



Board of County Commissioners
Board Work Session
Wednesday, March 22nd, 2023
10:00am to 11:00am
3000 Pacific Avenue SE, Room 110

For public virtual attendance, you may follow along on the [Thurston County YouTube Channel](#).

AGENDA

I. Waste and Recovery Center Reconfiguration Project Briefing – *Informational*

Disability Accommodations: Room 110 is equipped with an assistive listening system and is wheelchair accessible. To request disability accommodations, call the Reasonable Accommodation Coordinator at least 3 days prior to the meeting at 360-786-5440. Persons with speech or hearing disabilities may call via Washington Relay at 711 or 800-833-6388.

Thurston County Board Briefing

<u>Briefing Date/Time:</u>	March 22, 2023, 10:00 a.m. – 11:00 a.m.
<u>Office/Department & Staff Contact:</u>	Public Works Jennifer D. Walker, Public Works Director (x2271) Karen Weiss, Public Works Asst. Director (x2327) Jeff Bickford, Solid Waste Manager (x2278) Dean Boening, Solid Waste Senior Program Manager (x2372) Olivia Williams, HDR, Inc. (206-826-4737)
<u>Topic:</u>	Waste and Recovery Center Reconfiguration Project
<u>Purpose:</u> (Check all that apply)	<input checked="" type="checkbox"/> Information only <input type="checkbox"/> Decision needed <input type="checkbox"/> Follow up from previous briefing
Optimal Time Frame for Decision is: (dd/mm/yyyy)	
<u>Synopsis/Request/Recommendation:</u> <i>(One or two sentences identifying your primary objective for this session)</i> The Solid Waste Facility Condition Assessment and Infrastructure Management Plan prepared in 2019 recommended the Waste and Recovery Center in Lacey be upgraded due to aging facilities requiring substantial ongoing maintenance and presenting safety concerns due to construction of many of the facilities over the closed landfill. Based upon analysis of potential upgrade options presented in a 2021 conceptual plan prepared by HDR, Inc. and reviewed by the Solid Waste Advisory Committee (SWAC) and others, Public Works plans to move forward with expanding the existing transfer station structure to allow for a separate self-haul tipping area, along with other infrastructure improvements.	
<u>Background</u> In 2021, a conceptual master plan was prepared by HDR, Inc. which looked at various potential reconfigurations to operations at the WARC, ultimately providing four possible options. After consideration of those options by a peer-review group made up of county staff and solid waste professionals from other Washington counties, options were reduced to two (Options C and D); both would move self-haul services to the southern portion of the property, which is not over the closed landfill. The SWAC concurred with this conclusion. Staff performed additional analysis of the chosen two options, concluding that Option D, which includes the expansion of the existing transfer station building to accommodate self-haul vehicles, is the preferred alternation for a number of reasons, including a lesser overall cost over time, improved safety, and an increased ability to handle the growing volume of solid waste. Staff presented Option D to the SWAC at their January 4, 2023 meeting. The SWAC passed a motion recommending to the Board that Public Works move forward with the initial pre-design process for the Option D WARC reconfiguration.	

Documents Attached:

- WARC Reconfiguration Board Briefing PowerPoint
- Waste and Recovery Center Conceptual Master Plan – July 22, 2021
- WARC Reconfiguration Option C and D Analysis

Summary & Financial Impact:

The approximate cost of construction of Option D was estimated in 2021 to be about \$15 million. Since then, between inflation and material supply shortages, that cost has likely risen. An updated, more accurate estimate will be generated after preliminary design scoping work has been completed. Funds for this project are currently budgeted within the Capital Improvement Program (CIP) and come from solid waste tipping fees.

Affected Parties:

Solid waste issues impact most residents and businesses within the county. This proposed project will have a substantial impact on the residents and businesses, including commercial haulers, that utilize the WARC, with the provision of improved solid waste services, expanded capacity, and increased safety.

Options with Pros & Cons:

1. Move forward with WARC reconfiguration design Option D:

Pro: This option would help Public Works realize the desired goals and objectives of relocating infrastructure from the closed landfill, upgrading traffic flow to reduce queueing issues and traffic conflicts, increasing safety and functionality, and increasing the ability of the system to serve additional customers and manage the increased waste volume produced by the population growth projected over the next 20 years. This option would have lower annual operations costs than Option C, with the lower operations costs making up for the construction cost difference in approximately nine years.

