RENEWABLE PLACER: WASTE ACTION PLAN

Building Sustainable Materials Management and Circular Economics into a Public Agency Solid Waste Management System

Janet Goodrich, Jacobs
Stephanie Ulmer, WPWMA
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Jacobs Challenging today. Reinventing tomorrow.

WESTERN PLACER
WASTE MANAGEMENT AUTHORITY

Presenters

Janet Goodrich, P.E.
Waste Solutions Global Technology Leader
Public Environmental Portfolio Sales Leader
Jacobs
Sacramento, CA

Stephanie Ulmer
Environmental Resources Specialist
Western Placer Waste Management Authority
Roseville, CA

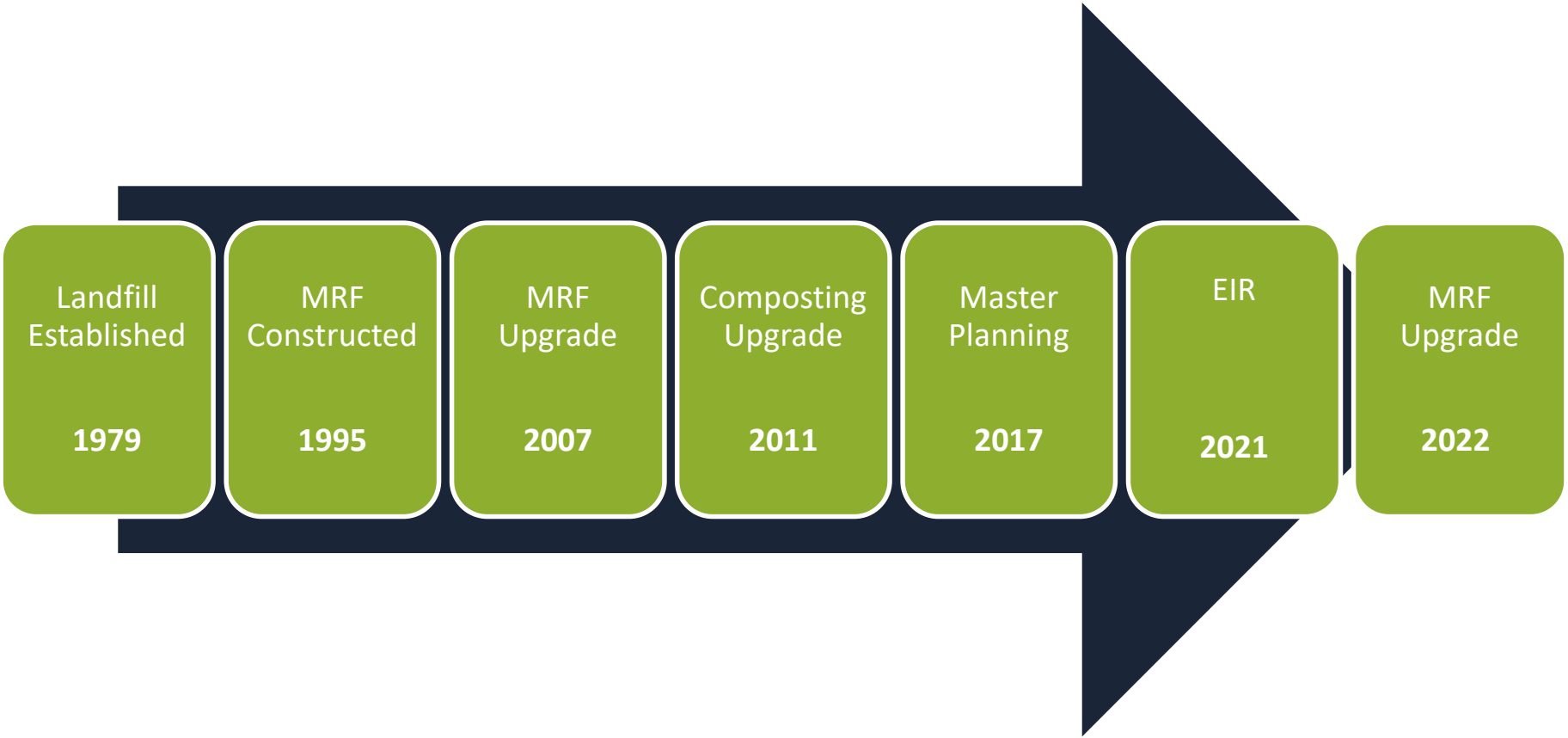
WESTERN PLACER WASTE MANAGEMENT AUTHORITY

Since 1979, the WPWMA facility has provided comprehensive solid waste management services to western Placer County:

- Mixed waste materials recovery facility (MRF)
- Sanitary landfill
- Public waste drop off
- Recycling buyback center
- Composting
- Construction and demolition recovery

WPWMA EVOLUTION

The WPWMA has adapted its services
to increase material recovery and recycling
as regulations and jurisdictional needs have evolved.



