



Solid Waste Management Facility Siting Study

Solid Waste Advisory Committee (SWAC) Meeting

March 19, 2024





Agenda

1. Welcome
2. Review/ Approve February Meeting Minutes
3. Public Comment
4. Draft Site Evaluation Report Review
5. SWAC Discussion
6. Adjourn



Steps to SWAC Recommendation



February 2024: Site Evaluation Findings Overview and Discussion

Introduction and overview for the SWAC to the Site Evaluation Report findings.



March 2024 (Today!): Site Evaluation Report Review and Discussion

Opportunity for the SWAC to discuss and provide input on the full Site Evaluation Report.



April 2024: Finalist SWMF Site Recommendation

The SWAC will vote on recommendation to the BOCC for a preferred SWMF location.



Public Comments



Public Comments

3 minutes per person

Based on number of people wishing to comment

Written comments can also be sent to:

managethefuture@deschutescounty.gov



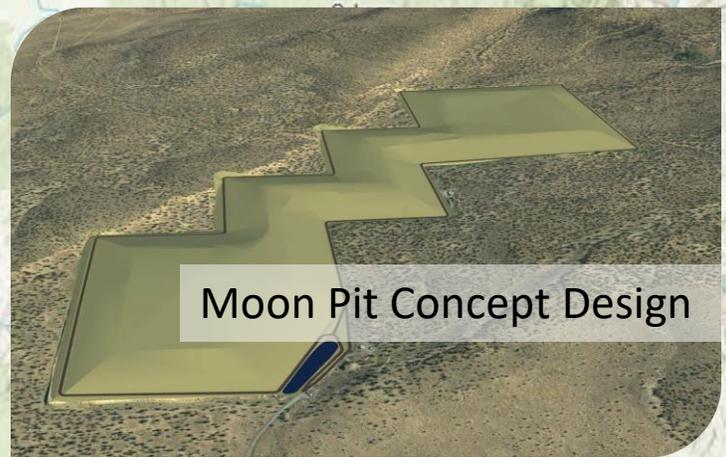
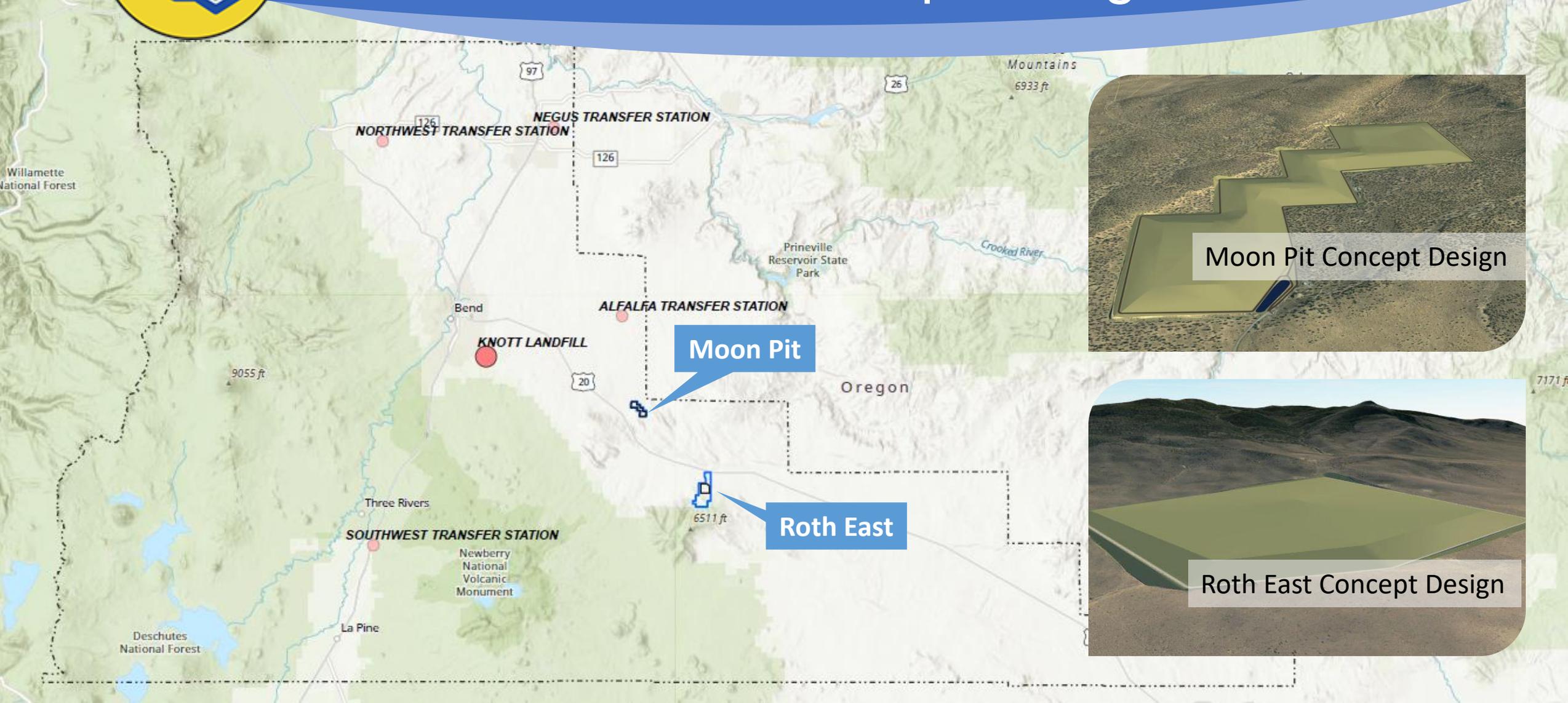
Key Site Considerations

