Grass Straw BioEnergy Facility Project

A partnership of the

Oregon Seed Council
Oregon Department of Agriculture
Lane County
Lane Council of Governments

Project Business Plan

- Funders
  - Department of Ag & OSC
  - Department of Energy
  - Energy Trust of Oregon
- Seeking In-kind Services
- Elements of Plan Include
  - Site Issues and Infrastructure (needs and impacts)
  - Technology and Design
  - Feedstock or Resource Analysis
  - Product and Commodity Sales
  - Construction and Project Management
  - Project Finance
  - Production and Operations
  - Community Presence

Project Team

- Oregon Seed Council
- Lane County Community & Economic Development
- Lane Council of Governments
- Resource Innovations, Institute for a Sustainable Environment, UO
- Novus Energy Group
- Essential Consulting Oregon
- Trillium Fiber Fuels
- Good Company
- Lane MicroBusiness
- Northwest Cooperative Development Center
- Sylvatex BioFuels
- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Energy
- Oregon Economic Revitalization Team
- USDA Agricultural Research Service

Waste to Energy Studies Undertaken

- Collection and Transportation Costs of Biomass
- Identified: Location, Quantity, Owner, Cost to Acquire, Current Use:
  - Grass Straw, Food Waste, Woody Biomass
- Technologies Overview and Bench Scale Tests
  - Anaerobic Digestion (bio-gas to electricity)
  - Cellulosic Ethanol (vehicle fuel)
  - BioBricks (heat)
  - Pyrolysis (bio-oil for heat and fuel)
- Facility Siting Issues
- Financial Models for Facilities

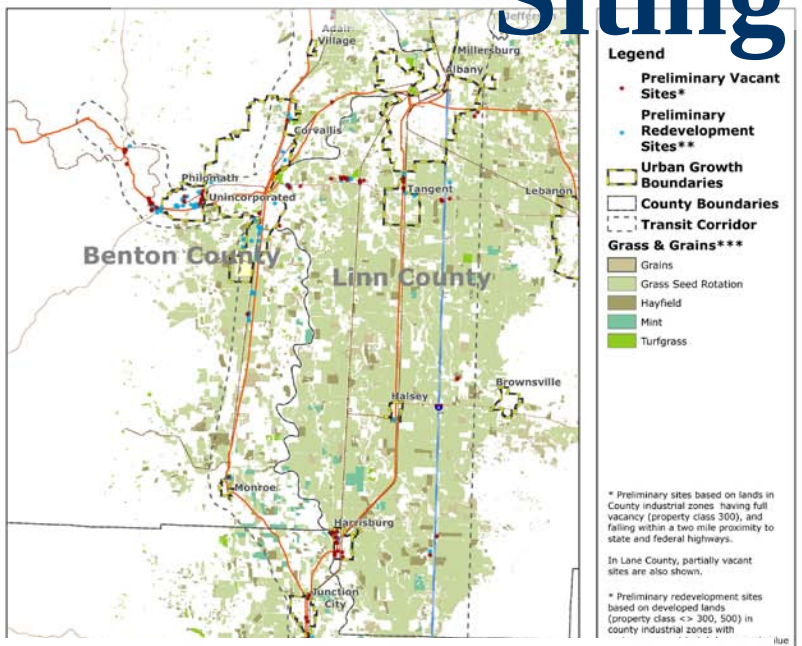
Study Recommendations

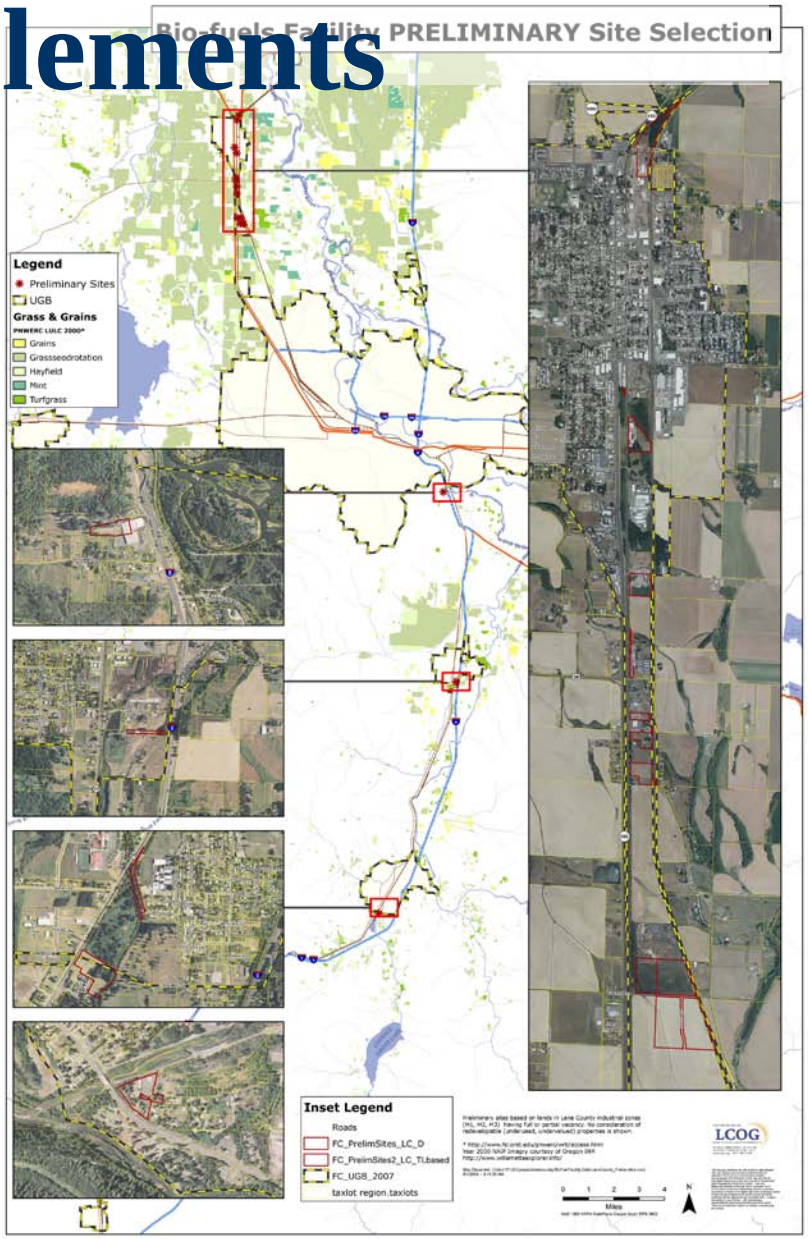
- Develop a business plan and seek funding for a “BioEnergy Facility” where local and regional agricultural and municipal organic wastes can be processed, through a variety of integrated conversion technologies, to produce high-value, clean, renewable energy, biofuels and green bio-products.
  - The Park should be right-sized for the community it is sited in;
  - The Park should be a model for similar projects;
  - Project Development team should include growers, government and private sector.