WASTE ACTION PLAN DRIVERS

Collapse of international recycling markets

Doubling of Placer County's population over next 20 years

WPWMA has outgrown its existing facilities

Planned changes to surrounding land uses & shift to urban environment

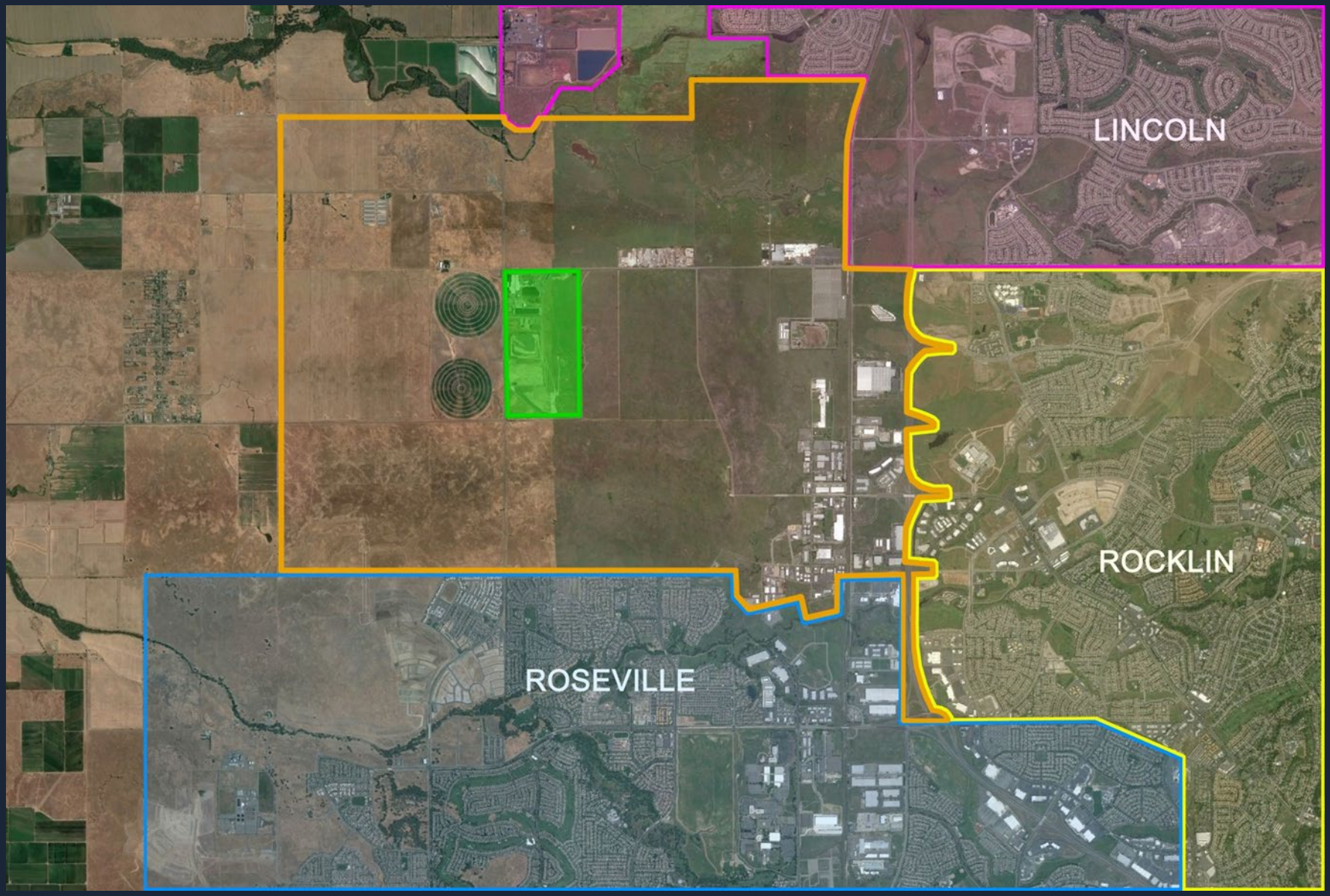
Regulation requiring 75% organics diversion by 2025