Schedule, Cost & Feasibility



Finalist Sites

Location and Concept Design



Moon Pit Concept Design



Roth East Concept Design



Key Considerations: Moon Pit

Schedule Considerations

- An SM Zone Text Amendment would be required to allow landfilling as surface mine reclamation activity and could take 1-2 years, prior to Conditional Use Permitting which could take another 1-2 years.
- Securing a BLM ROW is likely to trigger NEPA review, which could require:
 - Environmental Assessment (EA): 1-3 years, or
 - Environmental Impact Statement (EIS): 3-5 years
 - Both of these are subject to appeal

Cost Considerations

- Acquisition & Initial Development costs could be \$15-29 Million more than at Roth East
- The aggregate quality and marketability is variable and not yet confirmed.
 - If timing for cell development is misaligned with market demand for aggregate, subsidized excavation may not be economically viable.
 - If aggregate is not high-value, excavation via mining would be more expensive.



Key Considerations: Roth East

Schedule Considerations

- With EFU Zoning, the Conditional Use Permit requires a Farm Impacts Test, which could lead to lengthy LUBA appeals. This process could take 1-2 years, depending on the extent of appeals.
- Sage Grouse Mitigation Planning and ODFW Approval could take 1-2 years, as a part of the County land use review process. Public & Agency opposition may extend this timeline further.
 - Could involve acquisition and mitigation with additional land and retirement of grazing rights.

Cost Considerations

- Additional ~9 mile distance (+18 miles per round trip) results in increased haul costs over the 100+ year life of the facility, approximately \$800,000 per year.
- Purchase of additional land and grazing rights for wildlife mitigation could cost an extra \$1.5-3.0 Million.
- Water rights availability: near-term cost for interim water truck delivery to the site and long-term cost for water rights permitting/mitigation and well development.

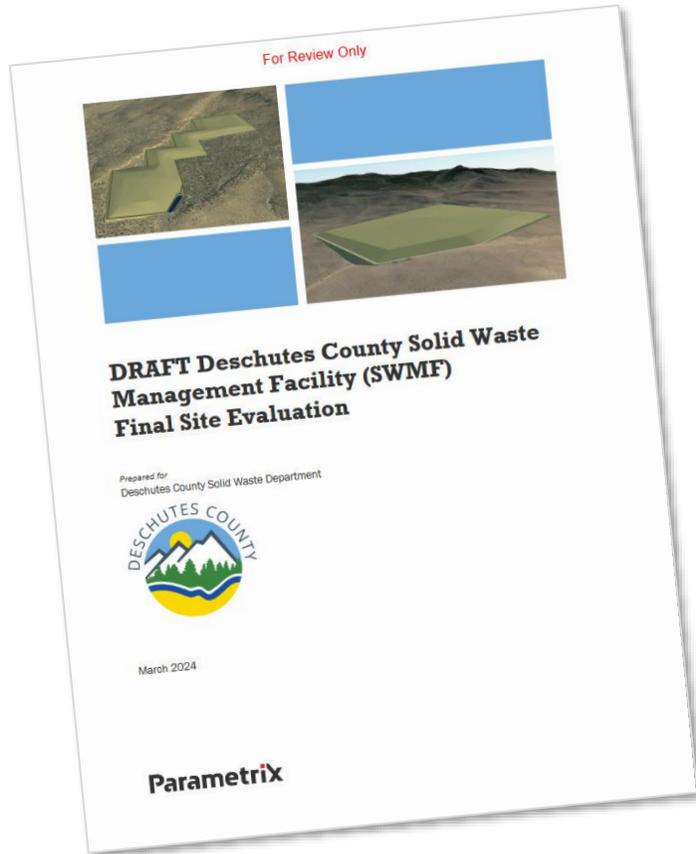


Site Evaluation Report SWAC Review & Discussion



Finalist Site Evaluation Report

Key Topics Overview

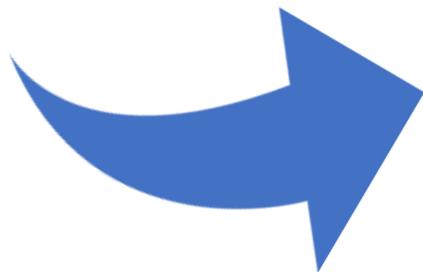


1. Conceptual Site Layouts
2. Site Development and Permitting Assessment
3. Transportation System Assessment
4. Water Infrastructure Assessment
5. Electrical Power Supply Review
6. Flood Risk Desktop Review
7. Geology/Hydrogeology Assessment
8. Preliminary Geotechnical Feasibility
9. Environmental Assessment Phase I
10. Weather and Air Quality Desktop Review
11. Natural Resources Assessment
12. Archaeology and Cultural Heritage Assessment
13. Community Assessment
14. Cost Analysis



SWAC Top 3 Topics for Today

Connect with polling using the QR code or link.



