



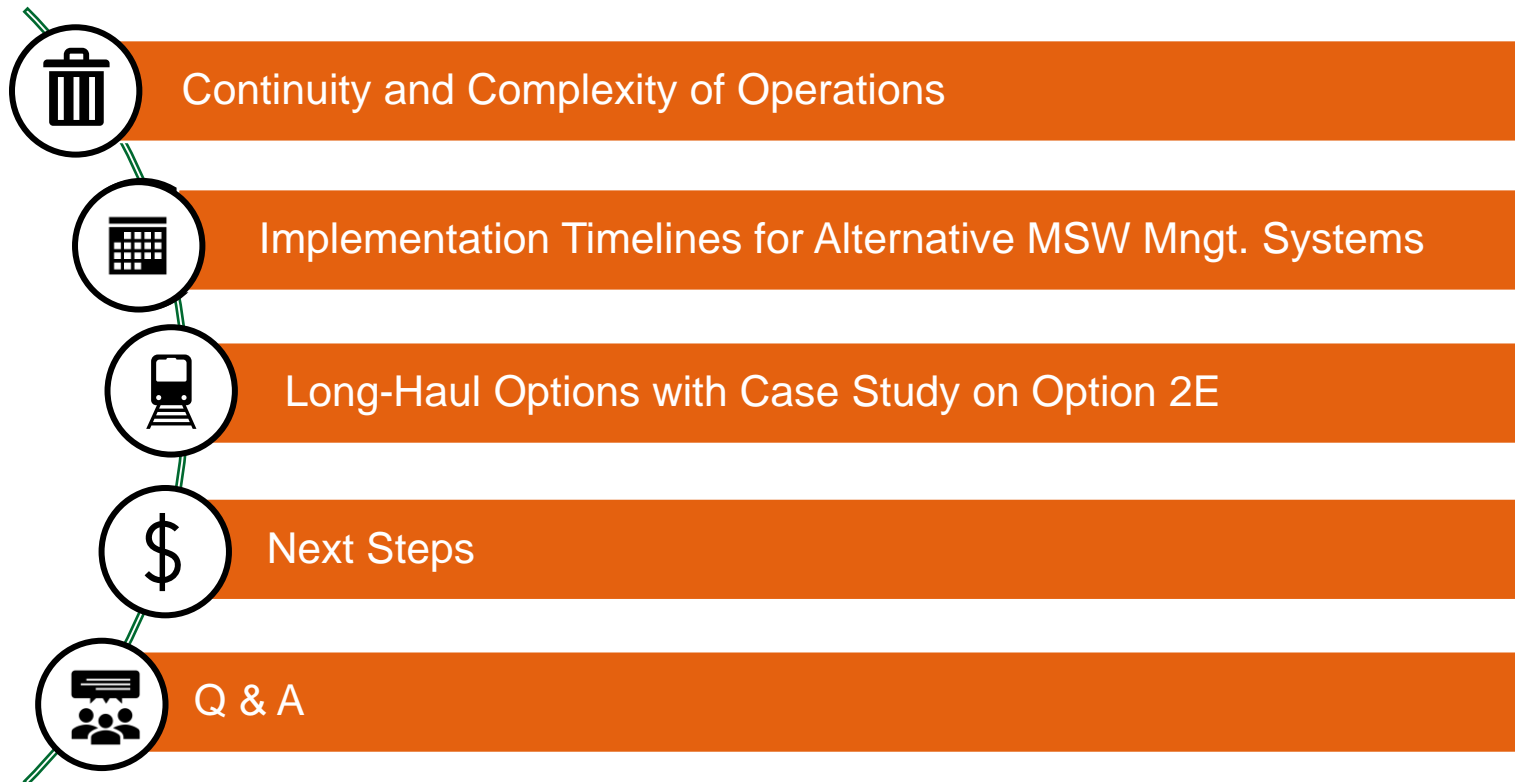
**Sustainable
Project Choices**

MSW Management Systems Analysis Montgomery County, MD

Status Update for SWAC – January 22, 2025

Steve Nesbitt, Vice President

Agenda



Continuity and Complexity of Operations



Extension

Short Term 5-Year Extension (April 2026 – April 2031) to the RRF and TFS Operating Agreement (Reworld) is required for **Continuity of Operations** to ensure uninterrupted solid waste management services to County residents and businesses. The extension will include an early termination clause.