BioEnergy Facility Model

- The BioEnergy Facility will host private companies that use green technologies to process local and regional agricultural and municipal organic wastes into high-value, clean, renewable energy, biofuels and other bio-products.
- The Facility would convert several existing waste streams (grass straw, woody biomass, municipal organic wastes and other feedstocks) to electricity, cellulosic ethanol, and bio-bricks.

Summary Findings – Siting Elements

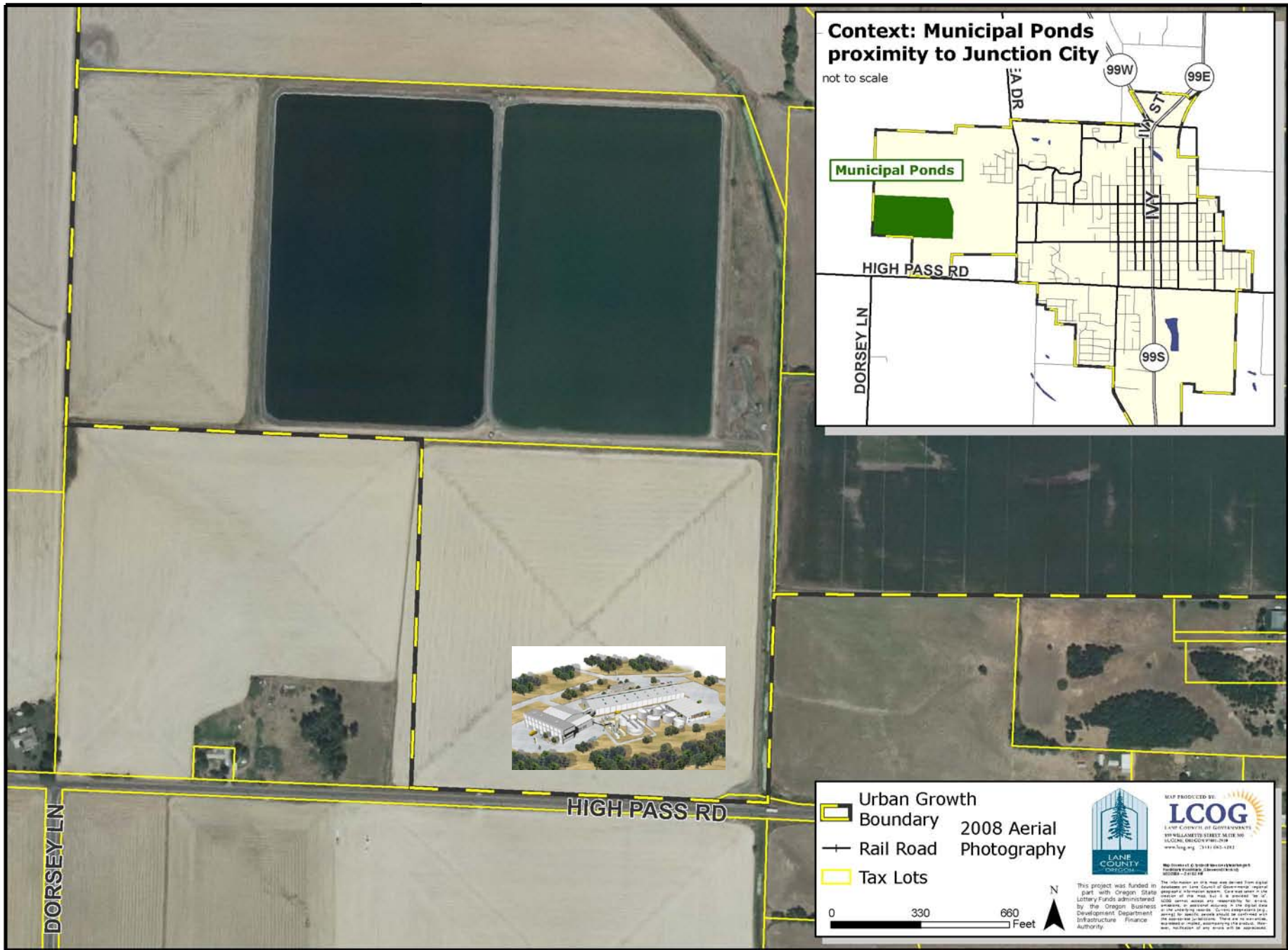




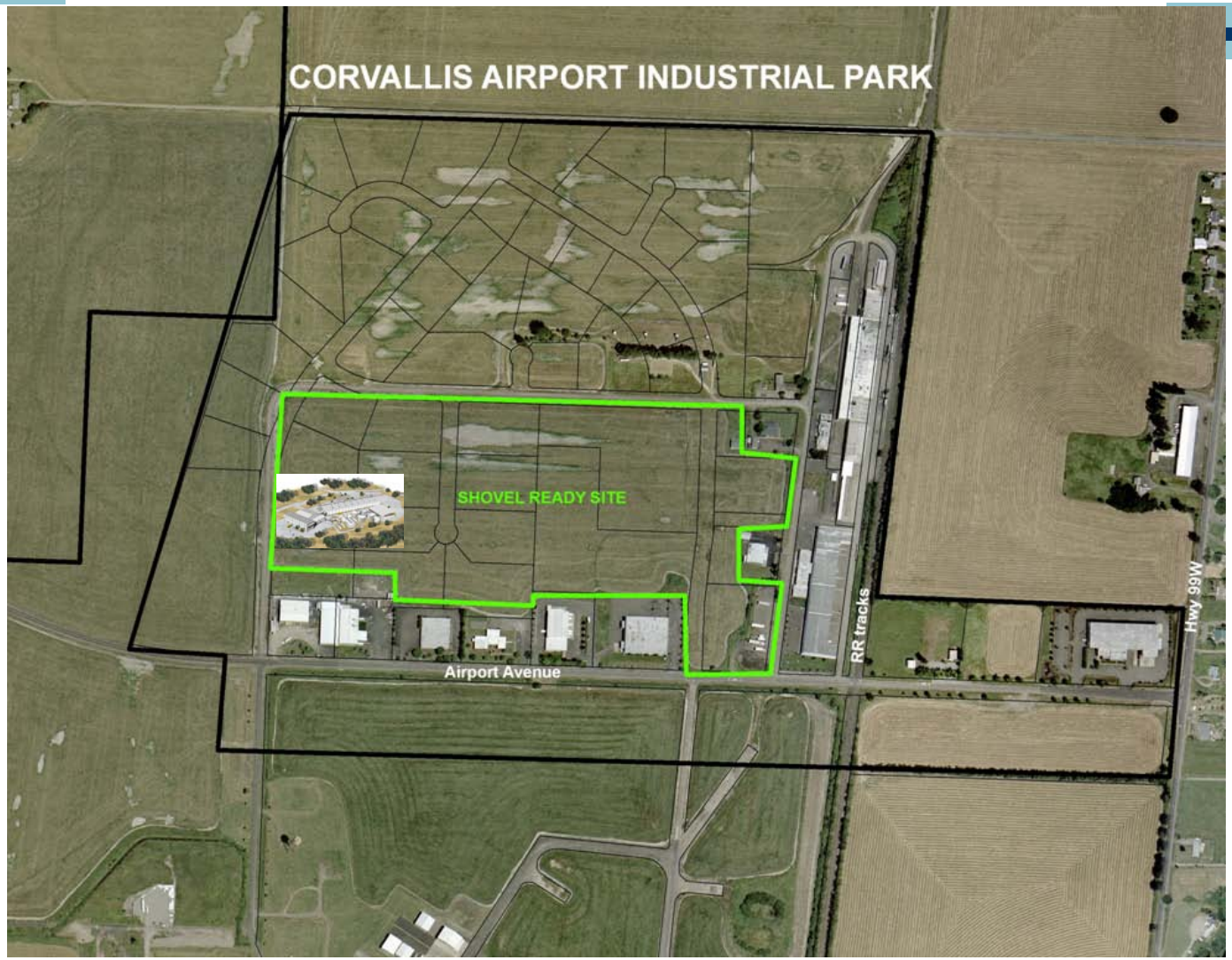
Recommendations - Best Initial Locations