Pollev.com/aubriekoenig344



Key Topics Discussion

Conceptual Site Layouts

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Moon Pit

- Challenges: Unfavorable geometry and rocky conditions
- Disposal Area: 346 acres
- Available airspace: 64,000,000 cy

LANDFILL PHASING SUMMARY – MOON PIT			
PHASE	AIR SPACE AVAILABLE	PROJECTED LIFE	FILL PERIOD
PHASE 1	26,000,000 CY	41 YEARS	2029-2070
PHASE 2	17,000,000 CY	26 YEARS	2070-2096
PHASE 3	21,000,000 CY	33 YEARS	2096-2129
TOTAL	64,000,000 CY	100 YEARS	

Roth East

- Advantages: Favorable square geometry and suitable soil
- Disposal Area: 387 acres
- Available airspace: 80,000,000 cy

LANDFILL PHASING SUMMARY – ROTH EAST			
PHASE	AIR SPACE AVAILABLE	PROJECTED LIFE	FILL PERIOD
PHASE 1	21,000,000 CY	33 YEARS	2029-2062
PHASE 2	17,000,000 CY	27 YEARS	2062-2089
PHASE 3	22,000,000 CY	30 YEARS	2089-2119
PHASE 4	20,000,000 CY	23 YEARS	2119-2142
TOTAL	80,000,000 CY	113 YEARS	



Key Topics Discussion

Site Development & Permitting Assessment

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Moon Pit

- Surface Mining base zone, with the following overlays:
 - Wildlife Area combining zone
 - Surface Mining Impact Area combining zone
- Current use: active surface mine
- Surrounding Area
 - Oregon Badlands Wilderness and associated trails/trailheads
 - Public lands

Roth East

- Exclusive Farm Use Horse Ridge base zone, with the following overlays:
 - Landscape Management combining zone
 - Sage Grouse Habitat Area – Low Density
 - Surface Mining Impact Area
 - Wildlife Area Combining Zone
- Current use: rural undeveloped/grazing
- Surrounding Area:
 - Rural residential properties
 - Millican Valley OHV trails
 - Deschutes National Forest and Pine Mountain Observatory



Key Topics Discussion

Site Development & Permitting Assessment

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Moon Pit Permitting

- County land use approval permits (Conditional Use Permit and Site Plan Review)
- BLM Right-of-way subject to the National Environmental Policy Act (NEPA) review process
- Solid Waste Disposal Permit (Oregon Revised Statutes 459)
- DOGAMI Transfer of Surface Mining Permit or an Operating Permit
- Oregon Title V Air Quality Operating Permit
- Natural Resource permits or compliance approvals:
 - Eagle Incidental Take Permit
 - ODFW Wildlife Habitat Mitigation Policy (OAR 635-415-0000)
 - Greater Sage-Grouse Area Combining Zone (DCC 18.89.060)
 - Wildlife Area Combining Zone (DCC 18.88.030)

Roth East Permitting

- County land use approvals or permits (Conditional Use Permit, Site Plan Review, and Landscape Management Review)
 - Including Farm Impacts Test for EFU Zoning
- Oregon DEQ Solid Waste Disposal Permit
- Oregon's Title V Air Quality Operating Permit
- Natural Resource permits or compliance approvals:
 - ODFW's Wildlife Habitat Mitigation Policy (OAR 635-415-0000)
 - Wildlife Area Combining Zone (DCC 18.88.030)
 - Greater Sage-Grouse Area Combining Zone (DCC 18.89.060)
 - Sage-Grouse (OAR 635-140-0000)



Key Topics Discussion

Transportation System Assessment

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Moon Pit

- Established site access currently used by heavy vehicles for quarry operations (~1.2 miles long). Currently ~20 mining truck round trips per day, on average.
- Shared access with Badlands
- Current ROW along access road is 30' wide (28' wide road) through BLM lands. A ROW amendment and NEPA process would be required if additional ROW is needed.
- Enhanced acceleration lane onto US 20 may be beneficial

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Roth East

- Several options for preferred access route to site
- Routes range from:
 - 1.2 – 2.9 miles
 - ~\$1.2M - \$2.90M to construct
- Relatively flat, with areas to up to 8-10% grade
- Alternate access points to the east would need to consider available sight distance at US 20

Assumes ~7 employee trips + 35 truck trips per day



Key Topics Discussion

Water Infrastructure Assessment

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Moon Pit

- 2 supply wells (Wells A and B) ~186 feet apart near site's west entrance road.
- Well depths: 931 ft bgs (Well A) and 1135 ft bgs (Well B) with static water level ~851 ft.
- Well A is not in use; Well B is in use, capable of producing 1,000 gpm.
- Well B has water right permit (G-12860) with priority date of 5/16/1994, for dust control and gravel washing with max use rates of 174,505 gpd and 529,978 gpd.
- Beneficial use area encompasses site tax lot boundary.
- Water rights not offered with land sale, but Hooker Creek will provide water supplies to County at a reasonable cost until County can secure water rights

Roth East

- 1 supply well (the Powell or Deep Well) near SW corner ~1.1 miles SW of proposed development area.
- Deep Well is 995 ft deep with static water level of 970 feet based on a well completion measurement.
- Currently used to supply a residence and stock watering (reportedly ~ 1 water truck per day). Well report from 1990 indicates 50 gpm with no drawdown.
- There are no water rights appurtenant to the Deep Well or the site tax lot. Closest water right is ~2 miles east.
- Several wells identified in the northern area of the site with one possibly located on tax lot. Depth to groundwater and productivity appears to vary.
- New water right and well needed for long-term water supply. Water deliver from Knott assumed in the interim.