Schedule

Implementation Timelines for Alternative MSW Mngt. Systems such as **MRBT with Long-Haul or standalone Long-Haul to Out-of-County Landfill** have an estimated 5-6 Year duration (2025-2030) depending on procurement and capital project start dates.

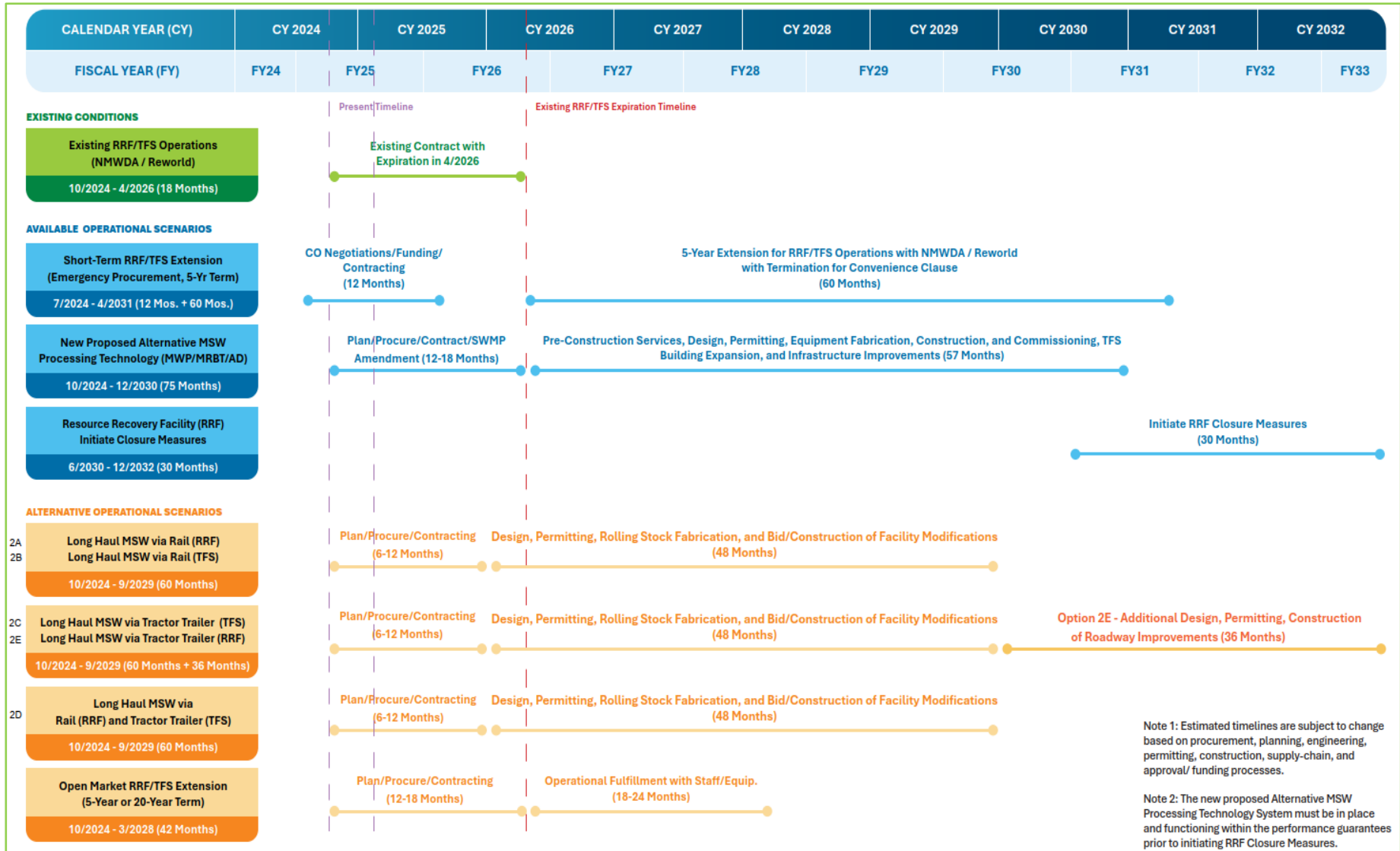
Operations

If Alternative MSW Mngt. Systems were selected, implementation would trigger the relocation of existing operations and site infrastructure modifications under **multiple complex capital projects occurring in parallel at the TFS and RRF**. Significant rolling stock purchases with staging space would also need to be accommodated at the TFS and RRF based on the selected Long-Haul option.

