SACOG Region

- 2.3 million people
- 6 Counties, 22 Cities
- 15% Urban, 85% Rural
- 6,500 sq-mi

- COG = Regional Issues
- MPO = Transportation
Regional Planning?

What’s the future and how do we prepare for it?

Public-Private partnerships?

Rural-Urban connections?
Blueprint 2050

- 230,000 acres
Land Use-Transportation Plan

For every 1,000 new residents:

1988-2005 333 acres

2008-2035 42 acres
Rural-Urban Connections Strategy

Enhancing rural economic viability and environmental sustainability
Existing Agricultural Assets

Soil

Water

Knowhow

Value
RUCS Topics

Land Use and Conservation

Forest Management

Infrastructure for Agriculture

Market Opportunities
Land Use Policies That Support Agriculture

Smaller Lots, Infill and Redevelopment
- 230,000 ac. of Farmland Loss

Reduce Urban – Rural Conflicts
- Buffers
- Ag Parks
- Right-to-Farm
- Policy Boundaries
- City-County Agreements

Ag Land Conservation and Viability
- Infrastructure investments
- Supportive Zoning
- Voter Initiatives
- Open Space Plans
- Easements, TDRs, etc.
Export Markets
Local & Regional Markets
• 10 million residents between Sacramento and Bay Area regions
• Together consume 12.5 billion pounds of food each year

• Demand for locally grown food increasing 9% year over year
• Price premiums of around 20% for local food
What is Local?
Ag & Food System Spending


Direct

Ag & Food Cluster

Multiplier
Opportunities & Challenges

Export Markets
- Natural assets
- Rising demand
- Value added products

Local Markets
- Lack of infrastructure
- Water, labor supply
- Regulations
- Climate change

• Position the region
• Attract investment
RUCS Crop Map

RUCS Scenario Analysis Tool

Ecosystem Services

Scenario Results

Modules Informing Scenarios

Market Affects on Crops

Local Market Food Production

- Number of People
- Type of Consumption
- Local

Fuel Prices
- Stable
- Double

Rangeland Fallow
- 100%
- 75%
- 50%
- 25%
- 0%

Crop Map

Market Affects on Crops

ROI

Water Demand

Labor Demand

Trucking

Food System Multiplier Study

Direct

Ag & Food Cluster

Multiplier
Crop Change Scenario: Alfalfa to Prunes

2,000 ac. of Alfalfa

Convert to Prunes
What’s the impact on the region?

<table>
<thead>
<tr>
<th>Scenario Name</th>
<th>Total Acres</th>
<th>AG Acres</th>
<th>AG Value</th>
<th>AG Cost</th>
<th>AG Return</th>
<th>AG Pct Return</th>
<th>AG Water Acre / Fret</th>
<th>AG Labor FTE</th>
<th>AG Truck Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE CASE</td>
<td>0</td>
<td>562,360.4</td>
<td>708,969,323</td>
<td>567,227,952</td>
<td>141,741,471</td>
<td>25.0%</td>
<td>995,064</td>
<td>2,677.1</td>
<td>112,912</td>
</tr>
<tr>
<td>ALFALFA TO PRUNE</td>
<td>0</td>
<td>562,360.4</td>
<td>711,029,876</td>
<td>568,792,417</td>
<td>142,237,459</td>
<td>25.0%</td>
<td>994,567</td>
<td>2,606.9</td>
<td>112,865</td>
</tr>
</tbody>
</table>

**Value:** + $2M  
**Return:** + $500,000  
**Water:** -500 ac-ft  
**Labor:** + 10 workers  
**Trucks:** - 47 trips  

GHGs?  
GW Recharge Potential?  
Habitat Potential?