Con: The initial cost of construction will be substantial, and greater than Option C.

2. Move forward with WARC reconfiguration design Option C:

Pro: This option would have many of the same benefits as option D and would have a lesser initial cost of construction.

Con: Due to higher operations costs for this option, after a period of approximately nine years this option will be more expensive overall. This option has a lower level of safety, as it continues to utilize a raised tipping wall for public customers. Additionally, it does not allow for the addition of the second compactor to the transfer station, providing less redundancy and capacity to the system.

3. Maintain current layout and facilities:

Pro: This is the least costly option at this time.

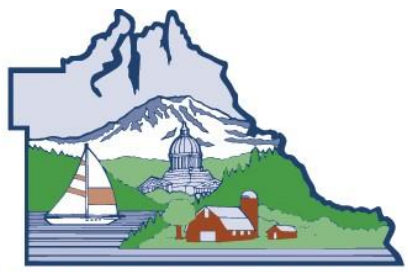
Con: Ongoing maintenance will continue to be a significant issue with many structures and facilities experiencing settlement issues due to their location over the closed landfill. Growing safety concerns associated with the current configuration will not be addressed. Additionally, the current facility is often operating at or above its design capacity and will not accommodate projected population growth.

Board Direction:

Staff recommends moving forward with the pre-design of the reconfiguration of the WARC as outlined in Option D of the WARC Conceptual Master Plan.

Next Steps/Timeframe:

The first step will be to have a consultant perform pre-design services to more fully delineate the scope of work involved, which will lead to a request for qualifications this fall for the preparation of full plans and specifications for construction.



THURSTON COUNTY
WASHINGTON
SINCE 1852

Public Works

Waste and Recovery Center Reconfiguration Plan

Board of County Commissioners Briefing March 22, 2023

Background

- Solid Waste Facility Condition Assessment and Infrastructure Management Plan (Plan) completed in 2019.
- Plan recommends Waste and Recovery Center (WARC) public tipping area, scales and scalehouses, organics processing area and recycling area be relocated.
- Existing infrastructure is located on closed landfill.
- Reconfiguration recommended to:
 - Eliminate ongoing maintenance issues, expand facility capacity, improve customers access and reduce wait times, customer queuing and traffic conflicts.
 - Improve or minimize residential vs. commercial traffic interaction.



WARC Reconfiguration Project Goals and Objectives

“Develop an overall approach for a comprehensive WARC site development for the next 20 years that takes into account recommendations from the Thurston County Capital Facility Plan, ensuring high-quality delivery of public solid waste services in the most fiscally responsible manner.”

- Upgrade traffic flow to reduce customer queuing issues and traffic conflicts.
- Relocation of infrastructure from the closed landfill to reduce ongoing maintenance issues.
- Replace infrastructure to increase safety and functionality.
- Meet current and future regulatory requirements.
- Increase the ability of the system to serve additional customers and population growth projected for a 20-year period.
- Provide budgetary capital cost estimates for major expenditures.



Current Waste and Recovery Center (WARC)



WARC Master Plan Design Criteria

- Minimize traffic crossings
- Minimize queuing (limited queuing OK during peak hours)
- Limit infrastructure on top of closed landfill
- Existing infrastructure to remain:
 - HazoHouse
 - Transfer Station
 - Dog Park/Closed Loop Park/Park & Ride



WARC Potential Layout Options Summary

WARC Potential Layout Options Summary				
Criteria	Option A	Option B	Option C	Option D
Limits Infrastructure on Closed Landfill	No	No	✓	✓
Separates Public/Commercial Traffic	✓	No	✓	✓
Minimizes Queuing	✓	✓	✓	✓
Minimizes Traffic Crossings	No	No	✓	✓
Provides 34 Unloading Stalls for MSW	32	32	32	32
Provides 13 Unloading Stalls for Organics	✓	✓	✓	✓
Meets System Needs for 20-Year Planning Period	✓	✓	✓	✓