Costs

Along with the Short-Term Extension of the RRF and TFS Operating Agreement, there are **significant costs associated with transitioning to Alternative MSW Mngt. Systems**. Costs need to be evaluated along with other factors including but not limited to potential impacts to public health and the environment, social equity and environmental justice, and regulatory acceptance, etc.

Implementation Timelines for Alternatives



Long-Haul Options – Overview

<div>MRBT with Long-Haul →</div> <div>'HYBRID'</div>	2A		100%		TFS>RRF>MSWLF
	2B		100%		TFS>MWSLF
	2C		100%		TFS>MSWLF
	2D	<div> <div>■ Rail</div> <div>■ Truck</div> </div>	<div>65%</div> <div>35%</div>		<div>TFS>RRF>MSWLF</div> <div>TFS>MSWLF</div>
	2E		100%		<div>TFS>RRF</div> <div>RRF>MSWLF</div>

Long-Haul Options – Unplanned vs. Planned

Unplanned Long-Haul (Emergency Scenario)	Planned Long-Haul via Tractor Trailers (Engineered Scenarios)
<p><u>Baseline Conditions</u></p> <ul style="list-style-type: none"> • Unplanned RRF Closure or CSX Rail Disruption • Emergency Procurement • No infrastructure improvements implemented • No new rolling stock pre-purchase • Tractor Trailers w/ Walking Floors for transport 	<p><u>Baseline Conditions</u></p> <ul style="list-style-type: none"> • Planned long-haul operations • RFP Procurement • Design, permit, and construction of infrastructure improvements • Rolling stock pre-purchase (by County or Contractors) • Tractor Trailers w/ Walking Floors for transport
<p><u>Operational Conditions for Tractor Trailers at TFS</u></p> <ul style="list-style-type: none"> • Various locations for loading and staging • Multiple Hauling Contractors for over-the-road • Contractors – Redirect own CDL drivers with Tractor Trailers from existing routes • Contractors – Hire new CDL drivers with Tractor Trailers • 24/7 Operations 	<p><u>Operational Conditions for Tractor Trailers at TFS or RRF</u></p> <ul style="list-style-type: none"> • Designed and Designated loading and staging areas • Multiple Hauling Contractors for over-the-road • Contractor hires CDL & pre-purchases rolling stock • Transfer Building, Rail Yard, Operational Area, and Staging Area site modifications • Local & Regional Roadway Improvements • Nuisance and Aesthetic Impact Abatement and/or Mitigation (Vector, Odor, Dust, Litter, Noise and Light Pollution) • Procurement (6 - 12 months) • Design and Permitting (12 - 36 months) • Construction (24 - 36 months) • Rolling Stock Manufacturing (18 - 24 months)
<p><u>Route Conditions</u></p> <ul style="list-style-type: none"> • Reworld Facility: Energy Resource Recovery Facility • Location: Lorton, VA • 37 Miles Travel Distance • 2-hour cycle time (round trip) 	<p><u>Route Conditions</u></p> <ul style="list-style-type: none"> • WM Facilities: Maplewood, Atlantic or Middle Peninsula MSWLF • Location: Amelia County, Waverly or Gloucester, VA • 160 to 170 Miles Travel Distance • 9 - Hour Cycle Time (round trip)

