LARIMER COUNTY | ENGINEERING DEPARTMENT

P.O. Box 1190, Fort Collins, Colorado 80522-1190, 970.498.5700, Larimer.org

The role of the Advisory Board is to advise the Board of County Commissioners and appropriate departments on environmental and science-related issues that affect Larimer County.

Environmental and Science Advisory Board

MINUTES

Date: November 14th, 2023

Time: 6:00 – 9:00 p.m.

Location: Rm 150 Carter Lake, 200 West Oak St., Fort Collins, Colorado and Virtual by Zoom

Contact: Shelley Bayard de Volo, sbayard@larimer.org or 970.498.5738

MEMBERS		STAFF		GUESTS
Rodger Ames – Chair	X	John Kefalas*	X	Kevin Stearns
Tasha Carr	X	Shelley Bayard de Volo[¥]	X	Jamie Blanchard-Poling
Anna Cloud	X	Heidi Pruess[§]	X	
Jim Gerek	X	Duane Penney[‡]	X	
Matthew Haag	X	Alex Studee[‡]	X	
Ted Hendrickx	X	Lesli Ellis[€]	X	
Allyson Little				
Andrew Newman	X			
Barry Noon	X			
Nicole Poncelet-Johnson	X			
George Rinker				
Shelby Sommer - Vice-Chair	X			
Natalie Walsh	X			
Katrina Winborn-Miller				
Chris Wood	X			

X = present; * = Commissioner Liaison; [‡] = Solid Waste; [¥] = ESAB Liaison; [§] = Larimer County Environmental and Sustainability Program; [€] = Community Planning, Infrastructure, and Resources

Call to Order: 6:05 p.m.

1. **Amendments or additions to the agenda** –None.
2. **Introduction of members, staff and guests** – members and guests introduced themselves.
3. **Public Comment** – None

4. **Commissioner's Update** – Commissioner Kefalas announced that he and the ESAB leadership interviewed applicants for the newly created Youth Advisory Board Member seat, and one of the applicants was selected for the position, and her selection was approved at today's Administrative Matter meeting. Other topics for the Commissioner's update were approval of the community engagement plan for the Larimer County Water Master Planning process, the 4th Water Education Series Program will take place this Thursday at 6PM, the County Budget and impacts of the Governor's special session for property tax relief. The BOCC received an update from the ICARE (Internal Climate Action, Resilience and Education) program, where building energy efficiency and GHG reductions were highlighted.
5. **Discussion Items**
    - Larimer County Solid Waste Infrastructure Master Plan – Alex Studee and Duane Penney presented on the Department of Solid Waste's plans for diversion and disposal of solid waste at the new landfill. Slides for the presentation are attached with these minutes (OR are available upon request).
6. **Approval of Minutes** – There was an extended discussion on the format of minutes moving forward. Members agreed that the minutes should be more concise and record brief information on the meeting activities including formal direction, decisions, votes. They should not be an accounting of discussions, presentations, and member comments. For the September minutes Anna motioned to approve and Natalie seconded. The minutes were approved by acclamation.
7. **Updates and Round Table**
    - Climate Smart Larimer County - Ted provided an update of his work with the CSFR public outreach, education, and coordination workgroup. The process is in its third phase, which is the implementation stage. The workgroup that Ted sits on also includes members of other County advisory boards, so it's where the advisory boards fit into the process. Ted noted some of the suggestions that their workgroup came up with and their discussion points. Heidi Pruess talked about how other municipalities are participating as part of the executive workgroup.
    - Update on the County Water Master Plan Advisory Group – Nicole and Anna provided an update on the Larimer County Waster Master Planning process. They both attended the Water Advisory Group meetings in October and November. Their slides are attached with these minutes.
8. **Issue Index** – Members went through the first few sections of the Issue Index and assigned members as Issue Coordinators. They will finish going through the Issue Index at the December meeting.
9. **Agenda Topics for Future Meetings** – The December meeting will involve the Issue Index, officer elections, 2023 annual report and 2024 work plan.
10. **Adjourn** – Jim moved to adjourn the meeting and Chris seconded. The meeting was adjourned at 9:00 PM.

LARIMER COUNTY: SOLID WASTE DEPARTMENT

DIVERSION, DISPOSAL, AND THE DIRECTION FORWARD

NOVEMBER 14, 2023

AGENDA

01 Summary of Solid Waste Infrastructure
02 Larimer County North Landfill Site
03 Central Diversion/Transfer Station
04 Future Diversion Opportunities