- Specific sites/areas where a project should be focused:
  - Lane County - Junction City
  - Benton County – Corvallis
  - Marion County – Salem
  - *Metro Area – Aurora/Canby area*
- Reasons include: Opportunity for public/private partnerships.
- Sites meet most project established criteria

Junction City Municipal Ponds



Corvallis Industrial Park



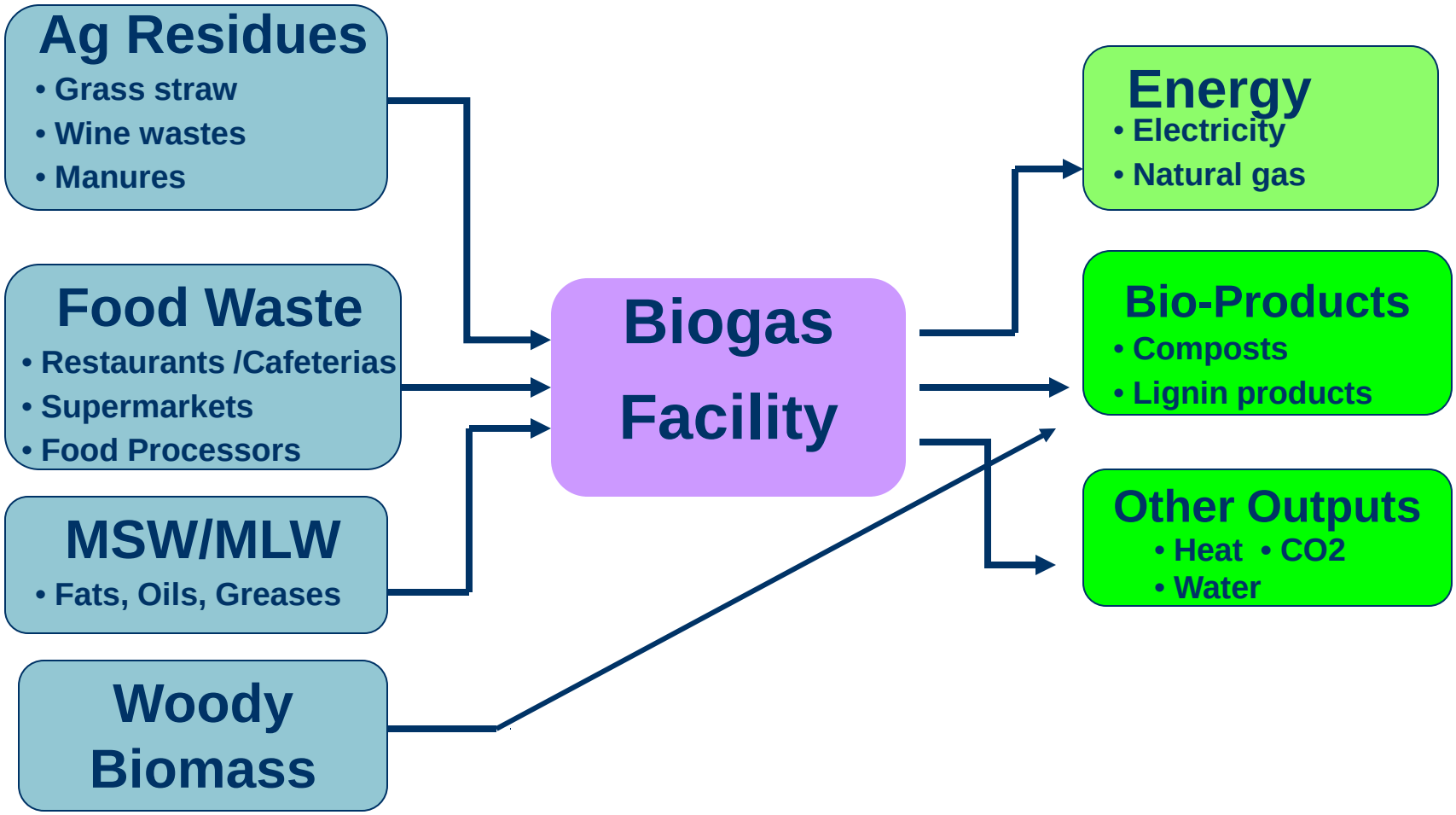
Canby Industrial Park

Salem Industrial Park

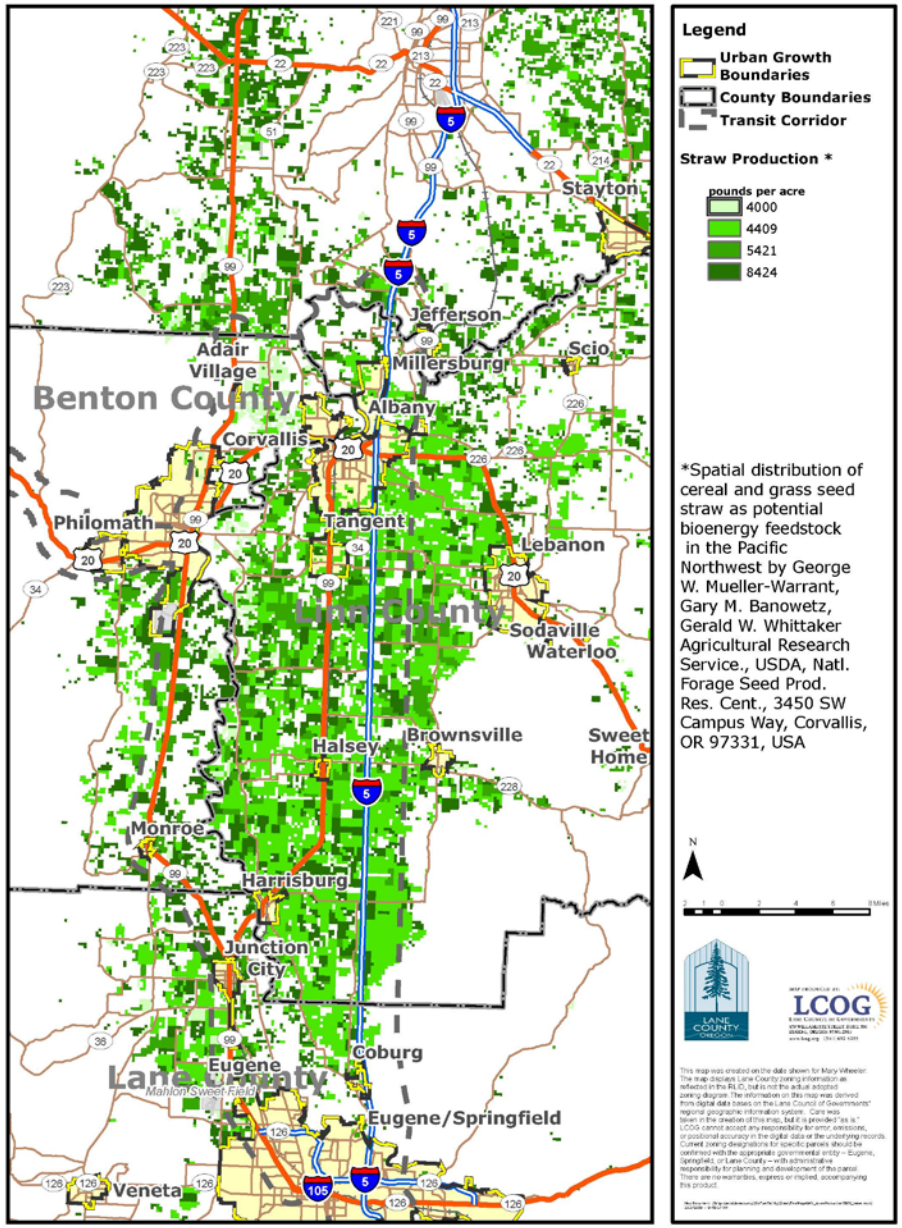
BioEnergy Facility Technologies

- Biogas Plant – 3MW to 5MW year
  - Electricity Generation – Sold to the grid
  - Co-Generated Heat – Sold to on-site businesses
  - Composts – Sold to regional market
  - Ag Nutrients– Sold to regional ag. growers
  - Grass Straw Use: 15,000 tons/y – 50,000 tons/y
  - Food Waste Use: Use: 15,000 tons/y – 50,000 tons/y