Long-Haul Options – Unplanned vs. Planned






Unplanned Long-Haul (Emergency Scenario)	Planned Long-Haul via Rail (Engineered Scenarios)
<p><u>Baseline Conditions</u></p> <ul style="list-style-type: none"> • Unplanned RRF Closure or CSX Rail Disruption • Emergency Procurement • No infrastructure improvements implemented • No new rolling stock pre-purchase • Tractor Trailers w/ Walking Floors for transport 	<p><u>Baseline Conditions</u></p> <ul style="list-style-type: none"> • Planned long-haul operations • RFP Procurement • Design, permit, and construction of infrastructure improvements • Rolling stock pre-purchase (by County or Contractors) • Rail Containers for transport
<p><u>Operational Conditions for Tractor Trailers at TFS</u></p> <ul style="list-style-type: none"> • Various locations for loading and staging • Multiple Hauling Contractors for over-the-road • Contractors – Redirect own CDL drivers with Tractor Trailers from existing routes • Contractors – Hire new CDL drivers with Tractor Trailers • 24/7 Operations 	<p><u>Operational Conditions for Rail Haul at TFS or RRF</u></p> <ul style="list-style-type: none"> • Designed and Designated loading and staging areas • Rail Yard, Operational Area, and Staging Area site modifications • CSX Rail Line modifications • Nuisance and Aesthetic Impact Abatement and/or Mitigation (Vector, Odor, Dust, Litter, Noise and Light Pollution) • Procurement (6 - 12 months) • Design and Permitting (12 - 24 months) • Construction (24 months) • Rolling Stock Manufacturing (18 - 24 Months)
<p><u>Route Conditions</u></p> <ul style="list-style-type: none"> • Reworld Facility: Energy Resource Recovery Facility • Location: Lorton, VA • 37 Miles Travel Distance • 2-hour cycle time (round trip) 	<p><u>Route Conditions</u></p> <ul style="list-style-type: none"> • WM Facilities: Maplewood or Atlantic MSWLF • Location: Amelia County or Waverly, VA • 160 Miles Travel Distance; > 8 - Day cycle time (round trip) • Republic Facilities: Sunny Farms, Tunnel Hill or Green Valley MSWLF • Location: OH, or KY • 340 - 350 Miles Travel Distance; > 12 - Day cycle time (round trip)

Long-Haul Options – Cycle Time Review

		WM, VA 160 to 170 mi.		WM, VA 160 mi.	Republic, OH/KY 340 - 350 mi.
		Long-Haul Via Tractor Trailer		Long-Haul Via Rail	Long-Haul Via Rail
Loading at TFS/RRF & Exit	Activity	Duration	Activity	Duration	Duration
	Position Trailer	1 hr.	Position ITC	2 hr.	2 hr.
	Top Loading		Compaction		
	Final Weighing		Final Weighing		
	Tarping		Loading onto Railcar Staging	12 hr.	12 hr.
	Exit/Egress			2 days	2 days
Long Haul	Return Travel Time to MSWLF	6 hr.	Return Travel Time to MSWLF	6 days	10 days
	Queue & Initial Weighing	2 hr.	Queue & Initial Weighing	3 hr.	3 hr.
	Queue & Un-tarping		Queue & Un-tarping		
	Unload @ Working Face		Unload @ Working Face		
	Re-Tarping		Re-Loading onto Railcar		
	Exit/Egress				
Total Duration		9 hr.	Total Duration		> 8 days
					> 12 days




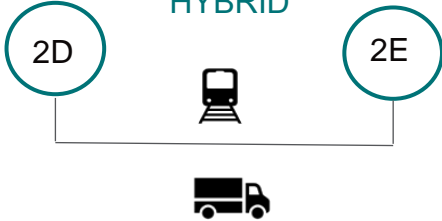
Long-Haul Options – Major Capital Projects

Long-Haul Options require implementation of Major Capital Projects at the TFS or RRF with associated Feasibility Studies, Design, Permitting, and Construction activities Prior to Start-Up

Intermodal Options require implementation of Feasibility Studies, Design, Permitting, Construction activities Prior to Start-Up					
	2A 	2B 	2C 	2D 	2E 
	RRF	TFS	TFS	'HYBRID'	
Track Construction					
Main Line Track Shift	✓	✓		✓	✓
New Siding Track	✓	✓		✓	✓
Yard Turnout for Train	✓	✓		✓	✓
Signal Modification	✓	✓		✓	✓
Embankments/Grading					
Sub-Ballast	✓	✓		✓	✓
Earthworks	✓	✓		✓	✓
Structural Elements					
Bridge Reconstruction		✓			
Retaining Walls	✓	✓		✓	✓
Sound Barriers		✓	✓	✓	✓
Transfer Building Retrofit / Rail Yard Mods			✓	✓	✓
Roadway Improvements					
Ingress/Egress		✓	✓	✓	✓
Widening/Shoulders				✓	✓
Roadway Cross-Section Upgrades			✓		✓
Intersections				✓	✓
Staging Areas/Rigid Surface Cross-Sections			✓	✓	✓
Culvert Extensions					✓
Property Acquisition					✓
Rolling Stock					
Intermodal Containers and Rail Cars	✓	✓		✓	✓
Walking Floor Tractor Trailers			✓	✓	✓
Specialty Rail Cars for Tractor Trailers					✓

