

# MATANUSKA-SUSITNA BOROUGH SOLID WASTE DIVISION

10-YEAR ROADMAP



# CHALLENGES

## Next 10 years

- Landfill infrastructure
  - Traffic congestion
  - Scales and associated equipment reaching end of life
  - Recycling and diversion
- Cell construction and closure requirements
- Landfill gas and leachate management
- Costs, financing and impacts to disposal rate
- Increasing permit requirements
  - Bird mitigation plan (June 2022)
  - Gas wells (September 2022)
  - Ground water monitoring
  - Cell 5 will be subjected to EPA Title V(5) Permitting

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# 10-YEAR ROADMAP CONSIDERATIONS

1. American Rescue Plan Funding
2. Tipping Facility and Entrance
3. Landfill Development
4. Landfill Gas and Leachate Management

# AMERICAN RESCUE PLAN ACT FUNDING REVIEW

MSB allocated a total of \$21 million

## Allowable Uses

- Responding to the public health emergency
- Address negative economic impacts caused by the public health emergency
- Provide premium pay for essential workers
- Replace lost public sector revenue
- Invest in water, sewer, and broadband infrastructure

Prohibited Uses: Pensions; tax reductions; existing debt or future issuance costs; judgments or legal obligations

Approved Allocations	Amount
Revenue Recovery (Bed Tax, Talkeetna Sewer & Water, Pool Fees, Ice Arena, and Gym Rental)	\$2,447,743
Elementary School Water System Replacement (Big Lake, Snowshoe & Butte)	\$2,592,608
Willow Cabin Well and Septic	\$100,000
Equipment - Central Landfill	\$1,119,673
<b>Total</b>	<b>\$6,260,024</b>

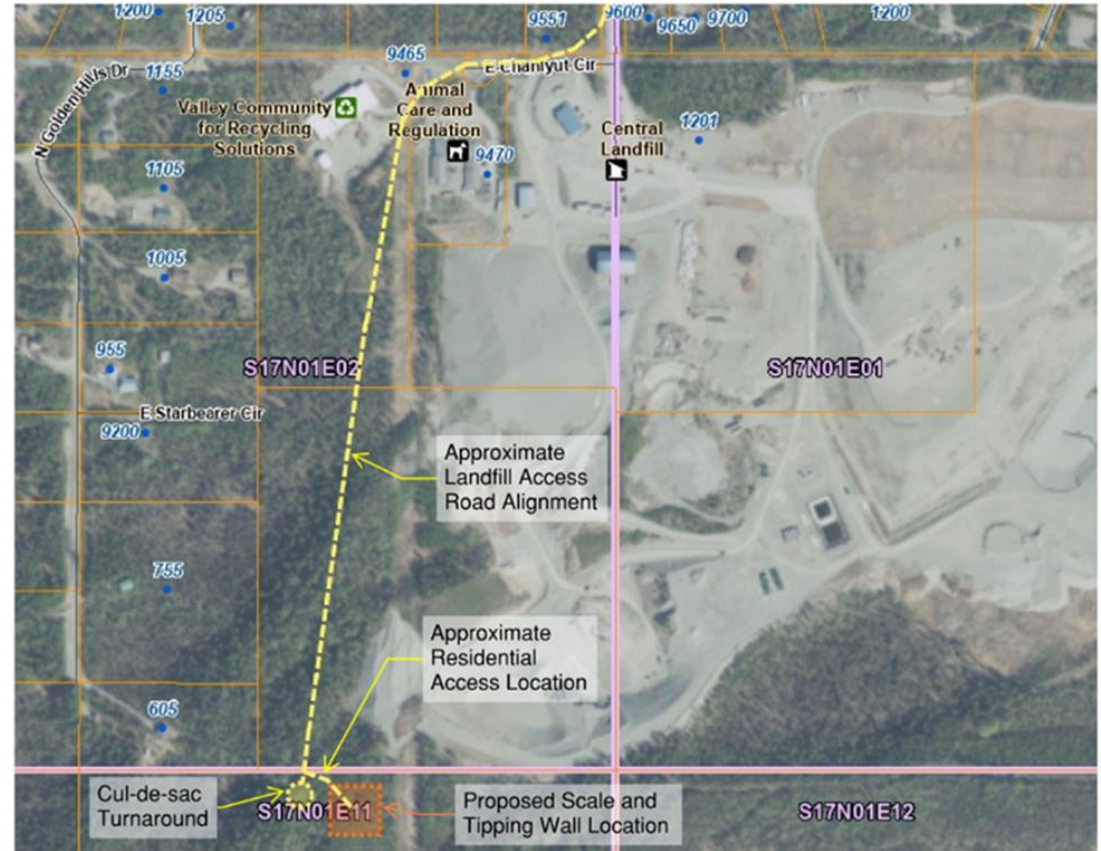
Proposed	Amount
Water/Sewer Connection Talkeetna Public Restrooms	\$350,000
CXT Restrooms - Alcantra South Lot & Whigmi Road (Talkeetna)	\$100,000
Landfill Excavation (C&D Cell & Cell 5)	\$2,040,000
Landfill Leachate Evaporation	\$5,000,000
Landfill Tipping Facility	\$3,500,000
Septage Preliminary Engineering Report (PER)	\$150,000
<b>Total</b>	<b>\$11,140,000</b>

