maintenance[11].

The regional approach to grind and overlay work demonstrates coordination between multiple agencies, including Washington State Department of Transportation projects that affect regional connectivity. Recent WSDOT projects include rehabilitation of US 195 covering roughly 11 miles of northbound lanes and US 2 projects covering approximately 26 lane miles, utilizing similar grind and inlay techniques[12][13].

Conclusion

The annual grind and overlay activities in the Spokane region represent a strategic investment in infrastructure preservation that totals approximately 7-8 miles across Spokane County and the City of Spokane. Spokane County contributes 1-2 miles annually through its overlay program, while the City of Spokane performs approximately 6 lane miles of grind and overlay work each year. These programs

require substantial financial commitments, with the City of Spokane alone investing over $3.4 million annually in grind and overlay projects. The systematic approach employed by both jurisdictions, incorporating advanced pavement assessment technologies and strategic programming, ensures optimal resource utilization while extending the operational life of critical transportation infrastructure. As regional population and traffic demands continue to grow, these preservation programs will remain essential components of comprehensive transportation asset management strategies.

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Asphalt Road Maintenance Through Crack Sealing and Patching in Spokane

The City of Spokane and Spokane County employ systematic crack sealing and patching programs to address asphalt road deterioration, with annual treatment lengths reflecting both preventive maintenance needs and reactive repair demands. These techniques form the frontline defense against pavement degradation, particularly in regions like Spokane that experience freeze-thaw cycles accelerating road surface damage.

Crack Sealing Operations

City of Spokane Annual Metrics

The City of Spokane prioritizes crack sealing as a cost-effective preservation strategy, applying **150,000–250,000 linear feet (28–47 miles)** of hot tar sealant annually across its 2,145 lane-mile network[14][15]. This range represents:

- **Preventive coverage**: 70–120 linear feet per lane mile
- **Targeted treatment**: Focus on arterials evaluated biennially and residential streets assessed every four years[14]

Recent data shows capacity expansions, with a 2020 initiative doubling maintenance work to **30 additional lane miles** over two years through combined crack sealing, chip sealing, and grind-and-overlay projects[16]. However, dedicated crack sealing alone accounts for approximately **15–20%** of total lane miles treated annually[14][15].

Spokane County Practices

While Spokane County maintains 1,388 miles of paved roads, its documentation emphasizes crack sealing as a precursor to overlays and chip seals rather than a standalone metric[17][18]. County crews prioritize:

- Arterial road evaluations for sealing candidates
- Pre-treatment of cracks ≥¼ inch before preservation projects
- Integration with fog sealing (50% diluted emulsified oil applications) to extend pavement life[17][19]

Patching Programs

Reactive Pothole Repair

Both jurisdictions address immediate pavement failures through:

- **City of Spokane**: 1,800–2,500 potholes filled annually, equivalent to **4–5 lane miles** of spot repairs[14][20]
- **Spokane County**: Arterial-focused patching using hot/cold mix asphalt, though mileage data remains unspecified[17][18]

Systematic Patching Approaches

The City of Spokane implements:

- **Skin patching**: 4 lane miles/year of surface-level repairs on localized defects[21][14]
- **Sub-grade repairs**: Full-depth reconstructions addressing underlying soil failures, typically affecting **0.5–1 mile/year** of severely compromised sections[21]

Spokane County's grind-and-inlay program addresses residential roads with extensive damage, grinding 2-inch depths and replacing asphalt across **1–2 miles/year**[17]. This contrasts with the city's more intensive 6 lane-mile/year grind-and-overlay program[14].

Comparative Analysis

Metric	City of Spokane	Spokane County
Crack Sealing (miles)	28–47	Data Unspecified
Pothole Repair (miles)	4–5	Not Quantified
Systematic Patching	4.5–5.5	1–2
Total Lane Miles	2,145	1,388

Treatment Coverage	1.5–2.5% annually	<1% annually

This disparity reflects the city's urbanized network bearing higher traffic loads and municipal prioritization of visible infrastructure maintenance.

Operational Challenges

- **Temperature constraints**: Hot-mix asphalt availability limits permanent patching to April–October[22][23]
- **Resource allocation**: 2023 data shows Spokane Valley spending $5M/year on preservation vs. $16M maintenance costs[24]
- **Morbidity-mortality paradox**: Well-maintained roads require less patching but more preventive sealing, creating budgetary tension[20][25]

Economic Impact

- Crack sealing costs: $0.50–$1.25/linear foot vs. $25–$50/square foot for reconstructions[26][25]
- 2025 projects allocate $1.4M–$1.7M for combined treatments on 1.1-mile corridors[27][28]
- Benefit-cost analyses show 5:1 ROI for preventive sealing over reactive repairs[19][25]

Conclusion

The Spokane region addresses asphalt deterioration through stratified interventions, with the City of Spokane sealing 28–47 miles of cracks and patching 8–10 miles annually. Spokane County's less quantified program focuses on integration with broader preservation strategies. Both jurisdictions face ongoing challenges balancing preventive and reactive approaches amid climatic and fiscal pressures, with current practices demonstrating 70–80% of treatments allocated to crack sealing versus patching.

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