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Long-Haul Options – Major Capital Projects

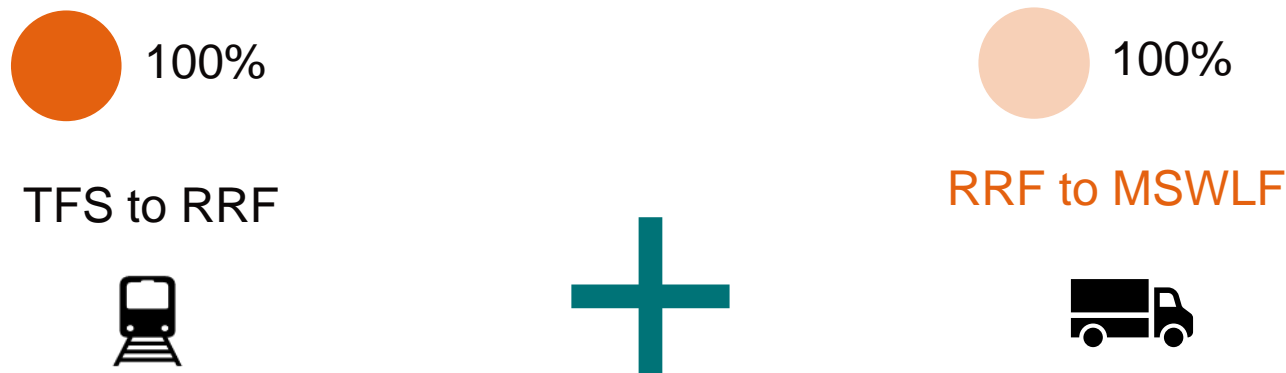
	2A	2B	2C	2D	2E
					
Major Components	RRF	TFS	TFS	RRF/TFS	RRF
Rolling Stock Manufacture	✓	✓	✓	✓	↑
Roadway Modifications & Traffic Controls			✓	✓	↑
Transfer Building and/or Railyard Retrofit		↑	✓	✓	↑
MSW Staging in Railyard	✓	✓	✓	✓	✓
Studies, Design, Permitting & Extensive Construction	✓	✓	✓	✓	↑
Schedule (Months)	54 - 60	54 - 60	54 - 60	54 - 60	54 - 84

* All Alternatives include modifications to Rail Yard and Operating Areas with Potential 24/7 Operations.



Long-Haul Options – Case Study for 2E

Long Haul by Tractor-Trailer from the RRF (100%) to Out-of-County MSWLF



Must Consider Implementation Constraints and Limitations for Accommodating an Additional 100 – 115 Daily Tractor-Trailer Loads (Each Direction)