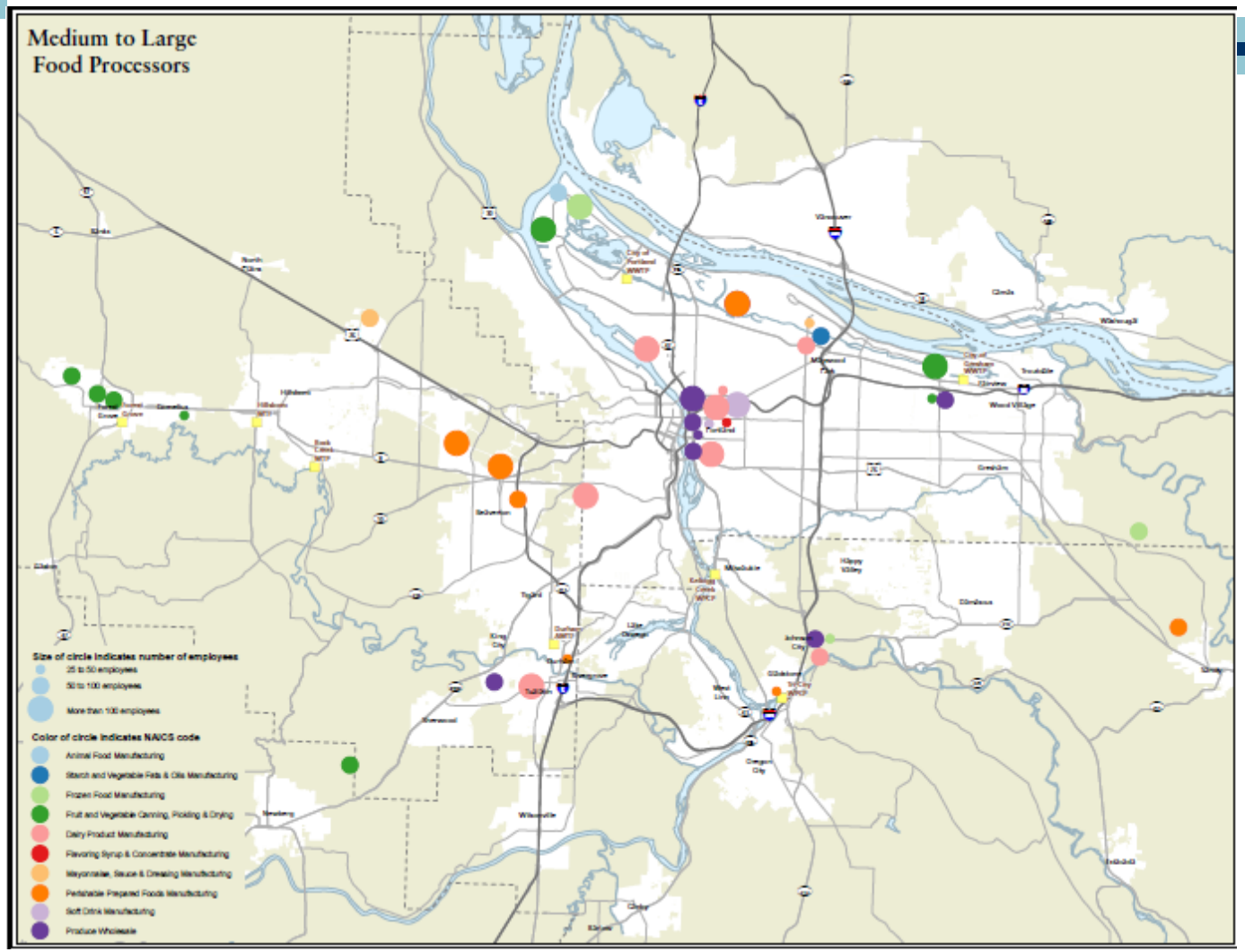
Potential Inputs and Products



Willamette Valley Straw Production 2006



Metro Food Waste Processors

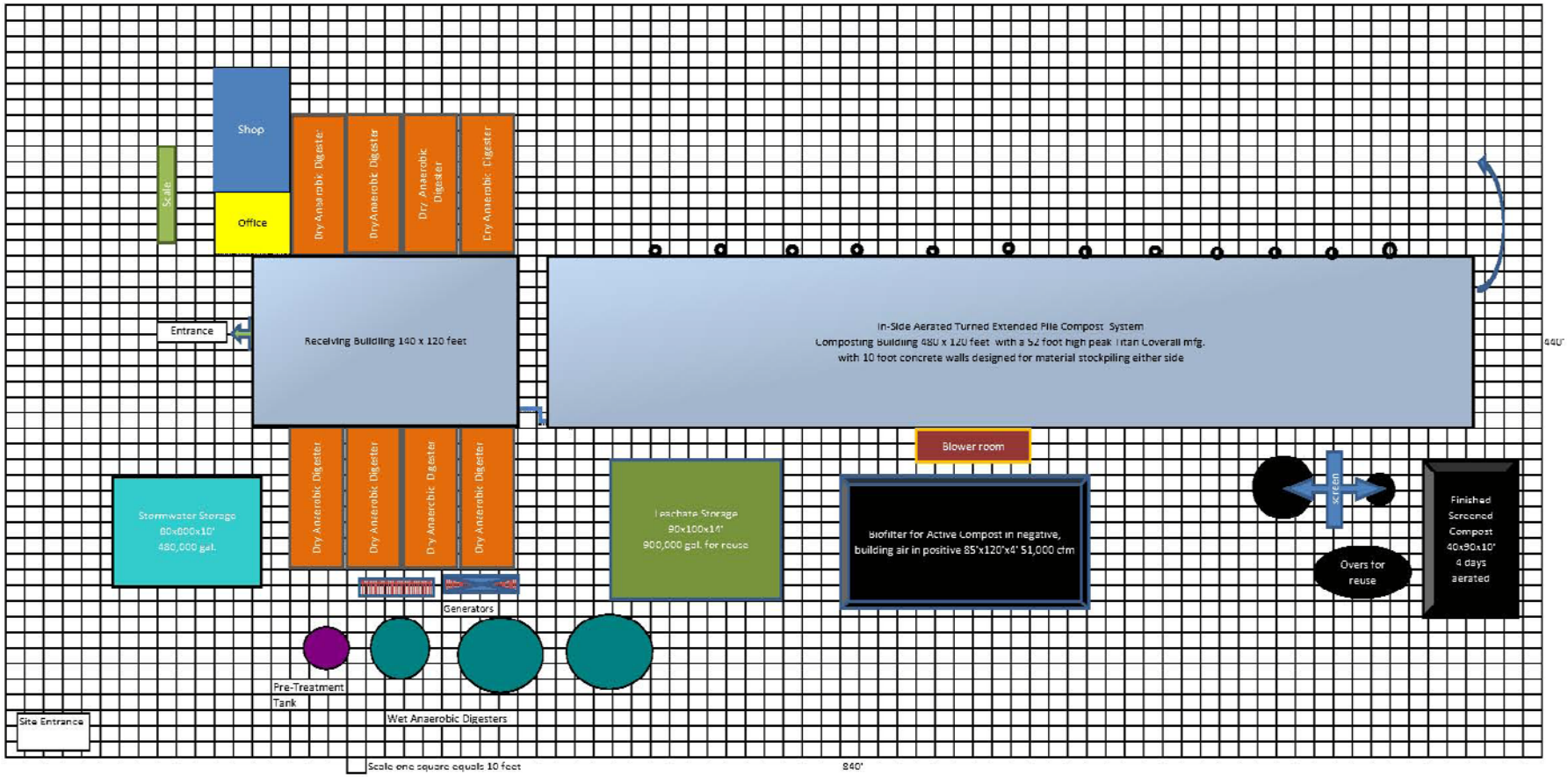


Integrated Conversion Technologies

- Off-the-shelf and emerging technologies
  - Waste from one process is input for other process
  - Industrial efficiencies: lower costs and make marginal projects cash positive
  - Project development - mitigate risk: Public sector creating investment opportunity for private sector
  - Transformational – Speeds development of projects; Can be replicated in every County in Oregon

BioEnergy Park Model

Layout of Facility



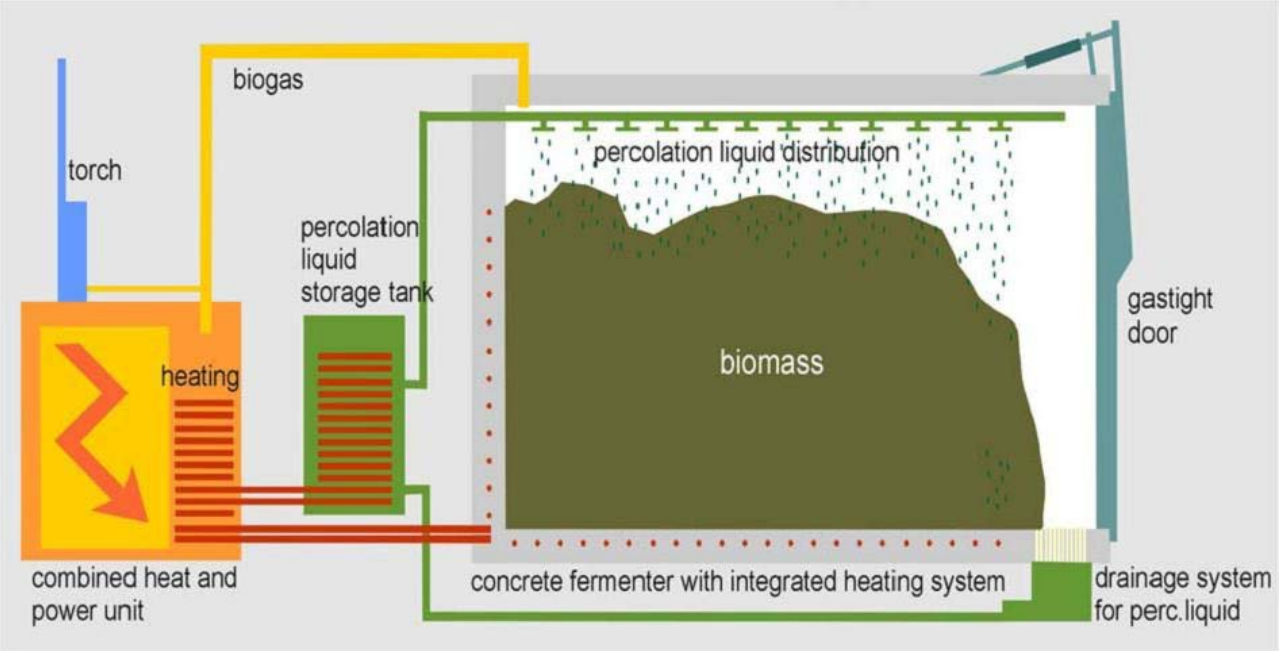
Material Handling Facility

Grass Straw and other organic materials will be brought to the site and processed (shredded, ground up) for use in the renewable energy facilities.

Dry Anaerobic Digestion

Organic input remains stationary throughout process, eliminating moving parts and resulting in low system maintenance and repair costs. Cells are air-tight and gas-tight. Methane sent to CHP unit.

Dry Anaerobic Digestion



Closed loop liquid cycle — no additional liquid required, eliminating waste water.

Wet Anaerobic Digester

Grass straw and other organic wastes will be fed into the digesters to create methane gas, which is sent to a combined heat and power unit.

Combined Heat and Power Unit

The CHP unit is shipped to the sight in a sound-insulated container. The unit processes the methane into electricity, which is then sent to the grid. It also captures heat which is reused on site.

Cover-All Building

Titan Coverall covers do not contain any metallic components, therefore, it will not rust from exposure to water and air.