**What’s the impact on the region?**
| Indicators                  | Base Case | Local Food Hub | High ROI | High Revenue | Low Revenue | High Water | Low Water | High Labor | Low Labor | Specialty Crop |
|----------------------------|-----------|----------------|----------|--------------|-------------|------------|-----------|------------|------------|------------|----------------|
| Overall Agriculture Output (in $ millions) | 360       | 368            | 516      | 591          | 434         | 458        | 317       | 10         | 32         | 1.824      |
| Labor (millions of hours) | 2.6       | 2.9            | 6.1      | 8.2          | 4.3         | 1.4        | 0.6       | 10         | 32         | 1.824      |
| Water (thousands of acre-feet) | 417       | 418            | 452      | 461          | 371         | 339        | 205       | 41         | 36         | 1.824      |
| Return on Investment (%)  | 26        | 25             | 29       | 24           | 13          | 11         | 41        | 36         |            | 1.824      |
Food Hub Business Plan
Food Hub Prototype Facility

- 23,000 square feet
- Capital costs of $6.5 million ($3.5 million upfront)
- Volume of 7,800 tons per year (at scale)
- Advisory role at facility to assist farmers
<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 4</th>
<th>Year 6</th>
<th>Year 8</th>
<th>Year 15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of hub processing lines</strong></td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Annual tons</strong></td>
<td>312</td>
<td>2,059</td>
<td>5,830</td>
<td>7,787</td>
<td>7,787</td>
</tr>
<tr>
<td><strong>Net Cash Flow</strong></td>
<td>$503,645</td>
<td>$248,700</td>
<td>$1.12 M</td>
<td>$1.43 M</td>
<td>$1.43 M</td>
</tr>
<tr>
<td><strong>Internal Rate of Return</strong></td>
<td></td>
<td></td>
<td>6%</td>
<td></td>
<td>22%</td>
</tr>
<tr>
<td><strong>Ag Acres Needed</strong></td>
<td>27</td>
<td>171</td>
<td>539</td>
<td>743</td>
<td>743</td>
</tr>
<tr>
<td><strong>People Fed (at 25% of fruit &amp; veg consumption)</strong></td>
<td>2,635</td>
<td>16,700</td>
<td>52,600</td>
<td>72,500</td>
<td>72,500</td>
</tr>
</tbody>
</table>
Specialty Crop Cluster Multiplier Study

<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>EMPLOYMENT MULTIPLIER</th>
<th>VALUE ADD MULTIPLIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>2.3</td>
<td>2.06</td>
</tr>
<tr>
<td>Construction</td>
<td>1.98</td>
<td>1.93</td>
</tr>
<tr>
<td>Specialty Crop Cluster</td>
<td>1.82</td>
<td>1.9</td>
</tr>
<tr>
<td>Professional &amp; Scientific Services</td>
<td>1.75</td>
<td>1.82</td>
</tr>
<tr>
<td>Finance, Insurance, &amp; Real Estate (F.I.R.E.)</td>
<td>1.7</td>
<td>1.52</td>
</tr>
<tr>
<td>Health</td>
<td>1.67</td>
<td>1.63</td>
</tr>
<tr>
<td>Legal</td>
<td>1.63</td>
<td>1.41</td>
</tr>
<tr>
<td>Retail</td>
<td>1.34</td>
<td>1.55</td>
</tr>
</tbody>
</table>
More Cluster Jobs in Urban vs. Rural Areas

- 10k Jobs on Farms
- $1.4B Economic Output
- 22k Jobs off Farms
- $4.4B Economic Output
Food Systems and Air Quality
### Emissions Performance

<table>
<thead>
<tr>
<th></th>
<th>Tomato Rotation (Base Case)</th>
<th>Tomato Rotation (No PCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total VMT/year</td>
<td>545,000</td>
<td>5,447,000</td>
</tr>
<tr>
<td>Transportation CO2</td>
<td>850</td>
<td>8,000</td>
</tr>
<tr>
<td>On-filed CO2</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Tomato Processing CO2</td>
<td>36,000</td>
<td>29,000</td>
</tr>
<tr>
<td>Total CO2</td>
<td>61,850</td>
<td>62,000</td>
</tr>
<tr>
<td>CO2 Change (Crops + Processing)</td>
<td>--</td>
<td><strong>0.20%</strong></td>
</tr>
<tr>
<td>CO2 Change (Just Crops)</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
“Our analysis finds that per acre greenhouse gas emissions from urban land uses average 58 times greater than those from crop production. This compares favorably with the multiple of 70 found by Jackson, et al.”