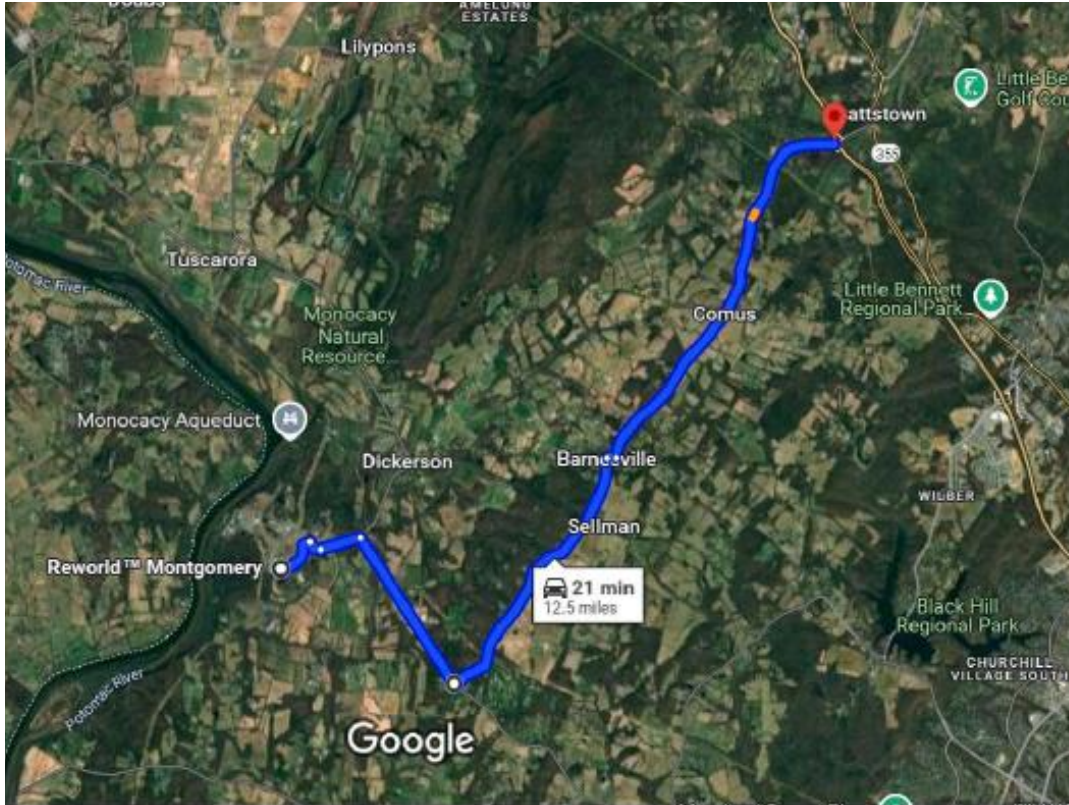
Requires Roadway Improvements from RRF to Route I270

Major Capital Improvements at the TFS and RRF, Rolling Stock Purchase for Tractor Trailers and Specialty Rail Cars, and significant improvements to local Roadways requires environmental assessments along with design, permitting, and construction activities that can range from 54 – 84 months to complete



Long-Haul Options – Case Study for 2E

Route 28 & 109 Roadway Improvements



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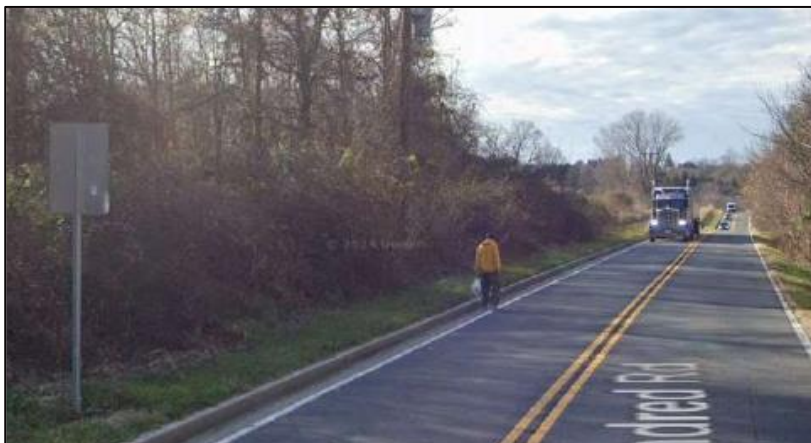
12.5 – Mile Roadway Improvements

- Widening/Shoulder Addition
- Roadway Cross-Section Upgrades to Heavy-Duty
- Passing Lanes
- Overhead Utility Conflicts
- Historical CSX Bridge Detour/Bypass
- Intersection Upgrades (4)
- Retaining Walls
- Monocacy Cemetery Conflict