CLIMATE CHANGE AND SOLID WASTE MANAGEMENT

Leave a Legacy

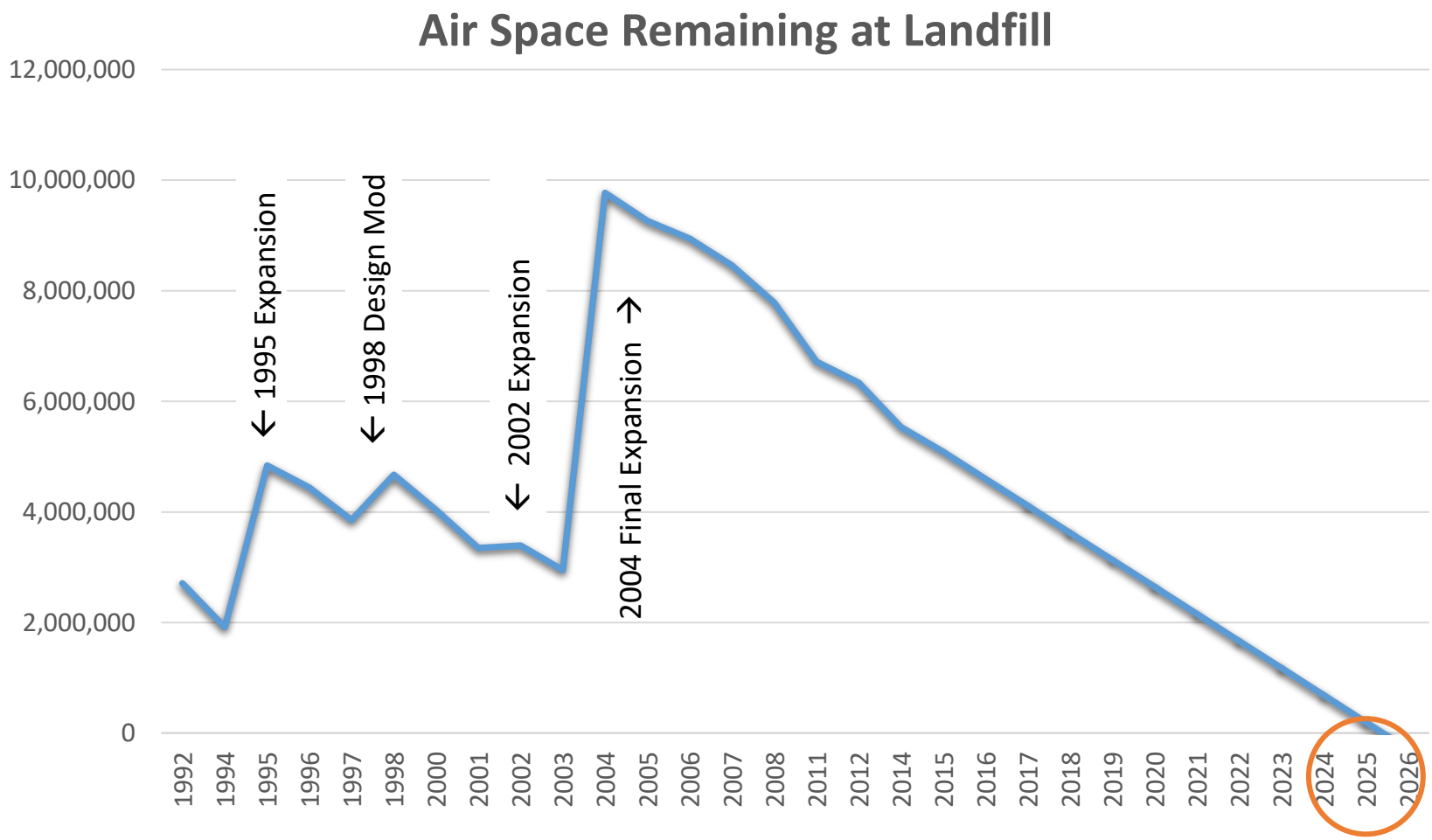
-**Reduce, Reuse, Recycle, Compost**
-Recycling and Diversion begins upstream

- The manufacture, distribution, and use of products-as well as management of the resulting waste-all result in greenhouse gas emissions.
- Waste prevention and recycling are real ways to help mitigate climate change.

01

SUMMARY OF SOLID WASTE INFRASTRUCTURE

AIRSPACE REMAINING AT LANDFILL



ELEVEN INFRASTRUCTURE OPTIONS EVALUATED

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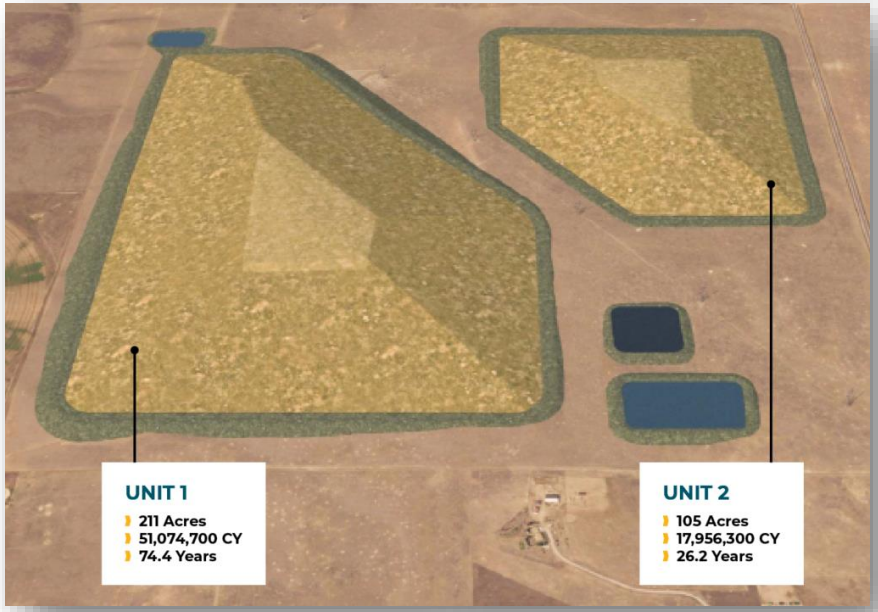
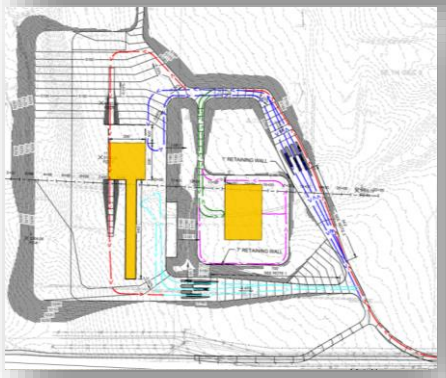
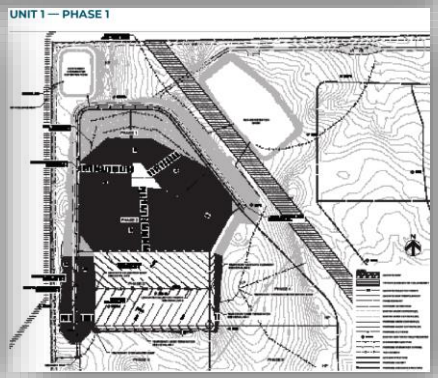
- Status Quo
- **Central Diversion/Transfer Station**
- **New County Landfill**
- Material Recovery Facility (Clean)
- **Yard Waste Organics Processing Facility**
- **C&D Processing Facility**
- Energy from Waste Facility (Direct Combustion)
- Mixed Waste Processing (Dirty MRF)
- **Aerobic Composting Including Food Waste**
- Anaerobic Digestion
- Refuse Derived Fuel (RDF) Processing