WPWMA PROPERTIES

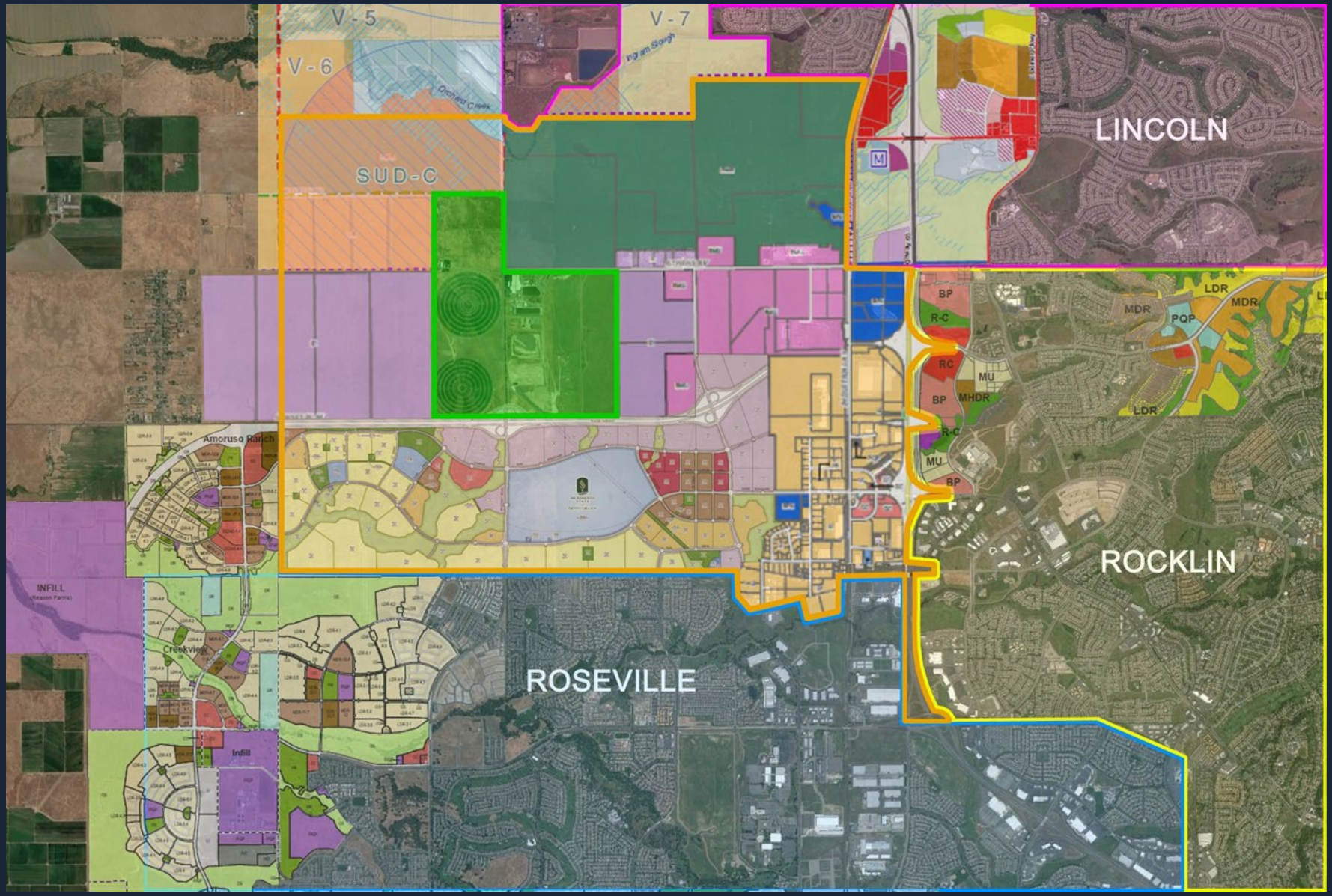
Facility Constraints

- At operational limits with composting and C&D operations
- Exceeding operational limits of public tipping area
- Area designated for future landfill cells being used for other diversion activities

