OVERLAND PARK
KANSAS

SETTING UP AN ASPHALT RECYCLER FOR PATCHING MATERIALS

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OVERVIEW

- About Overland Park
- Public Works Paving Activities
- Procurement of Recycler
- Site Preparations and Modifications
- Process
- Results & Recommendations

CITY OF OVERLAND PARK OVERVIEW

- **Incorporated in 1960**
- **Second largest city in Kansas**
  - Approximately 203,780 Residents
  - 75.6 Square Miles
- **Mayor-Council-City Manager form of government**
- **Lowest Mill Levy in Johnson County and of all 1st Class Cities in Kansas**

MAJOR PUBLIC WORKS PROGRAMS

- Street Construction and Maintenance
- Traffic Operations and Maintenance
- Stormwater Management and Maintenance
- Facility Engineering Assistance
- Technical & Administrative Support
- Fleet Management
- Snow & Ice Control

The services PW does **not** provide:

- cemetery management
- water
- sanitary sewer
- airports
- facility maintenance
- tree and turf management
- public transportation
- recycling or solid waste management

PUBLIC WORKS INFRASTRUCTURE

- **The Public Works Department maintains:**
  - 2,044 lane miles of streets
  - 1,615 miles of curbs and gutters
  - 897 miles of sidewalks
  - 124 bridges (plus 22 KDOT bridges for surface maintenance)
  - 554 miles of storm sewers

PAVEMENT MANAGEMENT

- 1,436 Lane Miles of Residentials and Collectors
- Reconstruction - Concrete
- Rehabilitation - Mill & Overlay & UBAS
- Preservation - Chipseal

MAINTENANCE DIVISION

- Fleet Maintenance
- Traffic Maintenance
- Stormwater Maintenance
- Street Maintenance

STREET MAINTENANCE

- **Reactive**
  - Potholes - Reconstruction
- **Chip Seal Prep +/- 130 lane miles per year**
  - Crack Seal (contracted)
  - “Big” Mill & Overlay Patch Work
  - “Bobcat” Mill & Overlay Patch Work
  - Wide Crack Repairs

STREET MAINTENANCE EQUIPMENT

- **“Big” Mill Work**
  - Paver - Weiler 385B 8x15
  - Mill - Wirtgen W120CFI
  - Roller - Hamm 5 ton
  - Dump trucks
- **“Bobcat” Mill Work**
  - Skid-steer mini-mills
  - Mobile hot boxes
  - Small rollers - 3-ton & walk-behind
- **Other**
  - Crack seal trailers
  - Mastic trailer (currently renting)

ASPHALT MATERIALS

- **“Big” Mill**
  - Plant Produced HMA
- **“Bobcat” Mill & Pothole Repair Challenges**
  - Hotbox doesn’t like Spec Plant Mix
  - “Fine Mix” works but
    - Expensive (material, time, travel)
    - Availability Issues - especially in winter
  - Cold Mix
    - Standard mix is short lived - inefficient
    - Reactive mix is cost prohibitive for large areas

ASPHALT RECYCLER?

- **DIRECT HEAT vs. INDIRECT HEAT**
  - Size
    - Portability
    - Rate of production
  - Binder Loss

- **Both require rejuvenator additives.**
- **Both benefit from using largest “chunks” (<4”) possible.**

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DECISION TO PURCHASE BAGELA

- **BA10000**
  - 10 tph output rating
  - L = 266”
  - W = 91”
  - H = 97”
  - 11,000 lbs
  - 148 MBTU/hr diesel
  - 1 gal/ton fuel use
  - +/- $25-$30 per ton

Source: Pavement Recyclers LLC
https://pavementrecyclers.com/portfolio_page/equip2/

HELPFUL TIPS

- **Elevate unit for easier loading unloading**
- **Keep all materials dry**
- **Separate virgin material**
- **Bigger is better but 4”-6” max for reduced wear**
- **Combination of two additives/rejuvenators**
  - PelletRAP
    - Ground rubber soaked in AC and coated with limestone
    - One 5-lb bag per ton
  - SYLVAROAD™ RP 1000 Rejuvenator
    - Liquid additive
    - 2 qts per ton