SUMMARY OF FACILITY PROGRESS

- Central Diversion/Transfer Station Planning and Development
  - Ongoing
- Central Diversion/Transfer Station Location and Extent Approval
- Landfill Planning and Infrastructure Layout Completed
- Landfill Permitting
  - CDPHE Approval
- Landfill Location and Extent Approval
- Groundwater Background Sampling and Analysis
  - Ongoing
- Landfill Infrastructure Design Initiated Access Roads and Utilities
  - Ongoing



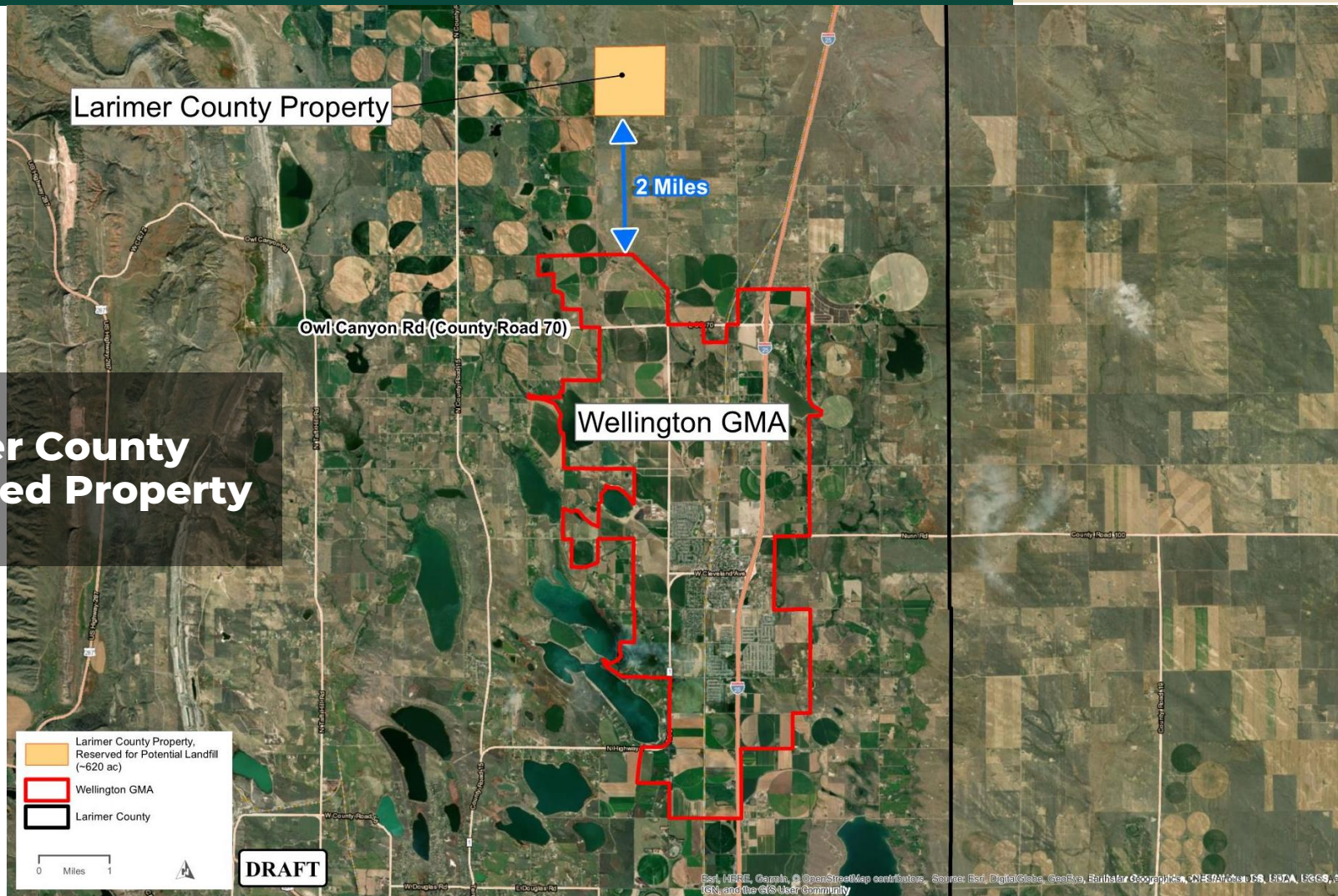




02

LARIMER COUNTY NORTH LANDFILL SITE

NORTH LANDFILL PROPERTY



Larimer County Reserved Property

NORTH LANDFILL

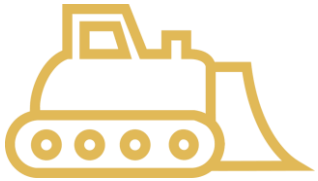
Operations

- Construction beginning as soon as spring of 2024
- Opening fall of 2025
- Projected Site Life Span
  - Unit 1: 74 Years (211 acres)
  - Unit 2: 26 Years (105 acres)