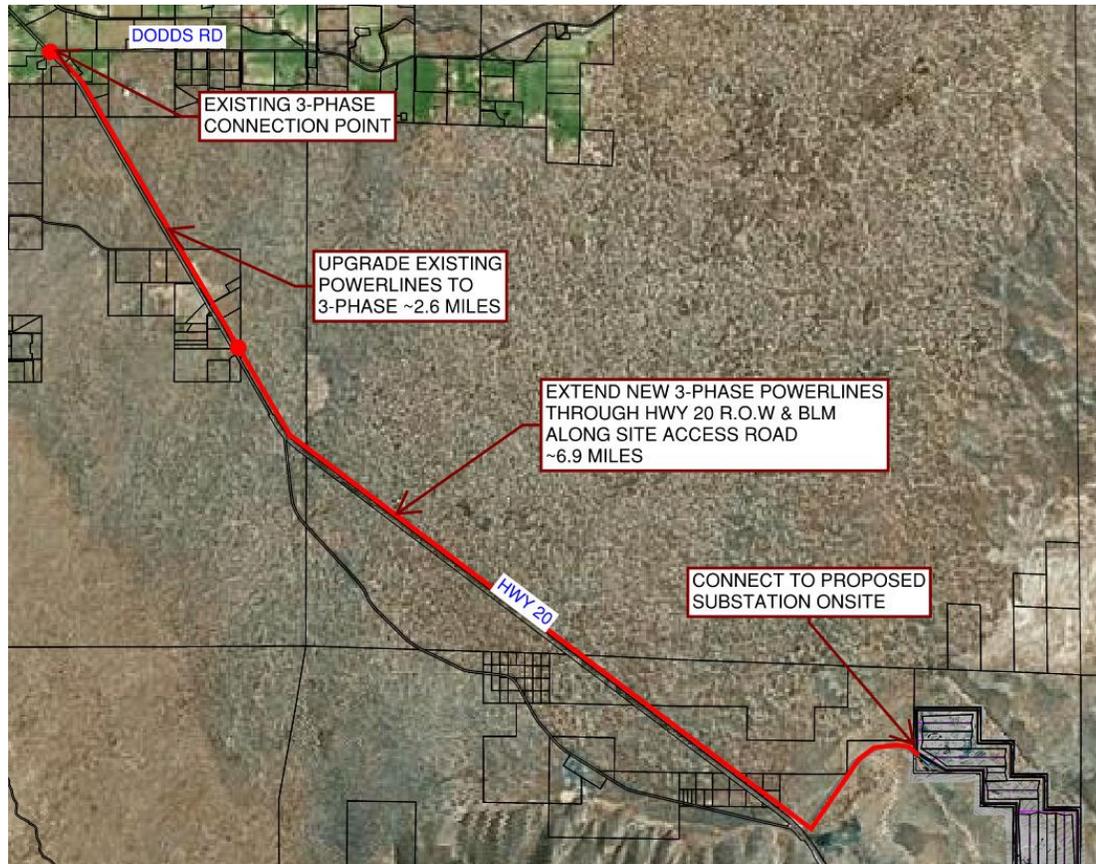


Key Topics Discussion

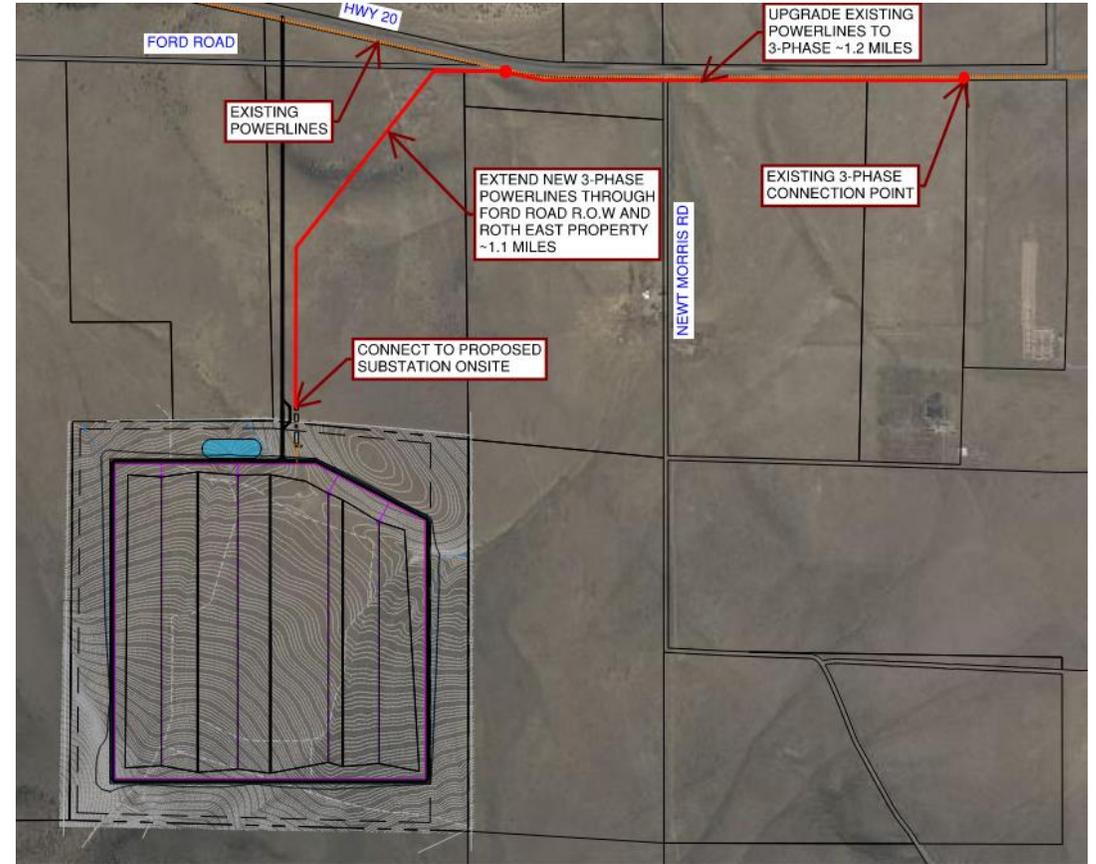
Electrical Power Supply Review

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Moon Pit



Roth East

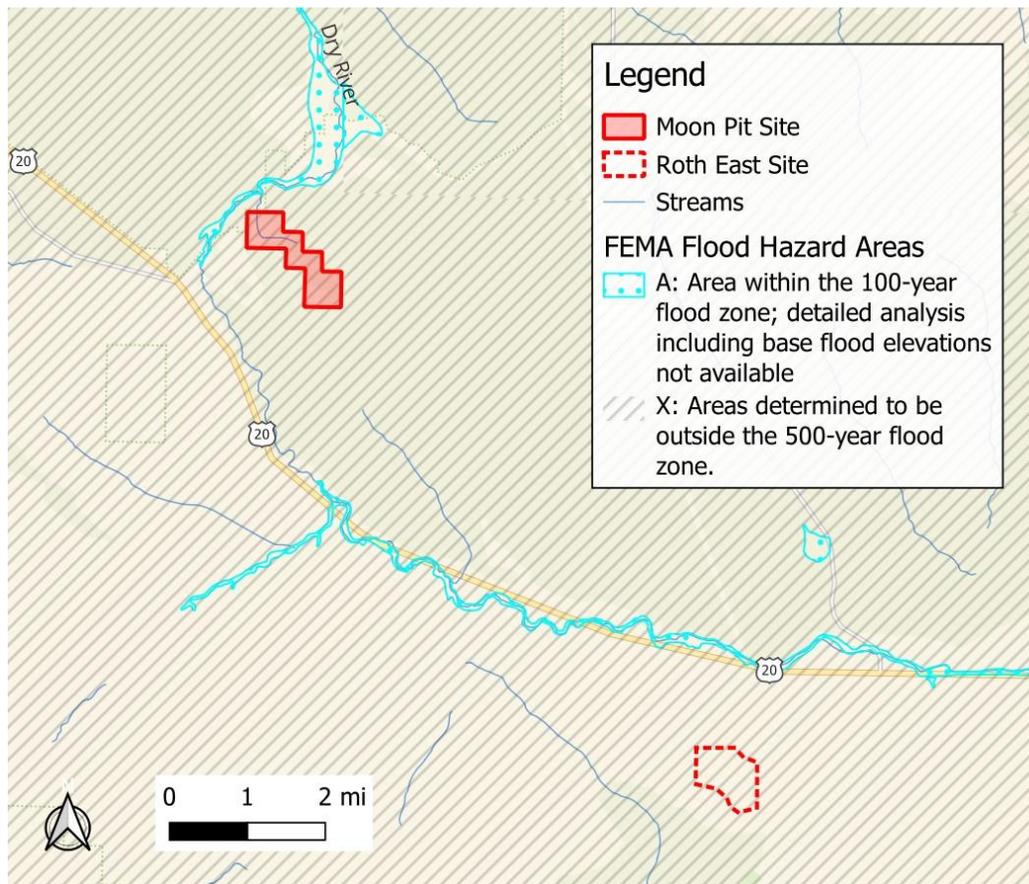




Key Topics Discussion

Flood Risk Desktop Review

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Floodplain Mapping

- **Moon Pit** site is 800 feet from 100-year floodplain
 - Flood Zone is “approximate” with detailed analysis unavailable
- **Roth East** site is not near floodplain
- Highway 20 is within the floodplain



Key Topics Discussion

Geology/Hydrogeology Assessment

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Moon Pit

- Shallow depth to bedrock
- Located within fault-bounded (pre-Holocene) valley
- Regional groundwater ~850 ft bgs
- Onsite well has very good yield
- Water quality analysis is good - only one parameter (dissolved iron) slightly exceeds reference level
- Low risk of groundwater contamination

Roth East

- 300+ ft of alluvial deposits overlie bedrock (lots of cover material!)
- Limited potential for low permeability zones above bedrock
- Regional groundwater expected at 450+ ft
- Uncertainty if a shallower aquifer extends under site
- Groundwater quality of onsite well (Powell Deep Well 1+ mi SW of site) is very good
- Yield of regional aquifer not fully known (onsite well - 50 gpm)



Key Topics Discussion

Preliminary Geotechnical Feasibility

Moon Pit

- Site is within a fault bound graben
- 12 test pits excavated
- Shallow bedrock conditions are persistent throughout the site
- Blasting will be required
- Faults are likely inactive within the last 12,000 years
- Onsite aggregate quality & marketability not analyzed, TBD pending further study

Roth East

- Site is located on an alluvial fan
- 2 geophysical profiles + 3 geotechnical borings (100-150 ft)
- ~400 ft of sediments underlying the site; primarily gravels (could be used as aggregates for site development pending further investigation)
- Conventional equipment is anticipated for excavation and mass grading
- Inferred fault and offsite faults are likely inactive within the last 12,000 years

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Key Topics Discussion

Environmental Assessment Phase I

Moon Pit

- Listed on DEQ Environmental Cleanup Site Information database, for tracking purposes only. No documented releases.
- Boneyard and diesel ASTs (in use); some surface staining noted (de minimis).
- Original 1980s ranch house could contain hazardous building materials.
- No Recognized Environmental Conditions (as defined by ASTM 1527-21) and no further environmental investigation recommended.