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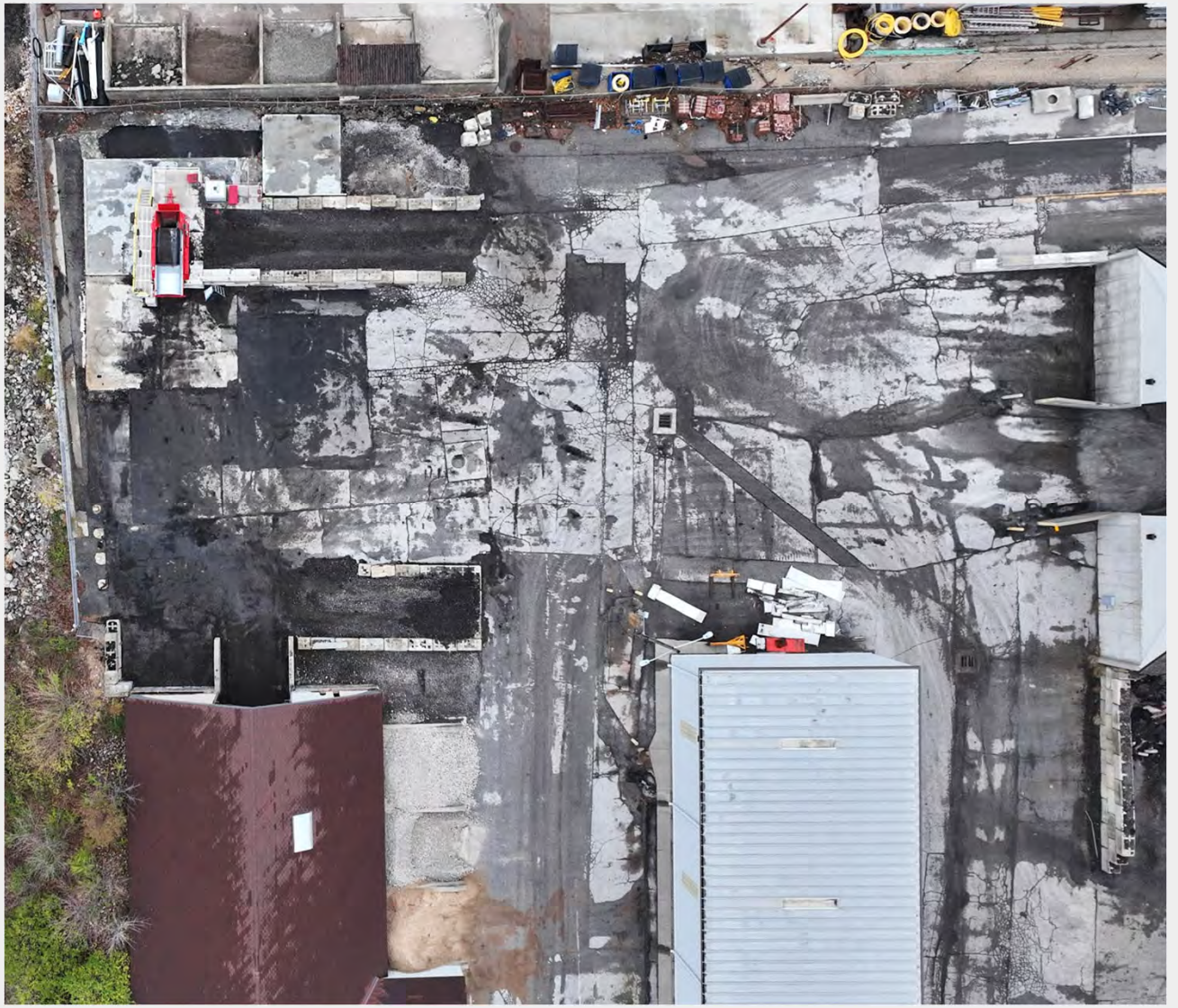

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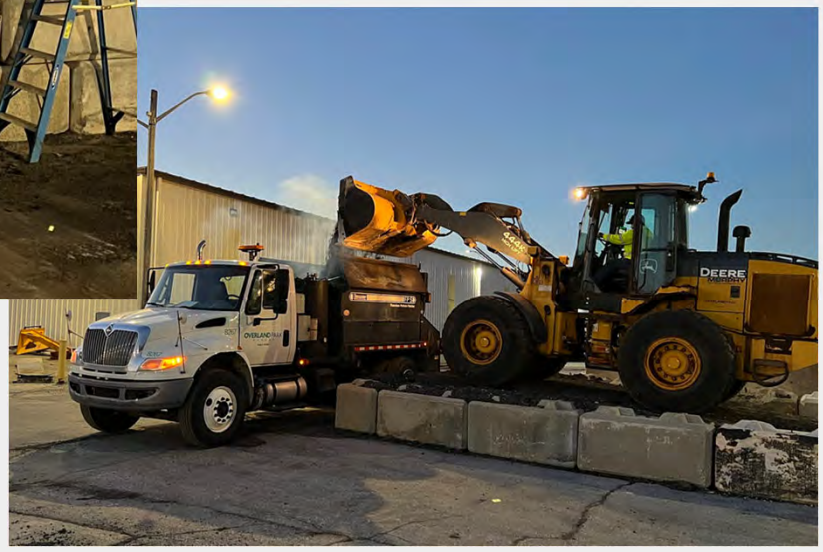

PROCESS

- Start-up - chute closed for 10 min +/- 100°F
- One skid-steer bucket w/ PelletRap & RP1000
- Feed hopper in small increments
- Refill hopper as needed
- Open chute at 120°F
- Dump and check temp (320°F-360°F)
  - If too cold, close chute and recheck in 2 mins
- Run desired tonnage
- Load one skid-steer bucket of millings and RP1000 only with burners off to cool down

PRODUCTION

- Max 10 tph - Ave 8 tph (3-5 tons in 30 minutes)
- To Date +/- 200 tons total
- Estimated cost of $33 per ton
- Delta of +/- $50 per ton from plant price
  - Not including fuel/mileage of trucks or wages
- Estimated total savings to date = $10K+ (August to present)
  - Staffing issues prohibit higher production

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THE BIG PICTURE

- **Recycler Cost +/- $200k**
- **Savings this year +/- $10k (+/- 1/3rd of year)**
- **Other savings not considered:**
  - Labor/mileage to plant
  - Longer lasting winter patches
  - More control over our workload/schedule

NEXT STEPS / WISH LIST

- Shelter for operators
- Awning/Cover for hopper
- Lab and Performance testing of mix
- Method of reducing size of virgin material for stockpile
- Cooperative use with others
- Replacement of old salt barn
- Improved materials processing
  - Screens, dump conveyors, stackers, etc.

RECOMMENDATIONS

- Logistics is critical
- Material storage is key
- Lighting
- Covers for operator and hopper
- Power availability is preferred
- Dedicated operators is a must

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Thank You

Credits:

Jeff Hunt, Maintenance Supervisor

Jackie Clark, Administrative Support Supervisor

Kayla Boase, Management Assistant