NORTH LANDFILL

LANDFILL PERMIT APPLICATION ENGINEERING DESIGN & OPERATIONS PLAN (EDOP)

Locational Criteria



Landfill Design and Construction

Site Design

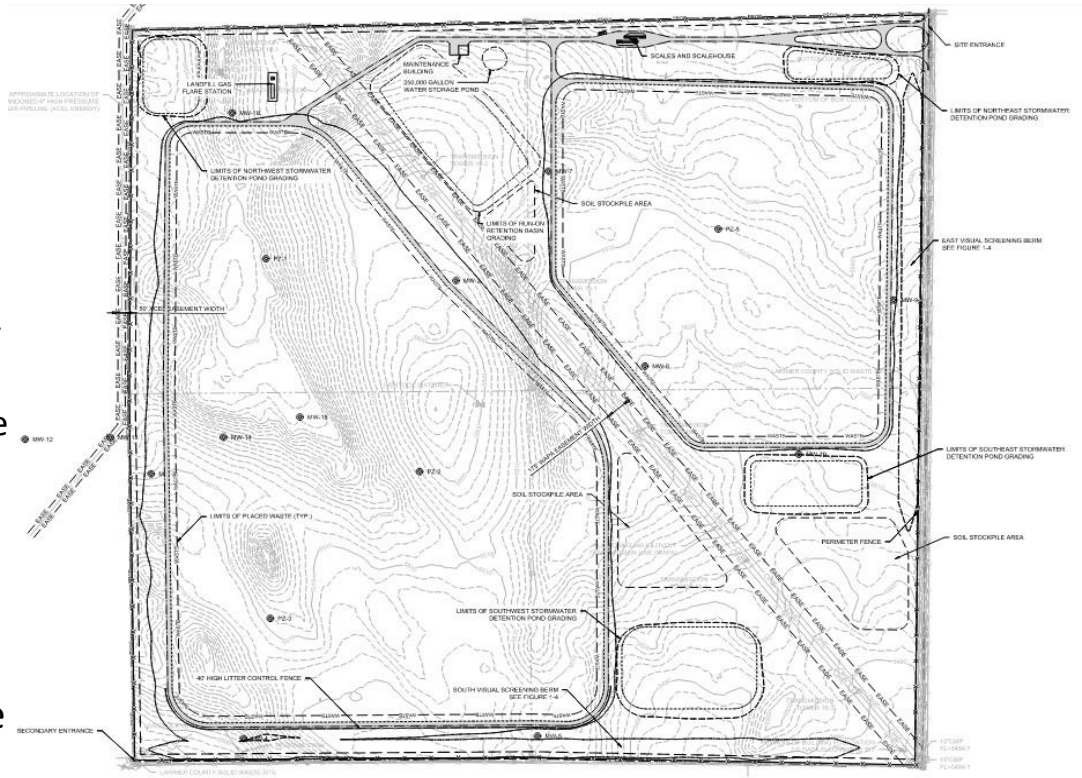
Operating Criteria

Closure/ Post-Closure Plan

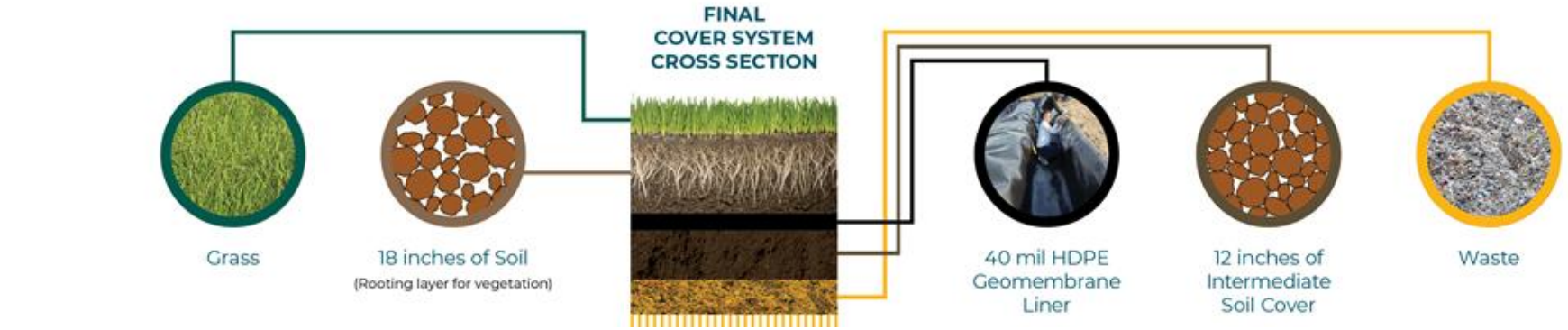
Financial Assurance

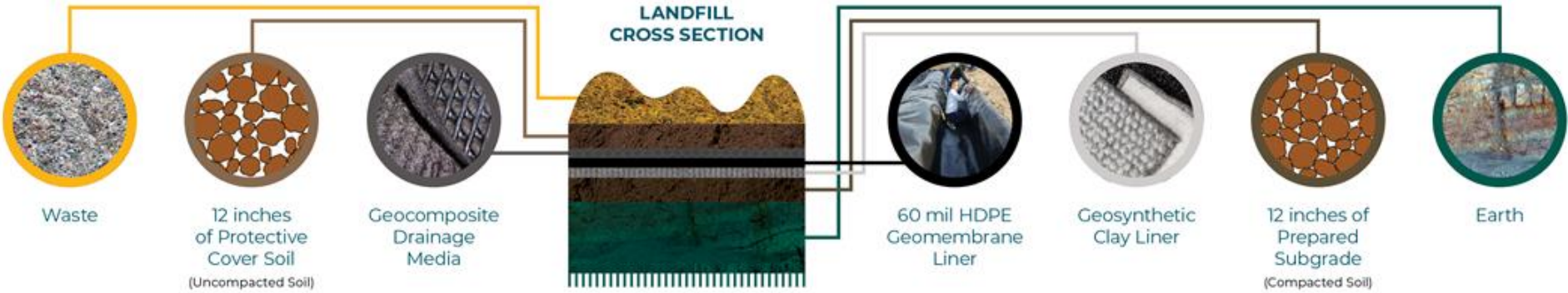
LANDFILL DESIGN

- State or Federal Approval
  - Protective of Uppermost Aquifer
- Minimum Technical Guidance (Requirements)
  - Composite Liner System and Leachate Collection
    - 1 FT of Prepared Subgrade (compacted soil), Geosynthetic Clay Liner (GCL), 60 mil HDPE Geomembrane Liner, Geocomposite drainage media, 1 FT protective cover soil.
    - Must Maintain <30 cm (12 inches) of Liquid Head
- Final Cover System