Roth East

- Not listed in any environmental databases.
- Two fuel ASTs near other ranch related infrastructure. No staining or other indications of contamination.
- Existing 1990s ranch house is unlikely to contain hazardous building materials.
- No Recognized Environmental Conditions (as defined by ASTM 1527-21) and no further environmental investigation recommended.

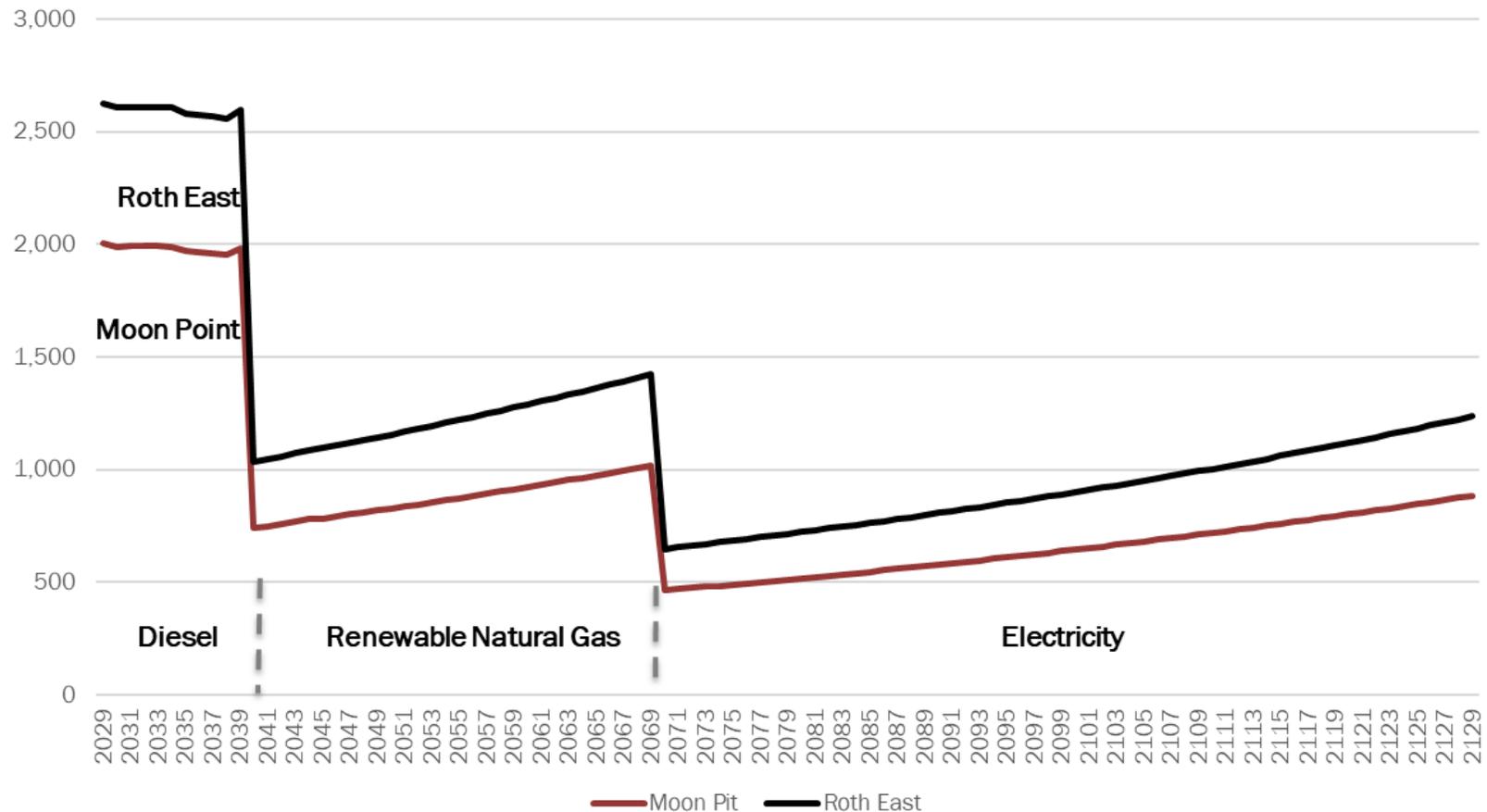
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Key Topics Discussion

Weather and Air Quality Desktop Review

Waste Hauling Greenhouse Gas Emissions Profiles by Landfill Location and Energy Source



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Key Topics Discussion

Natural Resources Assessment

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Roth East

309.3 acres intact
sage brush steppe



Moon Pit

177.8 acres disturbed
juniper woodland



Resources

- No waters or jurisdictional wetland on Roth East or Moon Pit sites
- No ESA-listed species are likely to occur on Roth East or Moon Pit sites
- Golden eagle nest within 2 miles of Moon Pit
 - USFWS Incidental Take Permit
- Wildlife Combining Zone:
 - Both sites are in a wildlife combining zone (County).
 - No mitigation requirements for this designation; to be addressed with land use permitting



Key Topics Discussion

Archaeology and Cultural Heritage Assessment

Moon Pit

Reconnaissance Survey Results

- Surveyed 100 of ~560 project acres.
- Identified 5 archaeological resources–3 precontact sites and 2 historic isolates.
- All areas not impacted by mining/quarry activities have a moderate to high probability for archaeological resources.