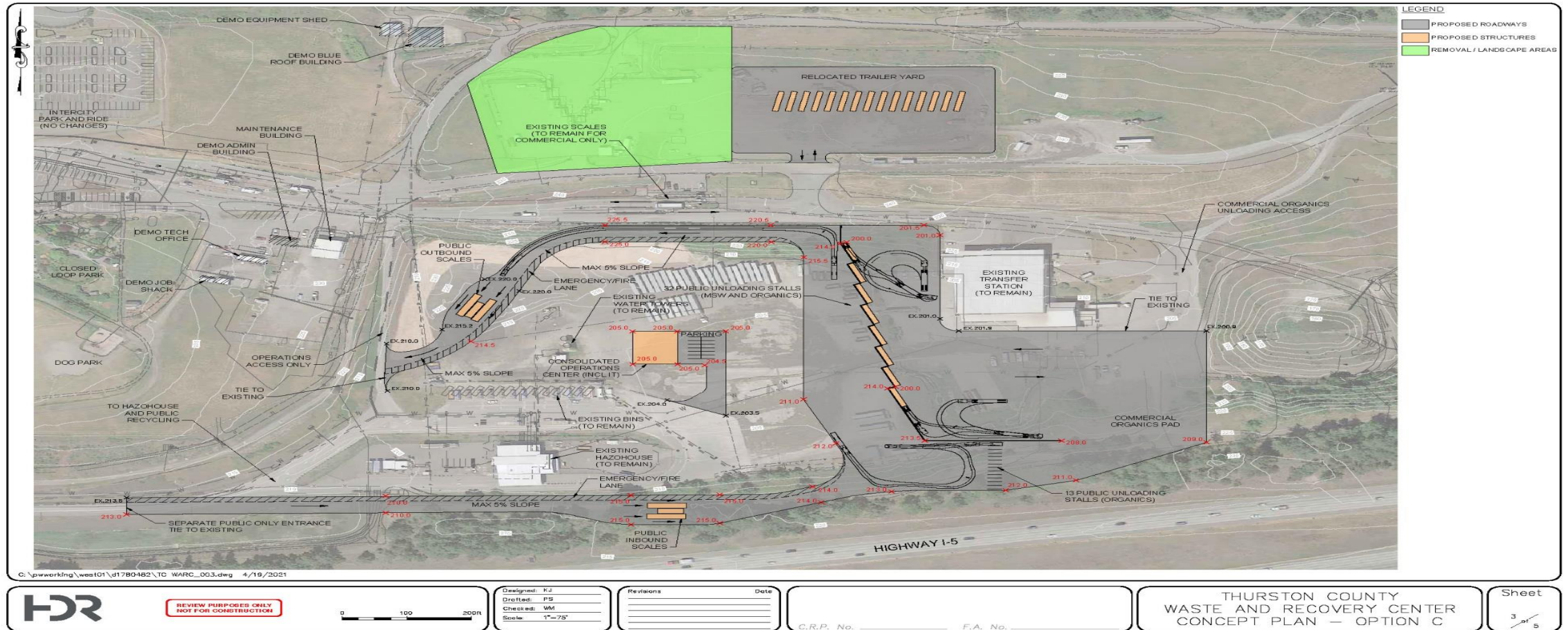


Peer Review and Feedback

- April 5, 2021 – Master Plan was peer-reviewed by PW staff as well as representatives from Spokane, Snohomish, Adams, Kittitas, and Lewis Counties.
- SWAC reviewed Master Plan at their May 5 and September 1, 2021 meetings.
- Based upon peer review group and SWAC feedback, the options were narrowed down to Options C and D.