  - Vegetation, 18 Inches of Soil, Flexible Membrane Liner (FML), and Intermediate Cover Soil



LANDFILL DESIGN





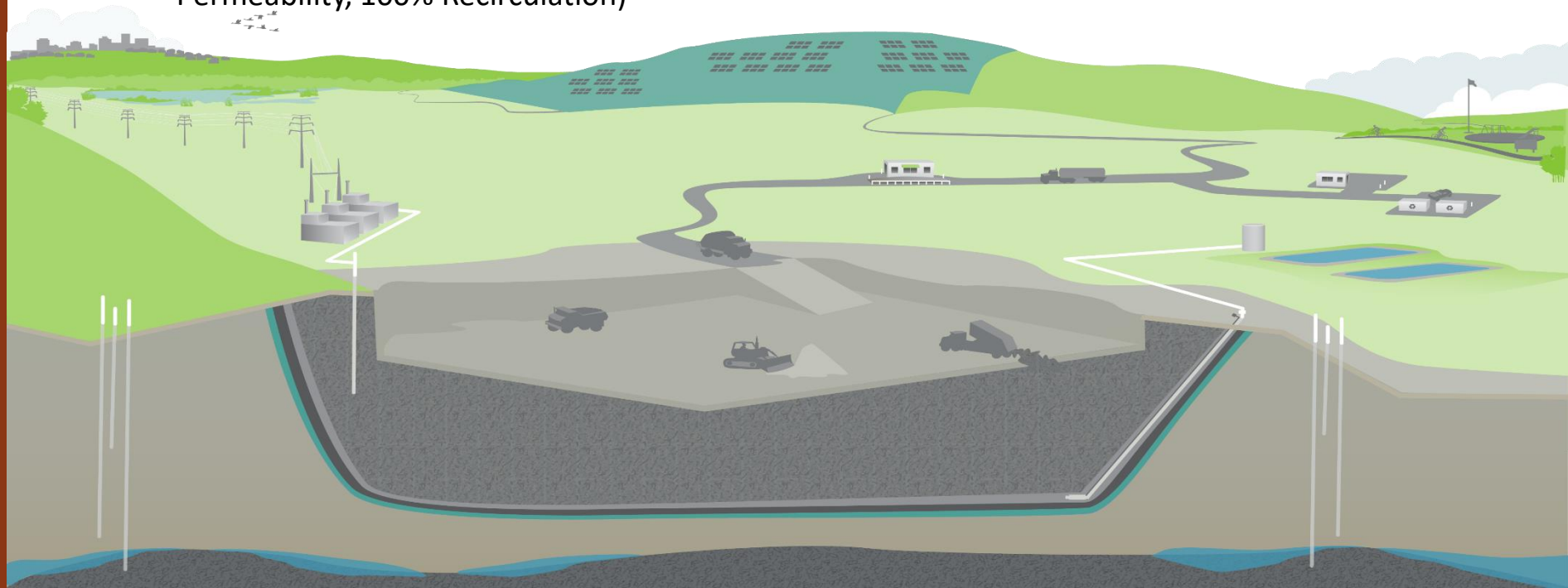
LANDFILL DESIGN

LANDFILL DESIGN

LANDFILL DESIGN

LANDFILL DESIGN & CONSTRUCTION

- Groundwater Monitoring System
- Liner System
- Site Drainage
- Leachate Collection System
  - HELP Modeling (Slopes, Drainage Lengths, Material Permeability, 100% Recirculation)
- Look at Alternate Drainage Media (i.e. Tire Chips, crushed glass)
- Leachate System Capacity
- Leachate Management Plan



03

CENTRAL DIVERSION/ TRANSFER STATION

CENTRAL DIVERSION/TRANSFER STATION

Diversion/Transfer Station

Construction anticipated for Q2 2024

- Anticipated opening Q3 2025
- Current topography
- Additional Diversion Facilities
- Design/Size
- Cut/Fill Ratio
- Location