Recommendations

- Conduct formal systematic survey of all areas not directly impacted by mining/quarry activities to identify archaeological resources.

Roth East

Reconnaissance Survey Results

- Surveyed 128 of ~645 project acres.
- Identified 12 archaeological resources–6 sites and 6 isolates, majority precontact.
- Entire parcel has a high probability for archaeological resources.

Recommendations

- Conduct formal systematic archaeological survey of the entire project area.

If a resource will be impacted by the project, the resource's significance must be formally evaluated under Oregon state law. Evaluation will require an Oregon SHPO archaeological permit.



Key Topics Discussion Community Assessment

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Moon Pit

Interested Parties:

- Recreation users (hikers, etc); Badlands Wilderness, Bureau of Land Management; environment, wildlife, and other interests

Expressed concerns:

- Traffic and shared access safety
- Disruption to habitat and wildlife

Roth East

Interested Parties:

- Millican Valley residents; Pine Mountain Observatory and University of Oregon; recreation users (paragliders, etc); environment, wildlife, and other interests

Expressed concerns:

- Dust, litter, odor + wind
- Groundwater contamination
- Potential cultural artifacts/sites
- Disruption to habitat and wildlife



Key Topics Discussion

Cost Analysis

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Item	Moon Pit	Roth East
Operating Period	2029–2129	2029–2142
Estimated Lifespan (years)	100	113
Land Acquisition Costs	\$15,370,000	\$5,500,000
Initial Development Costs	\$35,266,900 to \$49,036,900	\$30,580,740
Total Initial Costs (Land + Development)	\$50,636,900 to \$64,906,900	\$36,080,740
Landfill Cell Development Costs	\$193,125,000 to \$347,094,000	\$142,905,000
Closure Costs	\$131,404,000	\$146,548,000
Operating Costs	\$1,259,744,358	\$1,720,346,129
Post-Closure Operations Costs	\$9,068,316	\$9,068,316
Total Lifespan Costs	\$1,643,978,574 to \$1,812,217,574	\$2,054,948,185
Total Waste Disposal Projection (tons)	37,686,654	46,319,902
Avg. Cost per Ton over Lifespan	\$43 to \$48	\$44
Upfront Capital Costs Financed*	\$79,551,043 to \$101,969,346	\$56,683,180
20-yr Operational Costs (2030–2049)	\$242,152,994	\$208,337,230
20-yr Total Costs (2030–2049)	\$294,741,037 to \$344,122,340	\$265,020,409
20-yr Waste Disposal Projection (tons)	4,739,392	4,739,392
20-yr Cost per Ton	\$62 to \$73	\$56
20-yr Tipping Fee	\$109 to \$119	\$103

Assumptions:

- Landfill density – 1400 lbs per cubic yard air space consumed
- 20% Cover to Airspace Ratio
- Two thirds of cell excavation would occur as a part of daily cover borrow operations at Roth East
- 90% of excavation at Moon Pit would require rock drilling, blasting, and processing at a cost of \$12/ton by County, or a discounted cost of \$4/ton as a part of aggregate mining
- *Acquisition and development costs financed with 20-yr bond at a 4.75% annual interest rate.