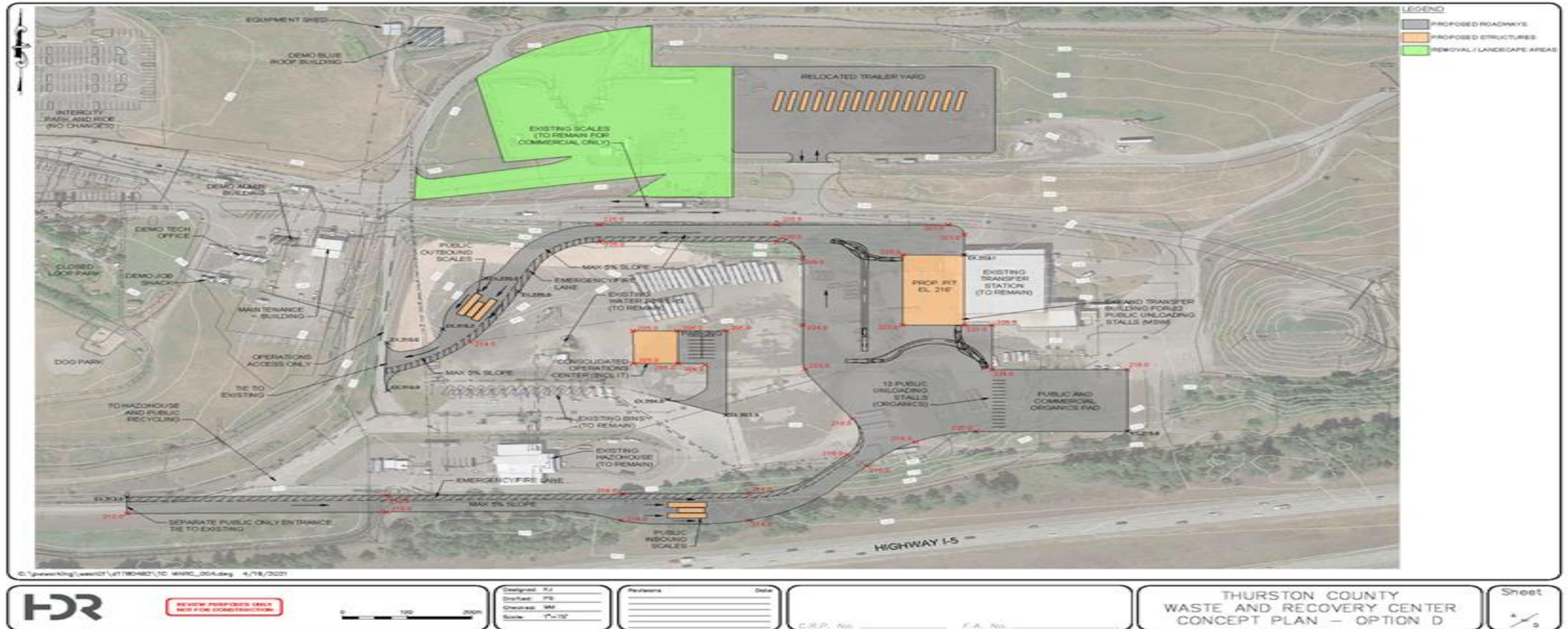
Option C



Includes:

- Expanded public tipping Z-wall.
- New self-haul area scales.
- Consolidated admin building.
- Relocated organics area.

Option D



Includes:

- Expanded existing transfer station building to the west for covered self-haul tipping.
- Incorporating 2nd compactor for system redundancy and future capacity needs.

Design Considerations

Design Considerations	Design C	Design D
Improve safety and risk management		X
Relocate infrastructure off closed landfill	X	X
Increase waste and customer capacity	X	X
Separate self-haul and commercial traffic	X	X
Fewer hauls—reduced carbon emissions		X
Increase potential recovered recyclables		X
Infrastructure for education and outreach		X
Lower construction cost	X	
Lower additional operating expenses		X