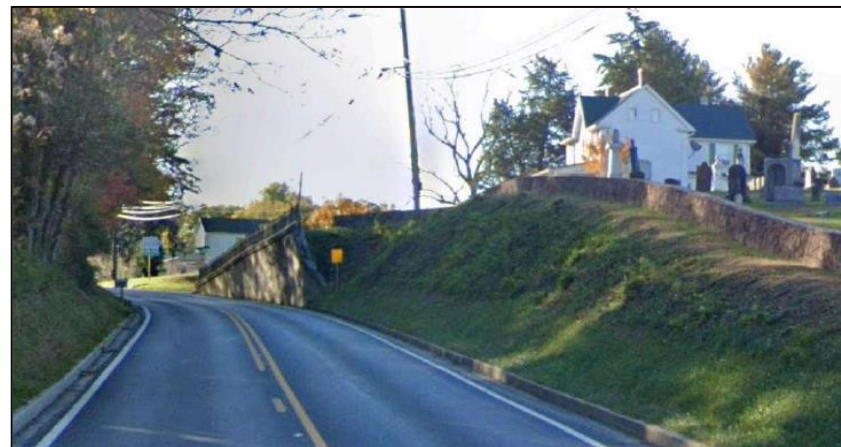
Long-Haul Options – Case Study for 2E

Route 28 & 109 Roadway Improvements



Traffic Ingress/Egress and Public Safety

Traffic Study will Need to Address Aspects of Public Safety Along the Route Including Vehicle & Pedestrian



Widening & Retaining Wall Replacement at Monocacy Cemetery

Potential Cultural and/or Archaeological Resources

Long-Haul Options – Case Study for 2E

Route 28 & 109 Roadway Improvements



Historic CSX Bridge at Metro Station

Preservation Requirements
 Uninterrupted Operating
 Requirements of CSX & Metro
 Requires 'Shunt' & Replacement or
 Bypass with Property Acquisition



Widening & Culvert Extension at Stream/ Wetland Crossings

Culvert Extension & Widening
 Uninterrupted Operating
 Requirements/Maintenance of Traffic
 Restoration and/or Forested Wetland
 Mitigation Requirements for Permanent
 Impacts

Federal/State	Agency	Permit or Approval	State/County	Agency	Permit or Approval
Federal	U.S. Department of Army, Corps of Engineers (USACE), Baltimore District	Section 404 of the Clean Water Act	Maryland / Montgomery County	Maryland Department of Natural Resources (MDNR) / Montgomery County DPS	Maryland Roadside Tree Law
	U.S. Department of Interior, Fish and Wildlife Service, Chesapeake Bay Field Office	Section 7 of the Endangered Species Act	Montgomery County	Montgomery County Montgomery County Department of Permitting Services (DPS)	Montgomery County Engineered Sediment Control Permit
Maryland	Maryland Department of Environment (MDE)	Nontidal Wetland and Waterways Permit			Grading Permit
		CWA Section 401 Water Quality Certification (WQC) - Individual			Floodplain District Permit
		NPDES Stormwater - General Permit 20		Maryland National Park and Planning Commission/County Parks and Planning Board	Natural Resource Industry/Forest Stand Delineation / Forest Conservation Plan
	Maryland Historic Trust (MHT)	Section 106 of the NHPA Consultation			
	Maryland Department of Natural Resources (MDNR)	MD T&E Species Consultation and Clearance - Environmental Review (MDNR ER)			

3 Year Duration Start to Finish for Environmental Permitting Associated with Roadway Improvements

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Scheduled Briefings/Public Hearings

- SWAC Briefing – MSW Mngt. System Analysis Update with Long-Haul (1/22/25)
- Council Briefing – Current and Future Plans for Zero Waste in the County (1/28/25)
- DAFIG Briefing – MSW Mngt. System Analysis Update with Long-Haul (1/29/25)
- Council Public Hearing for Solid Waste Management Plan 2025-2034 (2/11/25)

Planning Briefings

- SCA Briefing – MSW Mngt. System Analysis Update with Long-Haul (Feb./Mar. 2025)
- ZWMC Briefing – MSW Mngt. System Analysis Update with Long-Haul (Feb./Mar. 2025)
- Various Briefings – Arcadis Evaluation Model / Preliminary Analyses (Feb./Mar. 2025)

Deliverables

- Council Adoption of SWMP 2025-2034 and submission to MDE (Spring 2025)
- Arcadis Draft Report – MSW Mngt. Systems Analysis (Spring 2025)
- RFP Advertisement for Alternative MSW Mngt. System (Spring 2025)