The steel framework of building is constructed with triple coated corrosion barrier, lasting 270% longer than standard galvanized steel.

In-Vessel Compost System

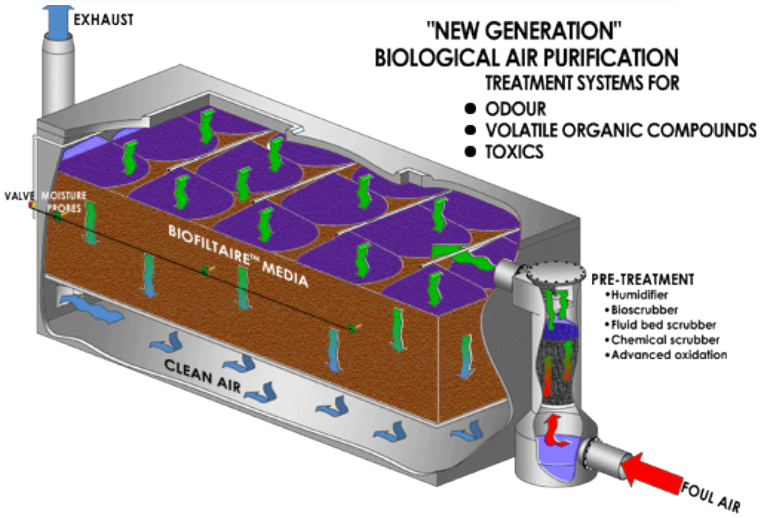
Composting Hall can compost 250 tons per day in 6 windrows.

Compost Aeration System

Air keeps the material from smelling sour. Air lines are inset in floor under material controlled to provide optimum amount of oxygen and cooling air.

Computer controlled aeration fans provide air to the compost. They have damper actuators to reverse the air flow.

Biofilter Air Cleaner



Finished Compost

Finished compost is loaded into trucks and sold to nurseries and retailers

Jobs - Leveraging a Local Advantage

- Design and Construct Facility: **Construction jobs: 76 for approximately 6 months**
- Process Local and Regional Organic Waste Streams: **Direct & Indirect FTE Jobs: 20 - 45**
- Produce Renewable Energy and Fuels, Green Products and Services: **Direct FTE Jobs: 16 - 45**
- Distribute and use energy and products in the local community. **Indirect: Full-Time Jobs: 20 - 45**

Development Financing Options

- **$25M Million Total Cost**

  Source of Funds:

  $5M Public & $20M Private

  - $6.6M Oregon Tax Credit Sale
  - $6.0M Federal Tax Credit Sale
  - $12.4 Grants, Appropriations, Loans, Equity investments

Next Steps

- Complete Business Plan: (12/2009)
- Secure Funding for Project: (2009-2010)
- Break Ground: (2010)
- Facility Open: (2011)

The Canby Public Library: Current Service Responses (FY10)

The Public Library Association (PLA) created the concept of *service responses* to define the distinct ways that public libraries respond to well-defined needs in their communities. Of PLA's 18 diverse service responses, six capture the current priorities of the Canby Public Library.

Create Young Readers: Early Literacy. *Children from birth to age five will have programs and services designed to ensure that they will enter school ready to learn to read, write and listen.*

Examples of activities and offerings that would support this service response:

- Regularly scheduled storytimes in both English and Spanish
- Programs for parents and caregivers that support early childhood literacy
- Summer Reading for babies, toddlers and preschoolers
- High-interest books and programs to improve reading skills for children under age five

Succeed in School: Homework Help. *Students will have the resources they need to succeed in school.*

Examples of activities and offerings that would support this service response:

- Active partnerships with local schools to facilitate the development of complementary collections, programming and services
- An on-site Homework Center, and online homework resources available 24/7.
- Summer Reading for school-aged children and youth
- High-interest books and programs to improve reading skills of school aged children and youth

Connect to the Online World: Public Internet Access. *Residents will have high-speed access to the digital world with no unnecessary restrictions or fees to ensure that everyone can take advantage of the ever-growing resources and services available through the Internet.*

Examples of activities and offerings that would support this service response:

- High speed, wireless access to the Internet
- Public access computers and printers in comfortable workstations
- Online databases and other electronic resources
- Classes and presentations to help older adults, non-native English speakers and others develop their capabilities in using electronic resources

Satisfy Curiosity: Lifelong Learning. *Residents will have the resources they need to explore topics of personal interest and continue to learn throughout their lives.*

Examples of activities and offerings that would support this service response:

- A quality, well-maintained collection of non-fiction materials in both English and Spanish on a variety of topics of interest to various age groups in the community

M E M O R A N D U M

TO: *Honorable Mayor Thompson and City Council*
Chairwoman Thompson and Urban Renewal Agency
FROM: *Penny Hummel, Library Director*
DATE: *November 20, 2009*
THROUGH: *Amanda Klock, Interim City Administrator*

Next Steps to a New Canby Public Library

Introduction

Canby's 11,000 square foot library has been in use since 1989, when voters approved a bond measure for the conversion of a downtown hardware store for this purpose. Since then, Canby has experienced significant growth and the need for a larger and revitalized library building has become increasingly evident. A 2005 assessment of the city's facilities needs by DLR Group detailed the existing building's many limitations and recommended that a 20,977 square foot library be developed to accommodate projected population growth through 2025. In 2006, an assessment of library facilities needs commissioned by Clackamas County noted that the Canby Public Library is "inadequate and should be replaced some time in the next ten years," recommending a 22,753 square foot library to meet community needs through 2026.

Beyond these studies, current support for a new library derives from several diverse sources:

- Development of a new public library aligns with several of the City Council's 2009-2010 goals, most specifically #5: "Maintain, plan for, and upgrade the City's infrastructure systems...to meet the demands of anticipated population growth and projected community needs."
- A year ago, Clackamas County voters said "Yes!" to permanent funding for a library district, which also resulted in a onetime $1 million commitment from the County to the City for library capital improvements.
- The current Urban Renewal plan identifies libraries as a type of facility suitable for the Agency's support. With recent interest in creating a new library as a key anchor in Canby's downtown revitalization efforts, the Office of Economic Development has budgeted funds this year to support a library feasibility study.
- Canby's Library Board has identified a new public library as their top priority, and the Friends of the Library have expressed equal support.

2009 Facilities Needs Assessment

Earlier this year, the Library and the Office of Economic Development requested and received approval from the Council to commission an update of DLR Group's 2005 assessment of the Library's facilities needs. DLR's report is attached and includes the following highlights:

- Basing space needs on a year-2025 population estimates for the library's service area, the

this stage in the project, it is difficult to predict with any accuracy what the total cost of the project will be. In addition to construction, costs will include land purchase (if needed), furnishings, fixtures, equipment, project management and fundraising. The new Lebanon Public Library, which opened in July at 19,400 square feet, cost $6.7 million (with donated land), or $345 a square foot. Assuming the new Canby Public Library is built at the size recommended by the current facilities assessment (25,705 square feet), the cost (if comparable to Lebanon) would be $8.8 million (land not included).