Cost Benefit Analysis

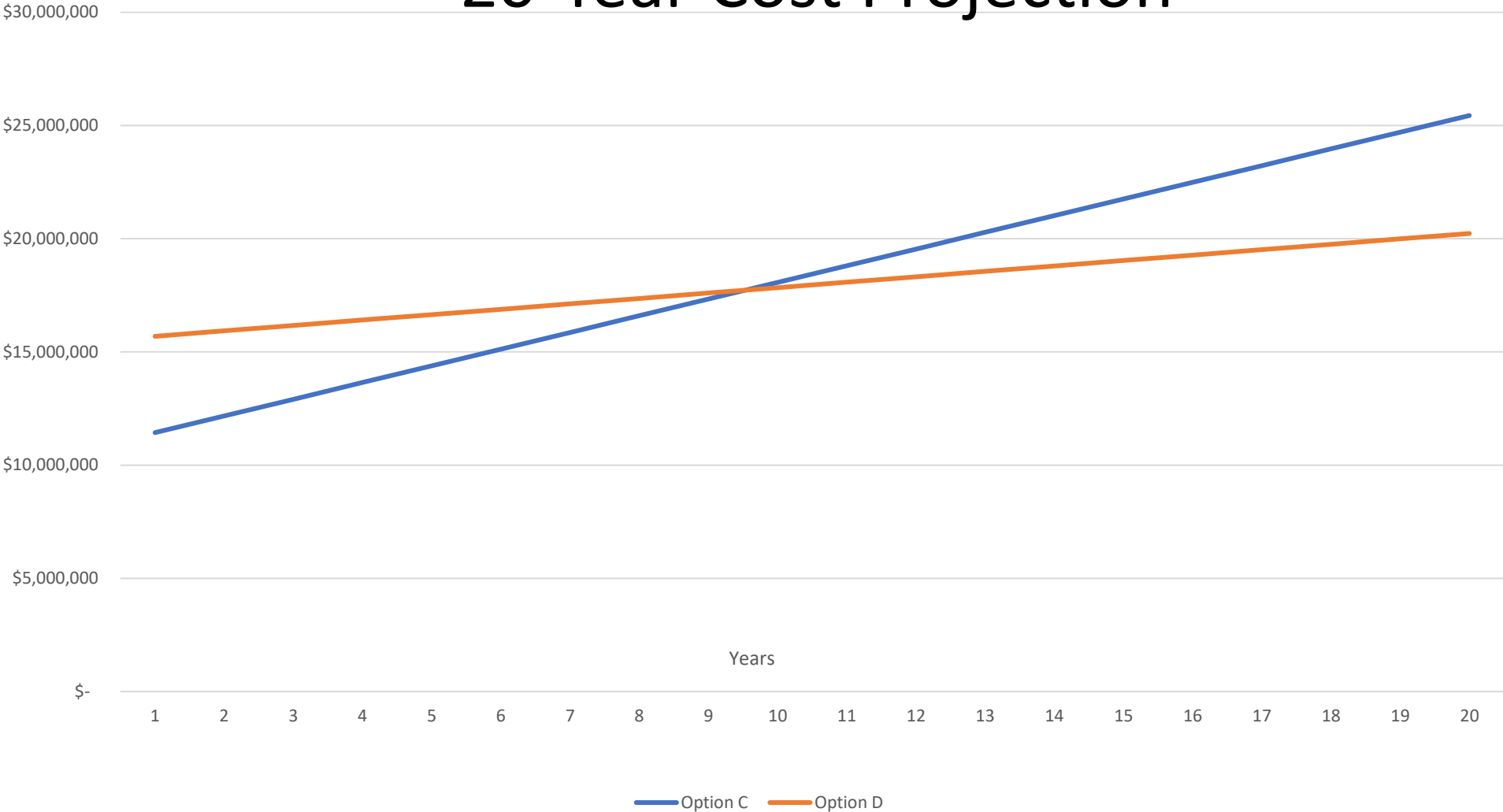
Though Option C is less expensive to build initially, there would be added equipment, transportation, and staffing costs associated with facility operations. When these costs are considered, this savings in construction cost is erased in a little over 9 years.

	Design C	Design D
Initial Construction Cost*	\$9,050,100	\$14,600,400
Additional Equipment Needed	\$1,650,000	\$750,000
Additional Annual Operations Costs	\$497,855	\$0

* Cost estimates are from 2021



20-Year Cost Projection



Recommendation

Move forward with the design outlined in Option D.



Next Steps

- Perform a preliminary design study to fully generate the scope of work and design parameters to be used for a Request for Qualifications (RFQ) for full design of project plans and specifications.
- Release an RFQ for facility design services.
- Contract for design services.

Timeline

[illegible]

Questions?