CURRENT LAND USE



PROPOSED LAND USE



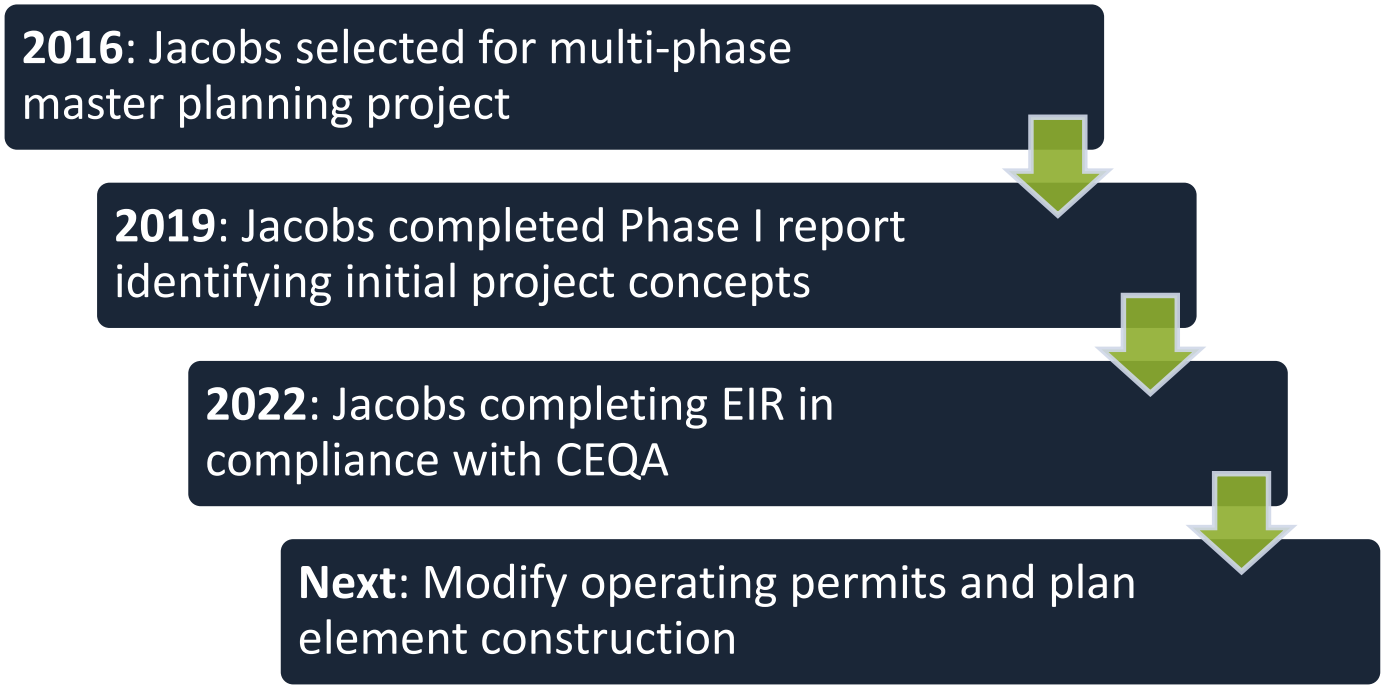
PLAN GOALS

This presentation provides a case study of how these components were addressed in the master planning process and how we are proceeding with engagement to facilitate synergistic industries that will benefit our region

- Ensure compliance with expanding regulations
- Increase facility recycling and landfill diversion
- Provide capacity to support current and future population and development
- Provide a safeguard for future generations by maintaining local control and stable rates
- Enhance operational compatibility with current and future neighboring land uses
- Create opportunities for industrial innovation and economic growth