CENTRAL DIVERSION/TRANSFER STATION

Diversion/Transfer Station

-Transfer Station

~20,000-30,000 sq ft

-Push Wall

~300 ft long

-Available acreage for additional diversion Facilities

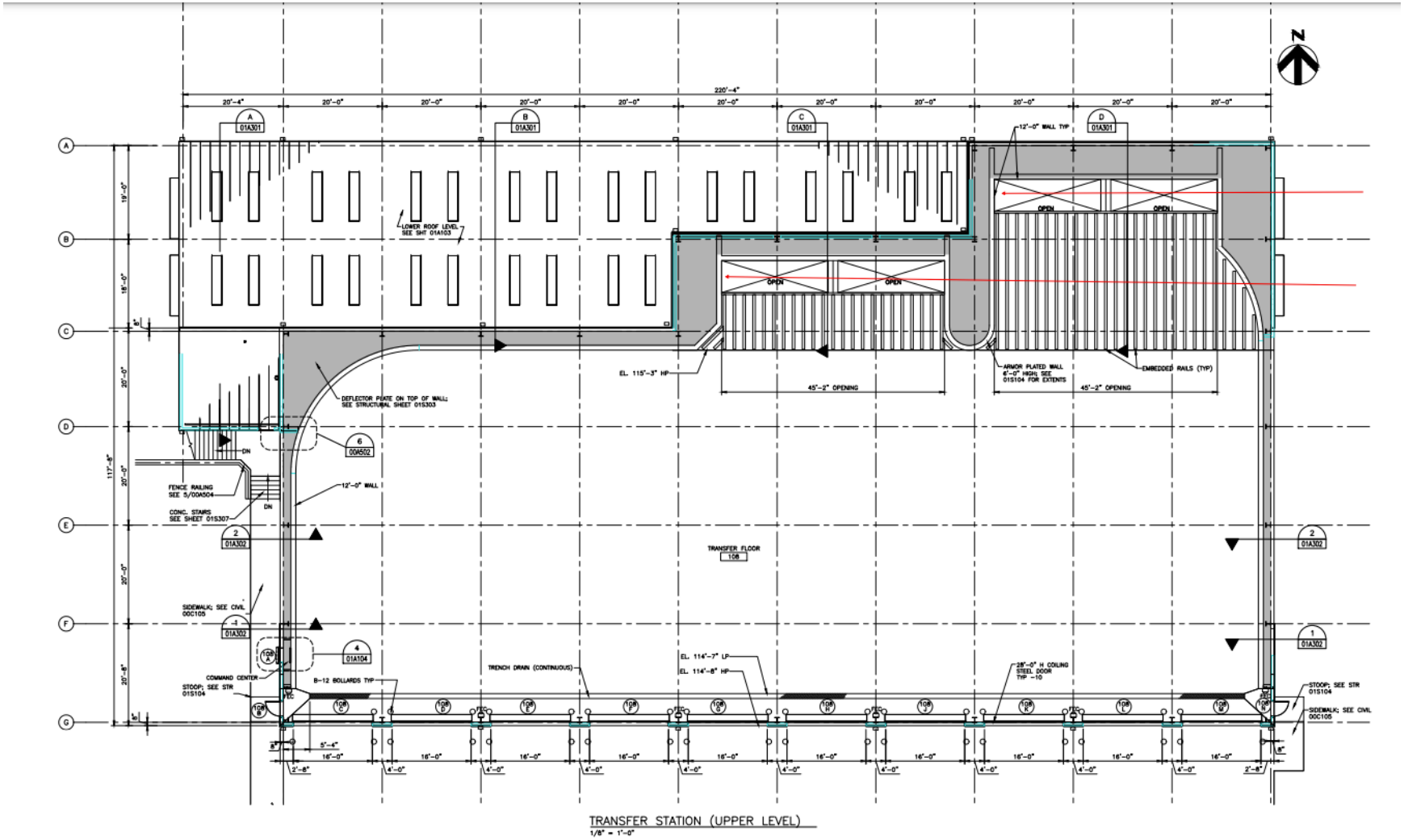
-Material Recovery Facility (MRF)

-Inbound/ Outbound Scales

-Similar traffic volumes and room for growth

CENTRAL DIVERSION/TRANSFER STATION EXAMPLE

CENTRAL DIVERSION/TRANSFER STATION EXAMPLE



CURRENT DIVERSION ESTIMATES BY THE TON

Estimated Diversion by Material Type (2022)	Tons
Single Stream Recycling	45,300
Green Waste	4,650
HHW	466
White Goods	460
Mattresses (2024)	250
Electronics	133
Tires	90

Total Tons Diverted:	51,349
Total Tons Landfilled:	347,660
Total Tons (Diversion and Landfill)	399,009
Estimated Diversion Rate:	13%

Material Breakdown	Units
Freon	2,350
Appliances	2,550
Tires	5,250
Green Waste	31,000 (CY)

04 FUTURE DIVERSION OPPORTUNITIES

FUTURE DIVERSION OPPORTUNITIES

Source: https://greeleygreenenergy.com/

Larimer County Water Master Plan

Update: November 14, 2023

Predecessor: Existing Conditions Report

TABLE 1. WATER AND GROWTH IN LARIMER COUNTY: BY THE NUMBERS

Population growth (Logan Simpson et. al., 2019)	56%	Projected growth in total population from 2017 to 2040
	343,853	Total population in 2017
	535,756	Projected total population in 2040
	12%	Projected growth in unincorporated areas from 2017 to 2040
	66,639	Unincorporated population in 2017
	74,554	Projected unincorporated population in 2040
	96%	Growth that will be absorbed by municipalities through 2040
Development potential (Logan Simpson et. al., 2019)	39,384 acres	Land designated as urban expansion areas[1]
	23,245 acres	Land designated as urban/rural interface areas[2]
Water supplies	43%	Water supplies that originate from the Colorado River
	57%	Water supplies that originate from local watersheds and aquifers
Water rights and well permits[3]	6,229	Water rights administered under the prior appropriation doctrine (first in time, first in right)
	24,299 cfs	Fully developed direct flow rights (absolute rights)
	32,180 cfs	Direct flow rights under development (conditional rights)
	600,321 ac-ft	Fully developed storage rights (absolute rights)
	521,977 ac-ft	Storage rights under development (conditional rights)
Water diversions[3]	228%	Increase in water diversions between 1980 and 2020
	2,260,405 ac-ft	Water volumes diverted for use in 2020
	308	Structures actively diverting water in 2020
Agricultural land	47%	Decline in irrigated agricultural lands between 1987 and 2020
	104,063 acres	Irrigated agricultural land in 1987
	55,206 acres	Irrigated agricultural land in 2020
	8%	Farmland irrigated by sprinkler technology in 1987
	38%	Farmland irrigated by sprinkler technology in 2020
Water providers	124	Centralized public water systems that provide safe drinking water to residents and businesses
	385,559	People served by centralized public water systems in 2020[4]
	13,090	Water wells
	10,589	Homes reliant on groundwater wells
	47	Irrigation, ditch, and reservoir companies operating in Larimer County that deliver non-potable (raw) water
	9	Community water systems that publish their annual water demands and forecast future water demands
	25-90%	Projected growth in water demands at community buildout