Project	**Square Footage**	**Cost per square foot (2009)**	**Cost of land**	**Total estimated cost (not including land)**
Lebanon Public Library (2009)	19,400	$345	(donated)	$6.7 million
Canby Public Library	25,705	$345 (estimate)	(unknown)	$8.8 million

The funding plan for a new library may include:

- The $1 million grant from Clackamas County, scheduled to be paid to Canby in FY13;
- Urban renewal funding;
- Private fundraising (individual, corporate and foundation);
- A construction bond.

With the exception of the first bullet point, each funding component will require careful planning and coordination with other city capital projects to ensure success. Given that there are several funding measures that the Council may want to place before the voters in the next few years, a comprehensive study assessing potential community response to all fiscal needs (as has been undertaken by the City of Eugene and other jurisdictions in a similar context) may also merit exploration.

Step 4 -6: Develop a design and siting plan; commission the design; build the library.

Details about these steps, and choice points for the Council will be identified as we move further along in the process.

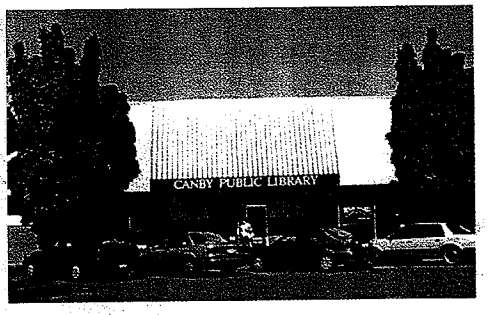
The importance of libraries to vital communities

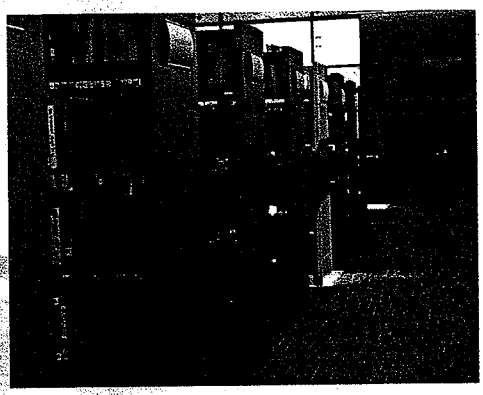
As a recent article from *Planning Commissioners Journal* indicates, the mission of a 21st century library goes far beyond books.

> *In a growing number of cities and towns, the library has become the hub of the community, drawing large numbers of new users. This is happening because libraries are providing programs, meeting space, computer access, and resources that are responding to a broader array of community needs.*

Canby Public Library

2009 Facilities Needs Assessment





November 18, 2009

Prepared for
Canby Public Library
292 N Holly St
Canby, OR 97013

DLR Group FFA

| Executive Summary |

In October 2004, the City of Canby commissioned DLR Group to prepare a Facility Assessment for its City Hall, Police and Public Library buildings. Included in the Jan. 25, 2005, assessments were future need projections for expansion or relocation of services. In October 2009, the City commissioned an update of the assessment for the Public Library portion of the study.

Process

The iterative process started with a review of the 2005 assessment while touring the Public Library with current library staff and City representatives. The review identified the need to add more detailed accounting of patron seating and meeting rooms. Additionally, a request was made to consider both single- and two-story solutions for the building. Using a modified building programming document, an updated population projection and Oregon Library Association guidelines, the space needs program was recreated. Draft versions of the building space program were reviewed with library and City staff. The final building program was revised per review and formatted into the final document.

Assumptions

The updated assessment includes several assumptions. The space needs are based on a year-2025 31,056 population for the Canby Public Library service area. The service area population assumption in 2005 was 23,000 residents. The current library is housed in a converted hardware store. The 2005 library assessment considered replacement, renovation and expansion of the library building. At that time, the committee recommended a comprehensive capital improvement plan for City Hall, Police and Library which was the low cost, "Up and Out" plan predicated upon immediate acquisition of adjacent properties. The prohibitive challenge of the plan continues to be the acquisition of specific properties adjacent to the existing library. Additionally, the 2005 assessment of the existing building indicated the current building was not ideally suited for library use because of its inflexible column spacing, window placement, inefficient building envelope and mechanical systems. The facilities needs assessment assumes new construction; however, the planning templates identify space and site needs regardless of the construction strategy. Space needs were based on Oregon Library Association guidelines and best practices in the industry.

Options

From the beginning, the updated study considered several options for location and configuration. For a civic library of approximately 25,705 square feet, a single-story option is the most practical. When considering a small or downtown location, a two-story solution would minimize the building footprint; however, operational challenges are likely to outweigh the benefits. These options were considered in the updated study because the City has both downtown and suburban options available.

Public Spaces

Public Support Areas

	# of units	sq.ft./unit	per sq.ft.	Notes
Entrance Lobby	1	600	600	
Exhibit Display	1	100	100	
Service Desk	1	200	200	
Self Checkouts	4	20	80	
Coffee Bar	0	100	0	
Copy Center	1	190	190	
Restrooms	2	350	700	
		section subtotal	**1,870**	

Meeting Rooms

Multi-Purpose Room	1	1,500	1,500	A,B
Multi-Purpose Kitchen	1	100	100	
Multi-Purpose Storage	1	200	200	
Conference Room (12 person)	1	375	375	B
	section subtotal		**2,175**	

Group Study

Group Study (1-2 person)	4	90	360	C
Group Study (10-15 person)	3	350	1,050	C
	section subtotal		**1,410**	

SECTION TOTAL	**5,455**

Library Collections

Adults

Books

	collection size	% on shelf	# of volumes	shelving type	items per section				
Fiction	15,100	0.85	12,835	72" high	150	85.57	12.0	1,027	D
Non Fiction	27,600	0.85	23,460	72" high	150	156.40	12.0	1,877	D
Paperback	4,800	0.85	4,080	72" high	288	14.17	12.0	170	D
L.T.E.	1,700	0.85	1,445	72" high	145	9.97	13.5	135	E
Periodicals	60	1.00	60	66"sloped	10	6.00	12.0	72	D

Seating Areas

Lounge Seats						28	30	840	
Study Tables (4 seats per table)						22	100	2,200	
PC Stations (Incl. @ tables)						0	36	0	
collections subtotal	49,260		41,880			*section subtotal*		**6,320**	

Reference

	collection size	% on shelf	# of volumes	shelving type	items per section				
Reference	1,750	1.00	1,750	48" high	60	29.17	13.5	394	E,F
collections subtotal	1,750		1,750			*section subtotal*		**394**	

Media

	collection size	% on shelf	# of volumes	shelving type	items per section				
Media	12,400	0.65	8,060	66" high	160	50.38	12.0	605	D
collections subtotal	12,400		8,060			*section subtotal*		**605**	

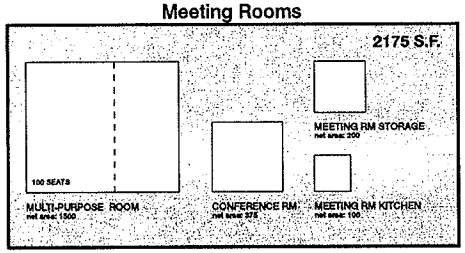
Young Adults

	collection size	% on shelf	# of volumes	shelving type	items per section				
Fiction/Non-fiction	7,600	0.80	6,080	72" high	150	40.53	12.0	486	D
Periodicals	40	1.00	40	72" sloped	10	4.00	12.0	48	D