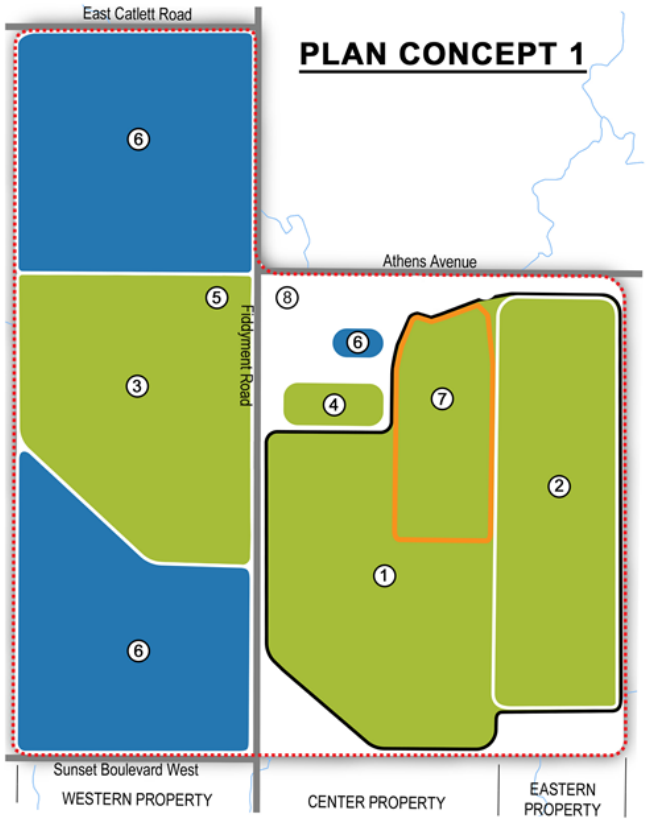
WASTE ACTION PLAN

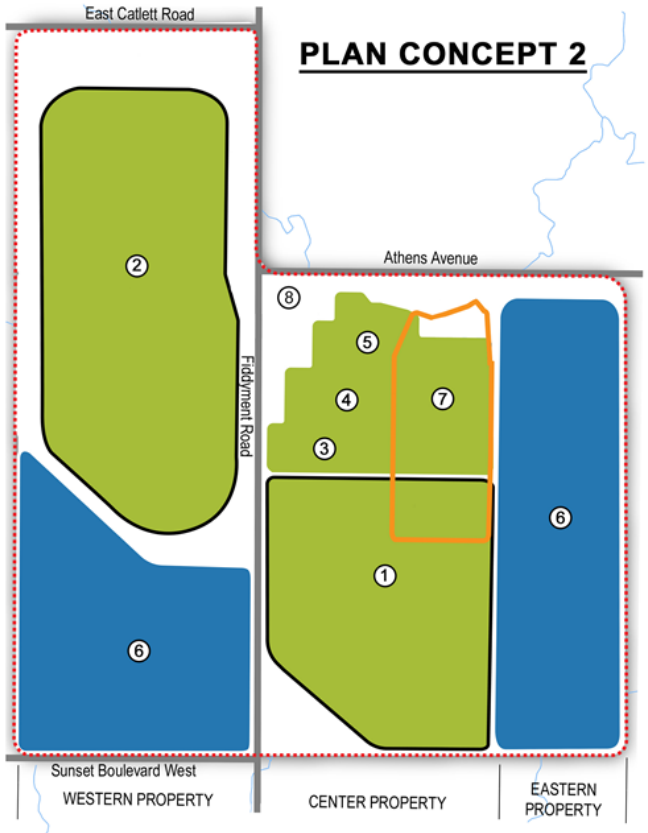
Timeline:



Project adds renewable energy, compatible manufacturing, and other circular economy components in addition to resizing and reengineering several existing operations

PLAN CONCEPTS





1. EXISTING LANDFILL
2. NEW LANDFILL (AS NEEDED)
3. ORGANICS MANAGEMENT AREA
4. CONSTRUCTION AND DEMOLITION DEBRIS PROCESSING
5. SELF HAUL UNLOADING AREA
6. COMPATIBLE TECHNOLOGIES (PILOT AND COMMERCIAL SCALE)
7. EXCAVATE AND RELOCATE WASTE
8. EXISTING MRF

EXECUTING THE WASTE ACTION PLAN

Advance the Plan Concepts through:

Outreach and Stakeholder Engagement

- Convened Member Agency Advisory Committee and Stakeholder Working Group

Partnerships

- Initiated academic partnerships
- Developing process for piloting and developing technologies
- Developing structure for compatible manufacturing project implementation

Permitting

- Complete CEQA for programmatic approval of the increased diversion, pilot studies, academic research, and compatible manufacturing components
- Permit and build project components in a phased manner

Facility and Operational Changes

- Initiate near and long-range adjustments to reflect implementation

CREATING A CIRCULAR ECONOMY

PLAN CONCEPT 1

LEGEND

Solid Waste Project Elements

1. Current And Future Landfill
2. Waste Excavation Area
3. Landfill Expansion Area
4. Compost Area
5. Construction & Demolition Area
6. Public Waste Drop-Off