<b>Available Funding (approved + proposed)</b>	<b>\$3,639,283</b>
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# TIPPING FACILITY AND ENTRANCE

- A tipping facility is a small centrally located facility where materials are unloaded for temporary storage, then sorted for final destination.
- Tipping facilities improve opportunities for segregation of material, recycling, and creating reuse programs.
- Keeps smaller vehicles away from the working face improving safety significantly.



# TIPPING FACILITY AND ENTRANCE

Funding: \$3.5 million (American Rescue Plan – Federal funding)

Timeframe: 2023-2025

- Issue:
  - Traffic congestion
  - Scales and scale house reaching end of life
- Solution: New Landfill entrance with tipping facility
  - Improves traffic flow
  - Increases safety by separating small vehicles from the working face
  - Increases recycling and reuse opportunities
  - Tipping facility sized for future growth
  - Moves Landfill queuing onto Landfill property

Conceptual Layout



# LANDFILL DEVELOPMENT

Funding: \$15 million over 10 years

- 2022-2025: Construction & Demolition (C&D) cell, Cell 5, Corridor 1 and 2 extraction
  - Gravel extraction approved in conjunction with road traction material contract
  - Reduced costs per ton for RSA sand and chips
  - Extraction costs: **\$2.1 million** (American Rescue Plan – Federal funding)
- 2025-2026
  - Cell 2B and 3 closure
  - Closure costs estimated at \$4.5 million



- 2028-2030
  - Prepare Cell 5 for 2031 opening
  - Liner costs for Cell 5 estimated at \$4.5 million
  - Timeline can be delayed by adding airspace to cell 4
- 2032-2033
  - Close cell 4
  - Closure costs estimated at \$4 million

# LANDFILL GAS AND LEACHATE MANAGEMENT

Landfill gas could be utilized for leachate evaporation system

- Landfill gas
  - By-product of waste decomposition
  - Currently flaring excess gas
- Leachate
  - Generating 3+ million gallons annually (increases with waste mass)
  - Hauling cost is \$.08 per gallon – cost will increase for fuel and equipment
  - More equipment will be required to haul by 2025
  - Self hauling is dependent on AWWU renewing permit every 5 years (current permit expires in 2025)
    - AWWU may discontinue accepting leachate at any time

Leachate is the remaining liquid after rainwater passes through the waste mass



# LANDFILL GAS AND LEACHATE MANAGEMENT

Evaporation facility funding: **\$5 million** (American Rescue Plan – Federal funding)

- 2022-2024 - Improvements
  - Increased gas flow with required Cell 2A and C&D gas well installation
  - Leachate recirculation will begin decreasing leachate volume by 50%+
- 2023-2025 - Further Improvements
  - Build Evaporation system with ARP funding
  - Use landfill gas to develop and operate leachate evaporation system
  - Eliminates leachate waste from being sent to the Cook Inlet
  - Eliminates dependency on AWWU and will pay for itself in ~9 years

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## STAFF RECOMMENDATIONS

1. Landfill entrance: Allocate **\$3.5 million** in ARPA funds for entrance improvements including tipping facility, earthwork, scales, and scale house
2. Landfill development: Allocate **\$2.1 million** in ARPA funds for gravel extraction and continue to explore options for reducing excavation costs such as production of road traction material or commercial sale of gravel as new contract progresses
3. Leachate management: allocate **\$5 million** for evaporation system