Attachment A - WARC MASTER PLAN - Comparing Options C and D

COSTS (based on 2021 probable construction costs)

General Design/Construction (based on 2021 WARC Conceptual Master Plan Layouts)

Option C (Z-wall)

Option D (Tipping Floor Expansion)

Additional Equipment and Staffing Costs (based on April 28, 2022 Republic Services Memo, attached below)

Option C (Z-wall)

Option D (Tipping Floor Expansion) Current floor is 17,000 sq. ft; built in 2000

Year 6 - Commercial floor resurfacing; self-haul floors typically last more than 20 years before repairs are needed

Option C Tons Cost/container fixed at \$28.10/ton
255366/25 tons = 10,215 containers/year

Option D Tons Cost/container fixed at \$28.10/ton
255366/30 tons = 8,512 containers/year

*Estimate based on historical floor repair costs and conservative inflation estimate

TOTAL Year 1 (construction and operations)
Year 6 (floor maintenance)
Year 2-20 (annual operations)

OPTION C	OPTION D
\$ 9,050,100	\$ 14,600,400
\$ 1,650,000 \$ 450,000	Equipment (1x cost) Labor (annual) Loader (1x cost)
	\$ 750,000
	\$ 100,000 * 1x cost
\$ 287,042	
	\$ 239,187
\$ 11,437,142	\$ 15,589,587
\$ 737,042	\$ 100,000 \$ 239,187
\$ 25,440,940	\$ 20,234,140
Adds 40,872 metric tons CO ₂	
Not Possible	Possible
7	
unquantified	

OTHER CONSIDERATIONS

C footprint (first 10 years of contract)

Option C 1703 hauls @ 60 miles/haul x 10 years = 17,030 containers and 1,021,800 (additional) miles

Option D -

Educational Viewing Area in Design?

Option C

Option D

Risk Management Considerations

Option C - avoidable risks

1. Historical accident claims associated with Z-walls (staff and customers)
(data provided by Risk Manager)
2. Contractor pre-transport tarping

GOALS

1. Upgrade traffic flow to reduce customer queuing issues and traffic conflicts (D). Option D maintains complete separation of commercial and residential traffic. Moreover, queuing time will decrease based on faster customer offload times on a flat tipping floor (1-3 minutes faster on average) vs an elevated Z-wall with a metal bars barrier.
2. Relocation of infrastructure from the closed landfill to reduce ongoing maintenance issues (no difference)
3. Replace infrastructure to increase safety and functionality (D). Assuming no difference in functionality, option D is a much safer design for customers (e.g, traffic flow independent from commercial customers, and fall onto flat floor has fewer risks than falling from an elevated Z-wall into an open-top box).
4. Meet current and future regulatory requirements (D). Though future regulatory requirements are not known, a flat and covered tipping floor has a much higher likelihood of accomodating future regulatory requirements.
5. Increase the ability of the system to serve additional customers and population growth projected for a 20-year period. Option (D) best supports population growth as pulling and replacing boxes (option C) is time consuming and requires staff to shut down available disposal lanes in order to pull/replace these boxes. Option D accomodates more customers/day.
6. Provide budgetary capital cost estimates for major expenditures (see analysis above)

Waste and Recovery Center Re-Configuration Project

Issue Brief

Background

The Waste and Recovery Center (WARC) in Lacey is an aging facility, with several of the structures and other appurtenances being constructed over the old, closed Hawk's Prairie Landfill. Additionally, customer counts and waste volumes are beginning to exceed the original design capacity of the current facility. In order to address these issues, a master plan looking at various options was prepared by HDR and submitted to the County in September 2021. Within this plan, four WARC reconfiguration options were identified. Each option varied in design and traffic flow patterns. Removing existing infrastructure from the closed landfill footprint is a primary objective of this project. After analysis of these four options, as well as input from the SWAC, options C and D emerged as the two most desirable. The option C design includes an expanded Z-wall offload area for self-haulers. Option D would double the area of the existing transfer station tipping floor, allowing for more commercial tipping space and a dedicated self-hauler tipping area.

Goals

The goals of the Master Plan are as listed below, along with a brief assessment of which plan option best suits that goal.

1. Upgrade traffic flow to reduce customer queuing issues and traffic conflicts.

Option D maintains complete separation of commercial and residential traffic from ingress to egress. Moreover, queuing time will decrease based on faster customer offload times onto a flat tipping floor (1-3 minutes faster/customer on average) compared to an elevated Z-wall with a metal safety barrier.

2. Relocation of infrastructure from the closed landfill to reduce ongoing maintenance issues.

No significant difference.

3. Replace infrastructure to increase safety and functionality.

Option D is a much safer design for customers (e.g., traffic flow independent from

commercial customers, a fall onto a flat floor has fewer risks than falling from an elevated position into an open-top box).