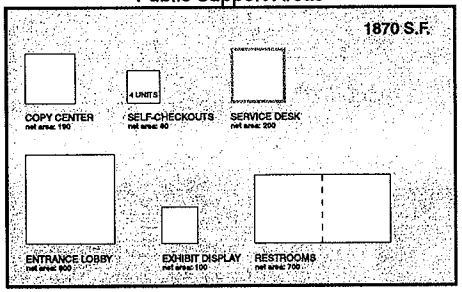
Seating Areas

Lounge Seats						14	30	420	
Study Tables (4 seats per table)						9	100	900	
PC Stations (Incl. @ tables)						0	36	0	
collections subtotal	7,640		6,120			*section subtotal*		**1,854**	

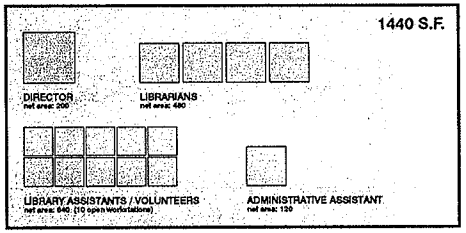
Meeting Rooms



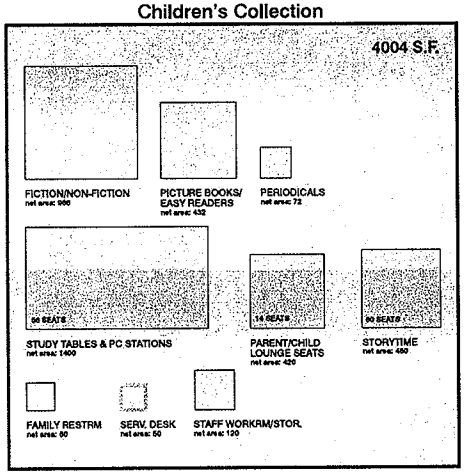
Public Support Areas



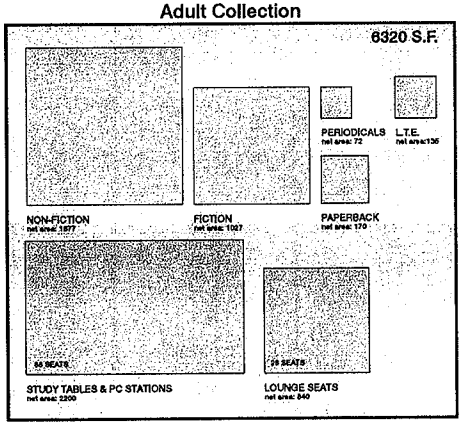
Staff Workstations



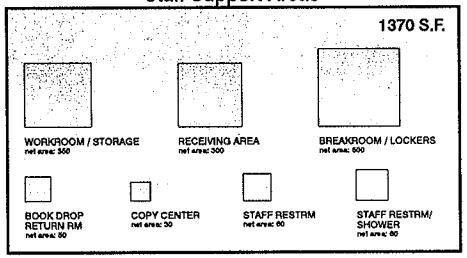
Children's Collection



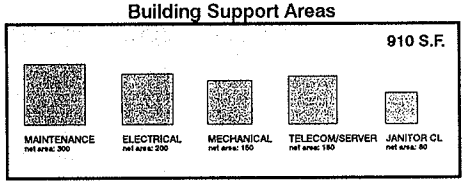
Adult Collection



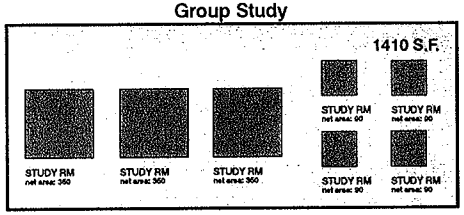
Staff Support Areas



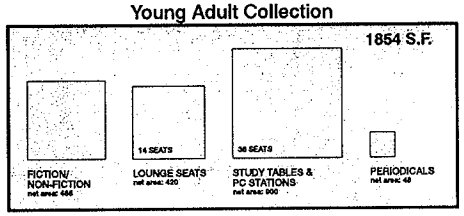
Building Support Areas



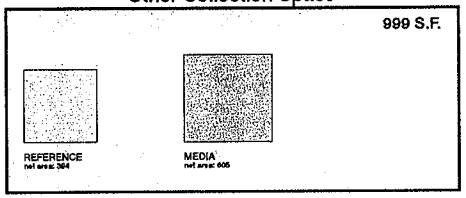
Group Study



Young Adult Collection



Other Collection Space



UNASSIGNABLE SPACES
Proposed: 3,353 S.F.

GROSS S.F.
25,705

SCALE: 3/32" = 1'-0"

SPACE ALLOCATIONS
NOVEMBER 9, 2009

Fletcher·Farr·Ayotte·Inc
ARCHITECTURE PLANNING INTERIORS
FFA

6 COLLECTION CALCULATIONS

	CURRENT	x 1.26 per above calculations		TOTAL PROJECTED	TOTAL PROGRAMMED (to meet OLA)
Adult Fict.	9,719	1.26		12,246	15,100
Adult N/F	17,840	1.26		22,478	27,600
Juv. Fict.	4,581	1.26		5,772	7,100
Juv. N/F	5,078	1.26		6,398	8,000
Pict. Book	4,370	1.26		5,506	7,000
Media	6,690	1.26		8,429	12,400
Paperback	3,094	1.26		3,898	4,800
ADD *					
L.T.E.			1.7% of collection	1,615	1,700
Y/A			8% of collection	7,600	7,600
Reference**			1.9% of collection	1,662	1,750
Periodical/ Newspaper				160	160
TOTAL				75,766	93,210

* Per other library experience
** Reduced per direction from Canby Library

7 SITE DEVELOPMENT

SINGLE STORY - DOWNTOWN SITE Public Parking adjacent

		QTY	SF each	SUB-TOTAL	CAT. TOTAL	
Public					140	
	Parking	80	0	0		
	Bicycles	14	10	140		
	Van / ADA	4	0	0		
Staff					1,080	
	Parking	16	0	0		
	Bicycle	8	10	80		
	Van / ADA	2	500	1,000		
Building Area					29,561	
	Programmed Area			25,705		
	15% Contingency for future expansion			3,856		
Landscape Area					6,202	
	5% of Parking Area			61		
	15% of sub-total for yards and buffers			6,141		
Plaza / Courtyards and Walks					2,956	
	10% of Building Area			2,956		
Vehicular Paving					1,000	
	Access Drive	0	0	0		
	Service Yard	1	1000 SF	1,000		
SUB-TOTAL SITE AREA					40,939	
Contingency for Inefficiencies of Site Configuration						
	10% of Sub-Total Site Area				4094	
TOTAL SITE AREA					45,032	SF
					1.0	Acres