Key Rural Roads
Economic and Fiscal Benefits of Yuba County’s Agriculture Conservation

**National Costs and Revenues**

- Agriculture: $0.45 in costs per $1 in revenue
- Residential: $1.21 in cost per $1 in revenue

200+ examples nationally:

**Yuba Co. Policy Results**

- 10,000 acres conserved
- Keeps $32 MM in ag value
- Avoid $40 MM in O&M costs

**SACOG Study Results**

- Ag value on same land can increase greatly
- Production → Processing
- Denser dev’l show further cost savings
# Possible Growth Patterns

<table>
<thead>
<tr>
<th></th>
<th>Infill Focused</th>
<th>Compact Growth</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acres</td>
<td>5,225</td>
<td>9,596</td>
<td>15,137</td>
</tr>
<tr>
<td>New Residents</td>
<td>83,388</td>
<td>85,919</td>
<td>85,428</td>
</tr>
<tr>
<td>New Jobs</td>
<td>64,462</td>
<td>66,265</td>
<td>66,989</td>
</tr>
</tbody>
</table>
### Economic Impact on Ag

<table>
<thead>
<tr>
<th></th>
<th>Infill Focused</th>
<th>Compact Growth</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Converted Ag Acres</td>
<td>2,623</td>
<td>6,169</td>
<td>11,127</td>
</tr>
<tr>
<td>Lost Ag Value (base)</td>
<td>$5.6 MM</td>
<td>$11.2 MM</td>
<td>$17.3 MM</td>
</tr>
<tr>
<td>Lost Ag Value (specialty crops)</td>
<td>$39.5 MM</td>
<td>$93 MM</td>
<td>$150 MM</td>
</tr>
</tbody>
</table>
## Development Cost

<table>
<thead>
<tr>
<th></th>
<th>Infill Focused</th>
<th>Compact Growth</th>
<th>Low Density</th>
<th>Pays For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector</td>
<td>$500 MM</td>
<td>$530 MM</td>
<td>$600 MM</td>
<td>• Off-Site streets&lt;br&gt;• Sewer trunk, collection &amp; treatment&lt;br&gt;• Parks Infrastructure</td>
</tr>
<tr>
<td>Developer</td>
<td>$700 MM</td>
<td>$1.2 B</td>
<td>$1.8 B</td>
<td>• Local streets&lt;br&gt;• Sewer laterals&lt;br&gt;• Water &amp; Stormwater laterals, collection &amp; detention</td>
</tr>
<tr>
<td>Total</td>
<td>$1.2 B</td>
<td>$1.8 B</td>
<td>$2.5 B</td>
<td></td>
</tr>
</tbody>
</table>
## Annual Cost and Revenue

<table>
<thead>
<tr>
<th></th>
<th>Infill Focused</th>
<th>Compact Growth</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual O&amp;M</td>
<td>$78 MM</td>
<td>$85 MM</td>
<td>$89 MM</td>
</tr>
<tr>
<td>Annual Revenue</td>
<td>$100 MM</td>
<td>$94 MM</td>
<td>$80 MM</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>$22 MM</td>
<td>$9 MM</td>
<td>- $9 MM</td>
</tr>
</tbody>
</table>
Ecosystem Services

• Habitat
• Groundwater Recharge
• Water Resources
• Flood Control
• Carbon Sequestration
• Air Quality

➢ Market-based solutions
➢ Working Landscapes Project
WORKING LANDSCAPES PILOT STUDY: AGRICULTURE AND HABITAT
Sacramento & Yolo County Delta

Total Gross Returns
- Base Case: 100%
- Habitat Crops w/ Existing Vine & Orchard Scenario: -2%
- Only Habitat Crops Scenario: -29%

Average ROI
- Base Case: 100%
- Habitat Crops w/ Existing Vine & Orchard Scenario: -43%
- Only Habitat Crops Scenario: -27%

H2O (acre inches)
- Base Case: 100%
- Habitat Crops w/ Existing Vine & Orchard Scenario: +10%
- Only Habitat Crops Scenario: +17%

Labor (hrs)
- Base Case: 100%
- Habitat Crops w/ Existing Vine & Orchard Scenario: -9%
- Only Habitat Crops Scenario: -70%