4. Meet current and future regulatory requirements.

Option D. Though future regulatory requirements are unknown, a covered and flat tipping floor has a higher likelihood of accommodating future (and probably more stringent) regulatory requirements.

5. Increase the ability of the system to serve additional customers and population growth projected for a 20-year period.

Option D better supports population growth as pulling and replacing boxes (in option C) is time consuming and would require staff to shut down portions of the disposal area in order to safely pull or replace open top boxes. More customers/day can be accommodated in option D, without these delays. Additionally, the County is planning to purchase and install a new compactor within the next year, and incorporating the current compactor into the Option D design would provide for increased waste processing capability and add an important redundancy to the system.

6. Provide budgetary capital cost estimates for major expenditures.

See "Financial Analysis" section below.

<i>Design Considerations</i>	<i>Design C</i>	<i>Design D</i>
<i>Improve safety and risk management</i>		X
<i>Relocate infrastructure off closed landfill</i>	X	X
<i>Increase waste and customer capacity</i>	X	X
<i>Separate residential and commercial traffic</i>		X
<i>Fewer hauls—reduced carbon emissions</i>		X
<i>Increase potential recovered recyclables</i>		X
<i>Infrastructure for education and outreach</i>		X
<i>Lower construction cost</i>	X	
<i>Fewer additional operating expenses</i>		X

Financial Analysis

Based on the HDR master plan layouts, the construction cost for option C was less expensive by \$5,550,300. However, this cost difference becomes null in a little over nine years, when the necessary additional equipment, staffing, containers, and container transport costs are included. When all operational and transportation costs are considered over a 20-year facility planning period, Option C is the more expensive option by more than \$5,200,000. Additionally, in the new contract the cost to ship each intermodal container is a fixed price, providing a financial incentive for Thurston County to favor heavier intermodal containers. *See Attachment A for more detailed cost information.*

Other Considerations

Risk Management

The option C design is inherently less safe for staff and customers; as there is a higher risk of injury from falling from an elevated position as well as pinch point injuries that accompany a Z-wall design. Over the past 20 years, there have been four reported worker injuries related to falling into an open-top container. Over the past 15 years, there have been 3 liability claims associated with customers driving in/falling in open-top containers at the WARC. Furthermore, contractor staff must cover each of these open-top containers with a tarp prior to transport, to keep loads secure in transit and limit rainwater from entering the boxes and creating leachate. Covering these containers requires working in an elevated position (while standing on an elevated platform approximately 15 feet off the ground).

Carbon Footprint

Due primarily to the additional transportation hauls in option C (1,703 hauls/year more than option D), the carbon emissions in option C would be significantly higher. Over the ten-year contract period, these additional hauls would create an additional 40,872 metric tons of CO₂. One metric ton of CO₂ is equal to the emissions produced by driving a mid-sized car 3,728 miles (carbonfootprint.com/calculator).

Flexibility in Design Features

Option D would allow for an educational viewing area (public viewing room) in the engineering design. These viewing rooms have demonstrated education and outreach benefits in other communities. Several local jurisdictions (City of Seattle, Kitsap, Pierce, King, and Snohomish counties) have incorporated educational areas within their facility designs.

Increased Recycling Potential

Option D would allow for recyclables to be recovered from the tipping floor. It is not uncommon for large volumes of clean cardboard or dimensional lumber to be disposed, as well as tires, appliances, and propane tanks. When this occurs the loader operator can segregate these recyclables from the waste and divert for recycling.

Conclusion

For the reasons detailed above, option D emerges as a more advantageous Master Plan design. Though option C is less expensive to build initially (\$5,550,300 less than option D), there would be added equipment, transportation, and staffing costs associated with facility operations. When these costs are considered, this difference in construction cost is erased in a little more than 9 years. Option D provides greater flexibility if future design changes are necessary, and positions Thurston County to better anticipate and adjust to increased regulatory requirements, including containment of tipping floor contact water (leachate) and stormwater in separate systems. Lastly, the traffic flow pattern and flat tipping floor in option D is a safer alternative for staff and customers. A facility design that prevents safety-related incidents would also have the added benefit of limiting risk/liability. Finally, the option D design allows for increased recovery of recyclable materials from the waste stream.