KEY WATER RISKS AND VULNERABILITIES

While Larimer County has notable water resiliency successes (including excess treatment capacity, water sharing and interconnection agreements among providers, improving irrigation efficiency, and improved consideration of riverine health), this report focuses on important risks and vulnerabilities related to reliable water supplies and preservation of agricultural land that must be considered and mitigated. In no particular order, they include:

- All water supplies are at risk of reduced water availability and poor water quality due to natural hazards such as drought and wildfires.
- Water used in Larimer County that originates from the Colorado River could be curtailed during a compact call[5].
- Non-tributary groundwater wells[6] are generally not monitored and reported, presenting a gap in water use information.
- Direct flow and storage rights in Larimer County could double in the future, putting additional strain on available water resources. Historical diversions have doubled over the period from 1980-2020.
- Weather trends show warming temperatures and periods of low precipitation, which reduce water availability.
- Based on water source alone, the water in Larimer County has relatively low reuse potential, as Colorado-Big Thompson return flows are reserved for agricultural users downstream and native supplies cannot be reused without additional water court actions. Windy Gap and other transmountain water can be reused.
- Agricultural water rights continue to be converted to municipal water rights, diminishing agricultural lands. While water-sharing pilot projects are occurring, water sharing efforts are needed on a larger scale to overcome buy-and-dry.
- Some community water systems are experiencing water delivery limitations. Service pressures are expected to grow as water demands are projected to increase from 25-90% through community buildout.
- There is a trend toward water supply diversification, but some providers remain heavily reliant on Colorado-Big Thompson water.
- Many community water systems report the need for more raw water storage to increase the yield of their water supplies. Many providers are actively participating in new storage reservoir and reservoir expansion projects, which are expensive and take many years to complete the permitting process.
- Community water systems are more connected than may be apparent, given they are legally distinct entities with their own water rights and service areas. These interconnections (including common water sources, joint infrastructure, and intergovernmental agreements) create the potential for both system resiliencies and cascading risks.
- Nearly all community water systems report aging or insufficient infrastructure, underscoring the need for water system infrastructure investment to ensure future water supply reliability.
- Information and planning gaps remain. These gaps include a lack of publicly available water information and missing (or outdated) long-range plans.

Furthering Strategic Goals

- Improve long-term planning for water supply in unincorporated areas,
- promote water-sharing and water conservation strategies to preserve agriculture and sustain water supplies,
- identify and address risks and sustainability, and
- prepare responsive land use policies and standards