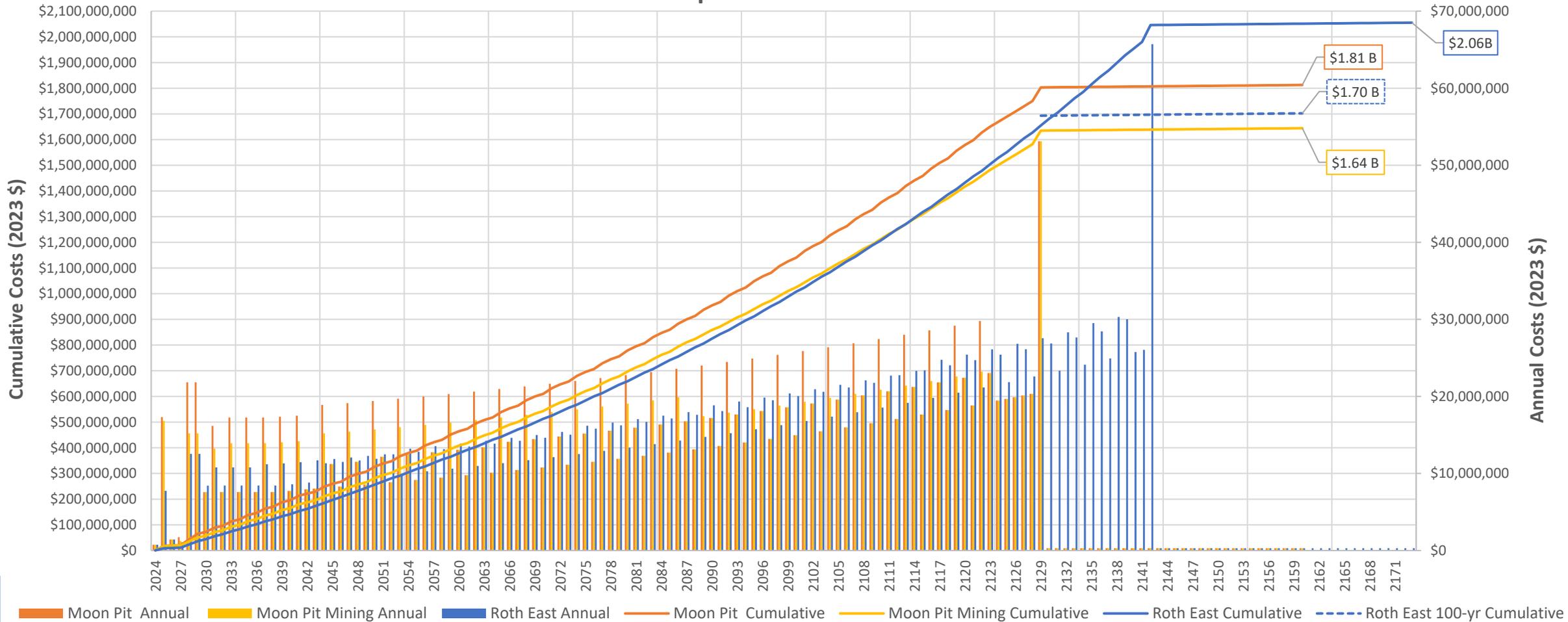


Key Topics Discussion

Cost Analysis

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Cost Forecast Comparison of Final SWMF Sites

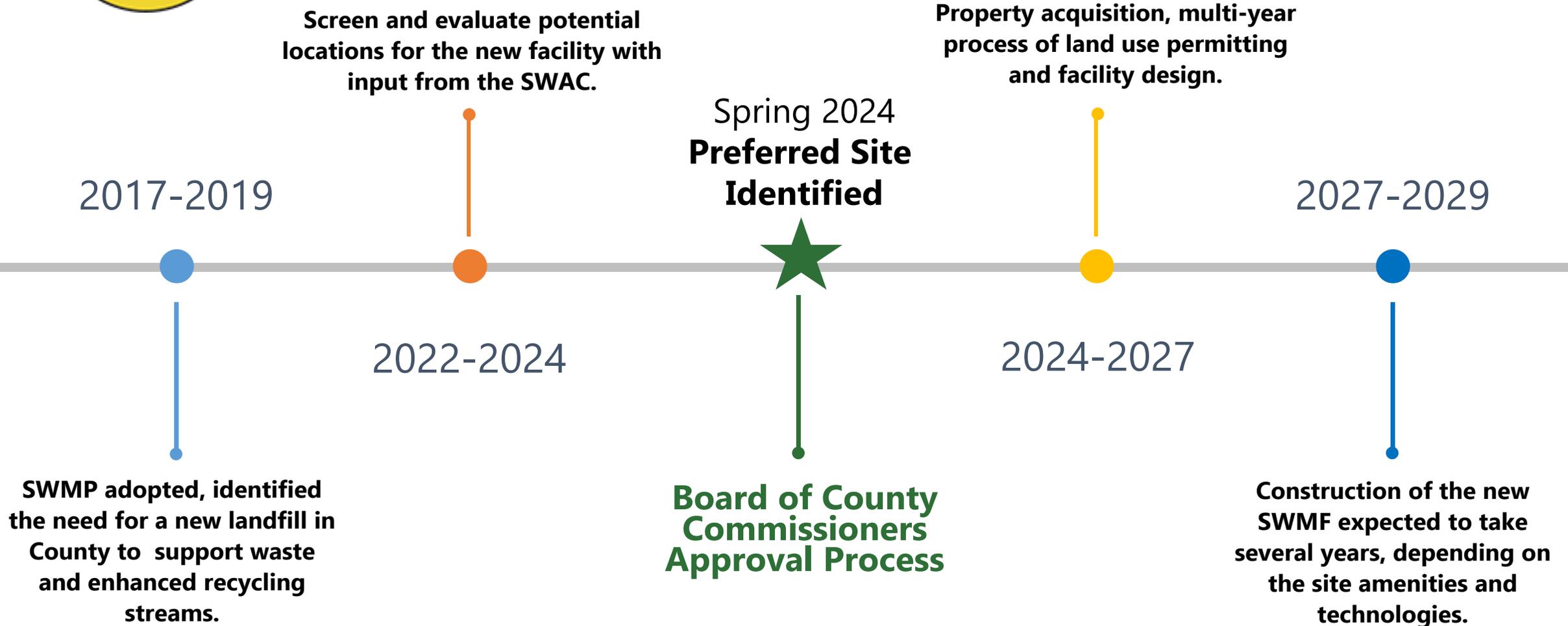




SWAC Discussion



Roadmap to opening in 2029





What happens next...

- **Continued briefings/outreach to interested parties**
- **Site Evaluation Report**
 - **March 29, 2024: SWAC feedback due**
Email comments to: managethefuture@deschutescounty.gov
- **SWAC Meetings:**
 - **April 16, 2024, 9-11 am: finalist site recommendation**
- **Board of County Commissioners Approval Process:**
 - **May and June 2024 (tentative): public hearing(s) prior to BOCC decision**



Adjourn