Complementary/Programmatic Elements

7. Compatible Manufacturing
8. Pilot Study Area
9. University Research Area
10. Landfill Gas To Compressed Natural Gas Area

Supporting Elements

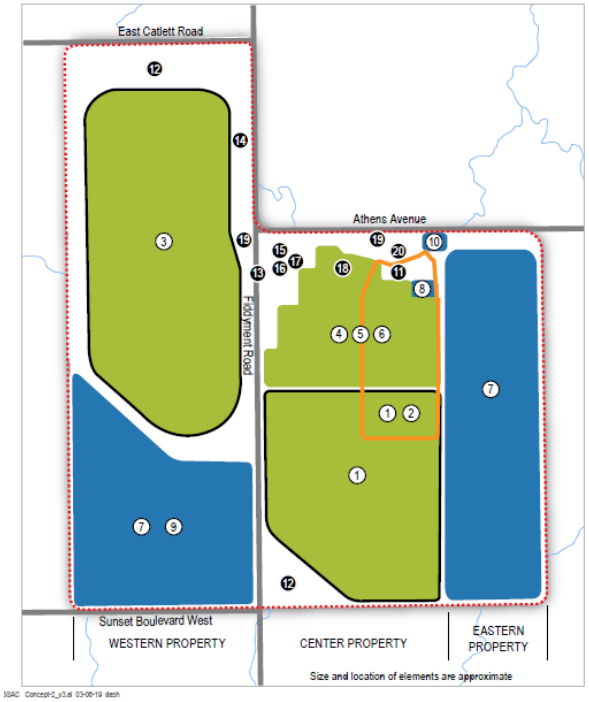
11. Recovered Materials Storage Area
12. Stormwater Ponds
13. Road Crossing
14. Maintenance Areas
15. Administrative Building Areas
16. Parking
17. Materials Recovery Facility
18. Household Hazardous Waste Facility
19. Entrances
20. Landfill Gas-to-Energy Plant

Project Boundary
Landfill Footprint
Waste Excavation Area

Approximate scale in miles

Figure 4. Plan Concept 1

JACOBS



PLAN CONCEPT 2

LEGEND

Solid Waste Project Elements

1. Current And Future Landfill
2. Waste Excavation Area
3. Landfill Expansion Area
4. Compost Area
5. Construction & Demolition Area
6. Public Waste Drop-Off

Complementary/Programmatic Elements

7. Compatible Manufacturing
8. Pilot Study Area
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10. Landfill Gas To Compressed Natural Gas Area

Supporting Elements

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Project Boundary
Landfill Footprint
Waste Excavation Area