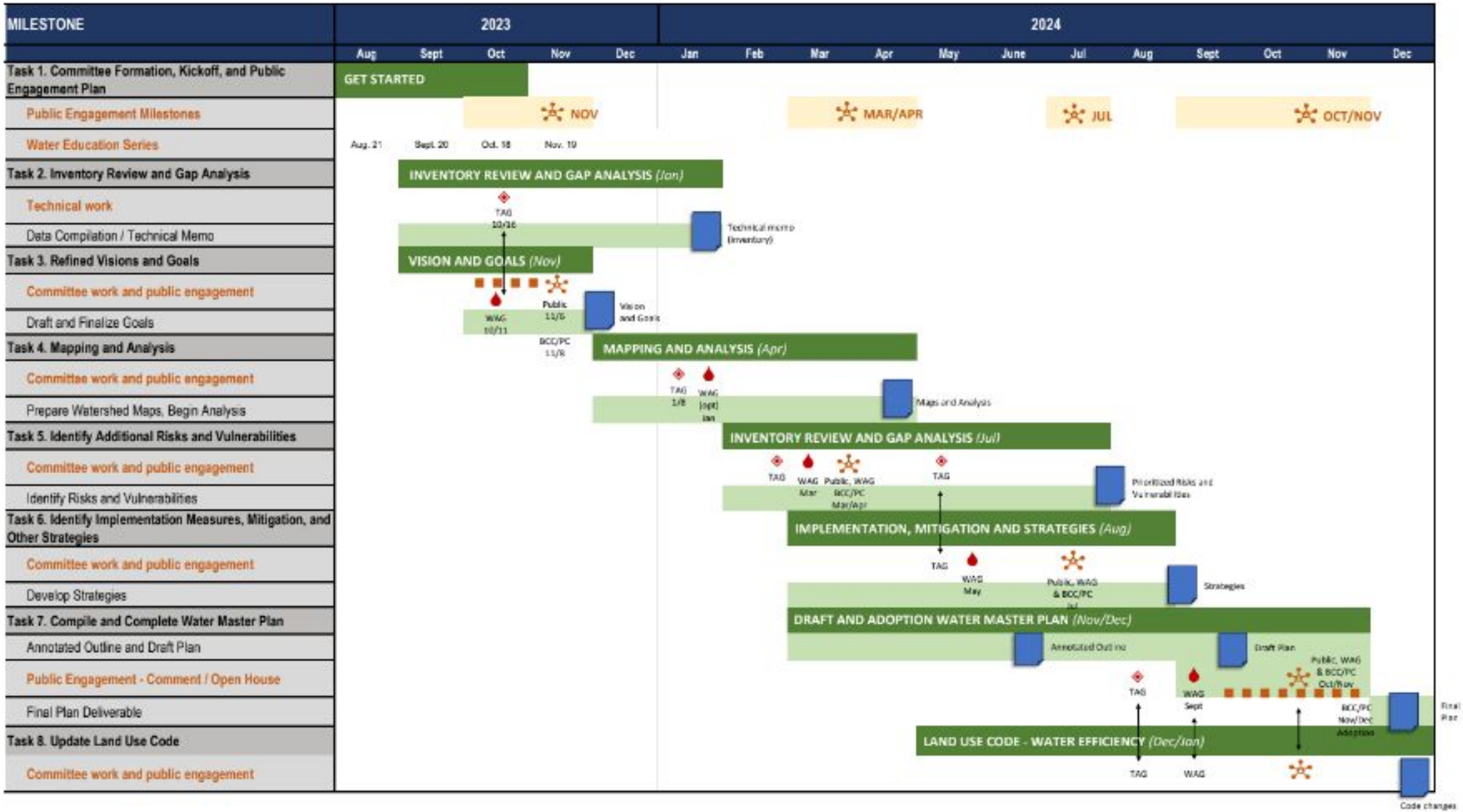
Expected Outcomes

- WMP will become an element of the LC Comprehensive Plan bolstering strategic planning for water, stormwater and environmental flows.
- Robust public engagement (providing information to public, meaningful participation of interested parties, seeking feedback prior to plan approval)
- Webpage https://www.larimer.gov/planning/water

Larimer County Water Master Plan - Process Schedule

Updated 9/21/23

Robust Public Outreach



Participants

Larimer County Staff

SWCA Environmental Consultants

TAG = Technical Advisory Group (water managers and staff from LC and larger municipalities)

WAG = Water Advisory Group (other interested parties including ESAB, agriculture, outdoor recreation, NFPs)

Next WAG meeting via Zoom
Wednesday, January 10th, 2024, 3:30 - 5:00 PM MST.

WAG Meetings

October 11th

Establish Common Vision and Goals

- Identify current risks to water systems and supply
- Identify priority outcomes for the plan
- Identify data gaps

November 6th

Vision and Goals

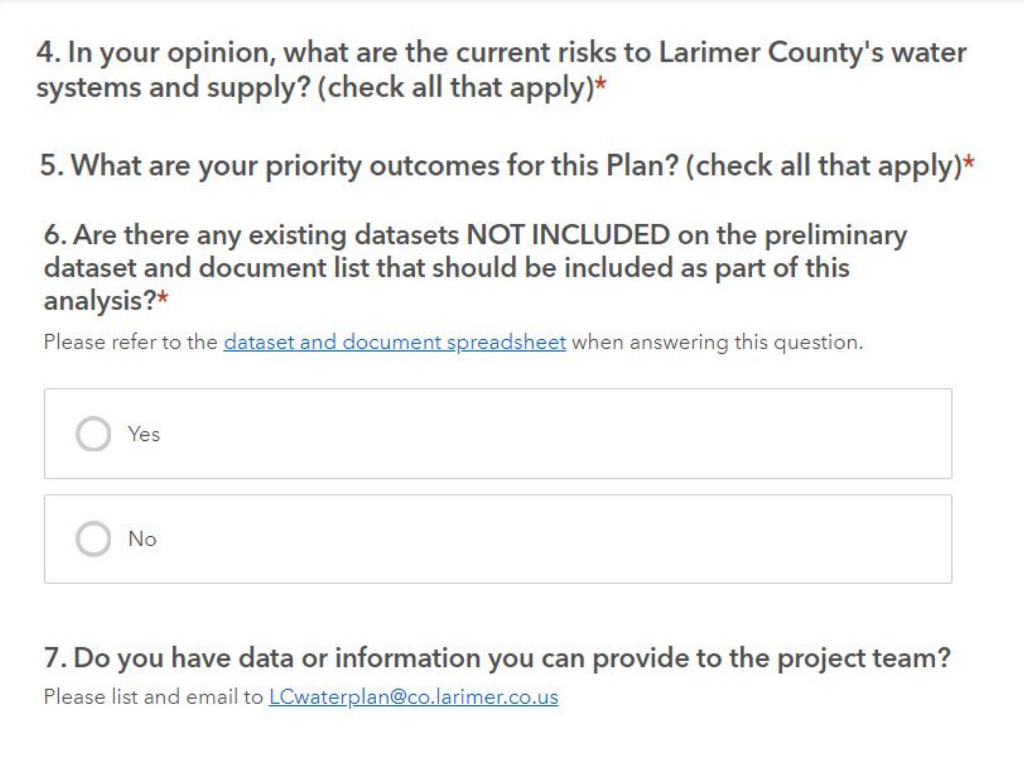
-TAG Reps

-Facilitator: SWCA

- 4 to 5 vision and goal questions

Seeking Public Input

Please see QR Code if you are interested in commenting.



4. In your opinion, what are the current risks to Larimer County's water systems and supply? (check all that apply)*

5. What are your priority outcomes for this Plan? (check all that apply)*

6. Are there any existing datasets NOT INCLUDED on the preliminary dataset and document list that should be included as part of this analysis?*

Please refer to the dataset and document spreadsheet when answering this question.

- Yes
- No

7. Do you have data or information you can provide to the project team?

Please list and email to LCwaterplan@co.larimer.co.us

Questions/Suggestions?