Approximate scale in miles

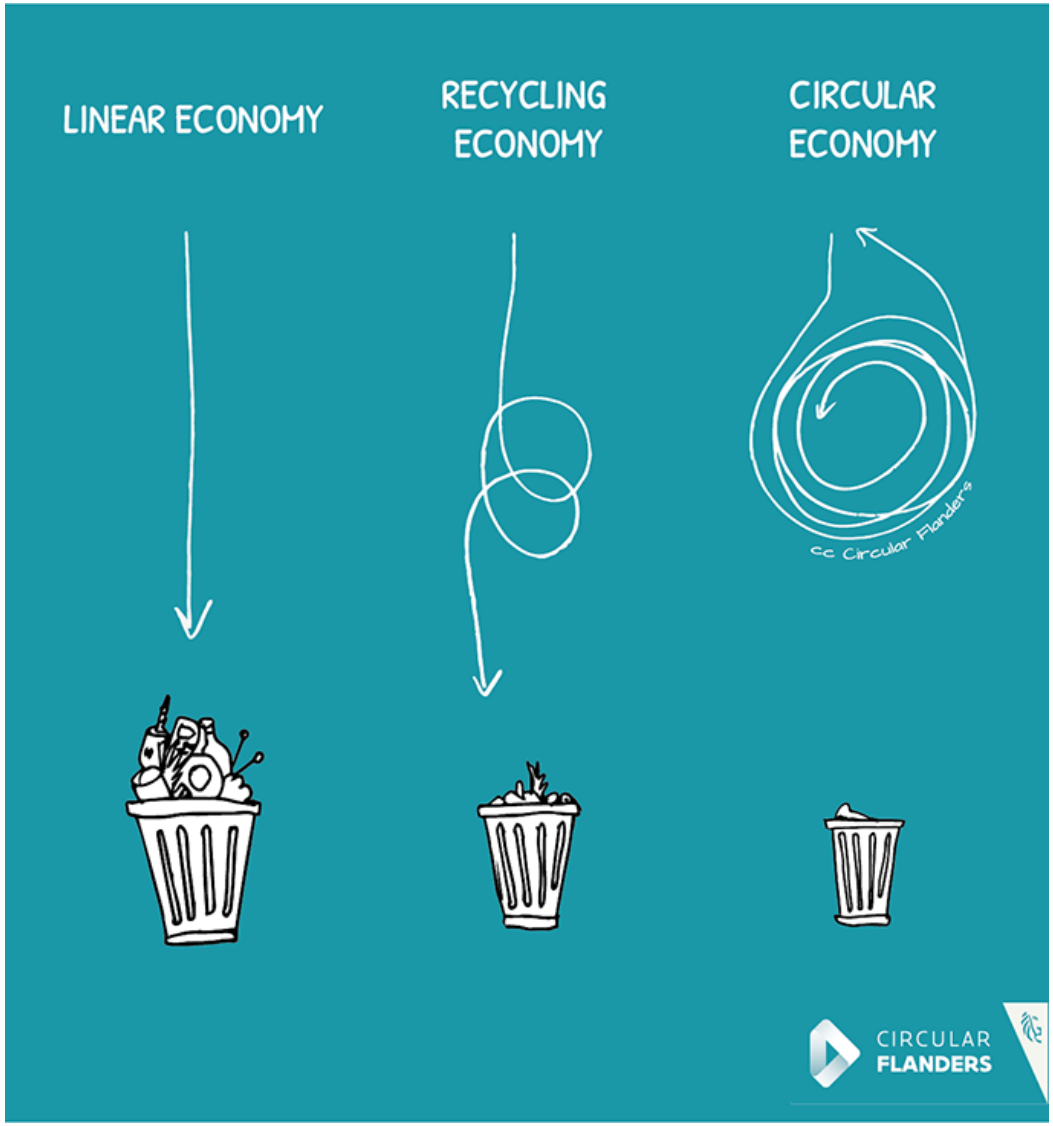
Figure 5. Plan Concept 2

JACOBS

Complementary/Programmatic Elements

7. Compatible Manufacturing
8. Pilot Study Area
9. University Research Area
10. Landfill Gas To Compressed Natural Gas Area

WHY CIRCULAR ECONOMY



US Chamber of Commerce Foundation:

"…a circular economy is a **restorative model** that decouples economic growth from natural resource use, and emphasizes longevity, reuse, and recycling."

"…shifting to the circular economy could unlock **$4.5 trillion** in global economic growth by 2030."

STAKEHOLDER ENGAGEMENT

Member Agency Advisory Committee

- Utilize Member Agency Advisory Committee to refine implementation approaches, schedule, and project
- Utilize Member Agency Advisory Committee to build consensus with member agencies and provide communication conduit at staff level

Stakeholder Working Group

- Utilize Stakeholder Working Group to advance information distribution and gather stakeholder needs to inform project selection and implementation
- Consider future of Stakeholder Working Group past initial project selection

PARTNERSHIP OPPORTUNITIES

Arizona State University

County of Placer

Placer County Regional
Economic Development Group

Sacramento State

Celebrating Over 40 Years of Service
WPWMA
Est. 1978

William Jessup University

Sierra College

RISN Resource Innovation and Solutions Network

CASE STUDY: ASU & CITY OF PHOENIX ACCELERATOR FOR CIRCULAR ECONOMY TECHNOLOGIES

City of Phoenix's Role

- Provides access to waste streams for pilot testing
- Develops commercial contracts for successful technologies
- Provides space and power for technology demonstration projects

ASU's Role

- Manages RISN, the Incubator / Accelerator for early stage waste-to-production innovation
- RISN team manages Demonstration Projects, Technology Assessments, Business Monitoring

Economic Impact

(22 projects launched)

- 19 companies incubated
- 74 jobs created
- 55 student internships
- $3.86M capital raised
- $5.1M revenue generated
- 7 patents filed

ACADEMIC PARTNERSHIPS

- Summer 2021 – MSA with CSUS and CCIE for attracting, assisting, and mentoring businesses that intend to beneficially utilize recyclable materials recovered at the WPWMA's facility

- CCIE goal of attracting 15 companies/technologies by 2023

- CCIE and Jacobs worked with ASU RISN network to share best practices and processes

CARLSEN CENTER

Circular Economy Hub

Innovating waste to repurposed value

WESTERN PLACER

Overview: The Carlsen Center for Innovation and Entrepreneurship (CCIE) is partnering with the Western Placer Waste Management Authority (WPWMA) to establish initiatives and programs to attract, retain, and grow companies/technologies that will utilize WPWMA feed stock to develop new products. By scaling companies/technologies that utilize WPWMA waste streams they will be able to decrease their carbon footprint and reach CA climate goals set by SB 1383.

Goals: The CCIE and WPWMA have set an initial goal of attracting ***15 companies/technologies*** to the opportunity with ***2 to 3 of them running into a pilot*** on the WPWMA facility by 2023.

Partnership Opportunities: The CCIE will leverage its programmatic base and network to launch, establish, and grow four core partnership opportunities.

- **Pitch Competition (2021 - 2022):** The pitch competition will serve as an on-ramp to attract companies and technologies to WPWMA. The CCIE will be the programmatic expert and main marketing engine to attract companies while taking them through the market research and pitch deck crafting process. WPWMA will offer resources (Cash, Contracts, Space on Site, etc.) as an incentive for companies to compete.
- **Incubator (2022 -2023:** Post pitch competition the winners and other selected companies/technologies will be accepted into an incubator at WPWMA where they can utilize the facility and waste streams to further build, test, and refine technologies. The CCIE will support them through mentorship and business fundamentals (customer development, marketing, monetization strategy, etc.). This incubator will have a rolling acceptance for new companies and year over year will accept new pitch competition teams.
- **Accelerator (2023 – 2024):** Those in the incubator program that are in need of scale capital to grow their proven customers and technology will proceed into a Circular Economy Accelerator. The accelerator will be cohort-based and as a member they will receive mentorship, training, and business support in helping them fill business gaps and prepare for funding.
- **Research (2022):** In connection with Sacramento State University as a resource to both the Incubator and Accelerator, the CCIE will partner with the Sustainability Center and various Colleges on campus to further research these technologies and provide hands-on learning for students from a business, science, and technology lens.

Long Term Vision: This partnership is as a launchpad in establishing the CCIE and Sacramento State as a hub for innovation around the circular economy. The vision of this work includes two major components.

- **RISN Hub:** Joining the global network RISN as an affiliate hub will connect us to best practices in circular economy work as well as legitimize our programmatic efforts in this space. Lastly, it will connect us to a global network of entrepreneurs, innovators, investors, researchers, and more.
- **Placer Ranch Center:** Connecting this effort to the Sacramento State Placer Ranch Center is a key component going forward. The Placer Ranch Center aims to take a thematic cluster approach two of them aligning strongly with this work are *resource management and making*. The connection is mutually beneficial as it will increase student success and grow our regional economy.

"The goods of today are the resources of tomorrow at yesterday's resource prices" – Walter Stahel

COMPATIBLE TECHNOLOGIES

Conventional Biomass Facility

- Combust urban and forest woody waste to produce electricity

Cutting Edge Biomass Facility

- Gasify urban and forest woody waste and other organics to produce bio-oil, bio-diesel, hydrogen, CHP, CNG fuel, electricity, etc.

Large scale solar arrays

Chemical recycling of plastics

- Convert used plastics to near virgin-grade polymers, high-value fuels, etc.

Textile recycling

- Recycle old clothes to create new garments, building insulation, etc.

Glass Processing

- Produce new wine bottles, fiberglass, construction materials, etc.

PERMITTING – PRESENT & FUTURE

- CEQA completed to allow up to 10,000 SF of compatible manufacturing with impacts similar to industrial
- Final EIR scheduled for Certification this summer
- Designed to allow for fast track of compatible manufacturing projects
- WPWMA will permit facility changes as they are implemented

PROJECT RESOURCES

Jacobs project visualization tool

https://renewableplacer.com/interactive-tool/

Waste Action Plan information and documents

https://renewableplacer.com/

Q&A

Thank you for your time and attention!

Janet Goodrich

Janet.Goodrich@jacobs.com

Stephanie Ulmer

sulmer@placer.ca.gov