Regional Planning in the Sacramento Region
SACOG Region

2.3 million people
6 Counties, 22 Cities
15% Urban / 85% Rural
Blueprint
Transportation/Land Use Project
Blueprint planning based on two key principles

**Information-based planning**
- Developed highest quality data and analytical tools
- Focused discussion on facts and education, not theology

**Active resident planning**
- Informed public = essential for healthy democracy
- Provided residents objective tools and information—listened carefully to what they told us
Blueprint Growth Principles

- Housing Choices
- Transportation Choices
- Compact Development
- Use Existing Assets
- Mix Land Uses
- High Quality Design
- Protect Natural Resources
SACOG’s Scenario Tool Needs

Regional → Jurisdiction → Neighborhood
Economic Feasibility Test

Analyze building type placed on every parcel for...

• Expected costs vs. expected revenues
  • Development Costs & Fees and Rent Database
• Calculate ROI (Return on Investment)
• Use local data collected for the region
74 Acres
Changes from base case:
700 more employees
400 more dwelling units
-7 % VMT
Return on Investment:

Roseville Fairgrounds
Return On Investment
Blueprint Workshop Table 3

Legend:
- 0% ROI
- 0 - 5% ROI
- 5 - 8% ROI
- 8 - 10% ROI
- 10% & > ROI

Vallejo Av
WASHINGTON BLVD
Elefa St
Lincoln St
Main St
Church St
Duranta St
Diamond Oaks Rd

400 feet
Additional Urbanized Land
Through 2050
(in square miles)

- Base Case Scenario: 661 sm
- Preferred Blueprint Scenario: 304 sm
RUCS Link to MTP/SCS, TCM, and NEPA

- 2008 MTP EIR mitigation measure for impacts to agricultural resources; greenhouse gas emissions
- Research project as part of the Transportation Control Measure Program
- Supports the NEPA Streamlining effort
Rural-Urban Connections Strategy
Enhancing Rural Economic Viability and Environmental Sustainability
RUCS Objectives

- Enhance rural economic viability and environmental sustainability
- Highlight rural challenges and opportunities
- Test agricultural market changes, policies and economic development strategies
- Protect and enhance natural resources and ecosystem services
- Determine rural transportation and other infrastructure needs
Food Chain Employment

Agriculture Industry Employment

Source: EDD CREE Data

- Distribution: 731
- Processing: 3,123
- Production: 7,667
- Support: 9,267
Value of the Food System

- Regional Farm Gate Value: $1.6B
- 4,206 Food Service Outlets: $2.1B
- 180 Wholesalers: $3.3B
- 849 Stores: $4.7B
Challenges & Opportunities

Topic Areas
1. Land Use and Conservation Policies and Plans
2. The Infrastructure of Agriculture
3. New Economic Opportunities
4. Forest Management
5. Regulations
Topic Development Process

Current Conditions Paper
(Challenges & Opportunities)

- Current Conditions Workshop
  - Innovations Paper
    - Innovations Workshop
    - Summary Report
    - Implementation
# Cost and Return Conventional Almond Production

## Sacramento Region

<table>
<thead>
<tr>
<th>Cost category</th>
<th>Input</th>
<th>Quantity</th>
<th>Unit/acre</th>
<th>Price</th>
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**Total Operating Cost/Acre**  
$ 1,919.79
New Tools for Understanding Agricultural Viability
Building a Crop Map

- Pesticide Use Report data
- Department of Water Resources data
- Satellite data
- Windshield surveys
- Ground truth with growers
- Cost of production studies
- 1 year, $700,000 +/- to build crop map
- Data for 1 year (2008), but includes rotations
Importance of Crop Maps

Land use/crop maps

- Planning level resources
- Used by several organizations/entities
- Timing/frequency of current data (DWR)
  - Once every 4–8 years
  - Crops/fallowing change annually
- Costs can be significant to update manually
Innovative Crop Mapping approach using Remote Sensing Techniques

- Match imagery with crop phenology
  - Spatial and temporal variations
  - Critical growth stages (e.g. flowering, etc)
  - Cropping patterns (across years)
  - Irrigation and cultural practices

- Comprehensive analytical toolset
  - Object-based remote sensing methods
  - Advanced statistical data mining techniques
  - GIS linkage for end-user analysis and Communication
Example: Merced County
Vine Spacing: Central Tendency
Temporal Crop Signatures

Permanent Crop - Temporal Signature

- Peaches
- Walnuts
- Apples
- Vines
- Citrus
- Almonds
- Cherries
PLACE$^3$S Scenario Model

1. CROP MAP
2. ECONOMETRIC MODEL
3. DIET/LAND NEEDS
4. I-PLACE$^3$S
5. INFRASTRUCTURE/FISCAL MODEL (IMPACS)
6. LAND USE PLAN
Purpose: Understand agricultural viability by using "what if" scenarios:

- Market changes
- Cropping patterns
- Farm practices
- Planning that supports agriculture

Example: Changing alfalfa rotation to dried plums improved economic return
PLACE$^3$S Model Design

**Model Inputs**
- Current or future crops
- Costs (labor, fuel, fertilizer, etc.)
- Crop yield and price
- Other factors (e.g., habitat, easement value)

**Model Outputs**
- Crop value
- Demand for inputs (water, seed, trucking, etc.)
- Profit (Revenue – Cost)
2,000 ac. of Alfalfa
Return for Alfalfa
Alfalfa Converted to Dried Plums
Less Than 0.5% of County Ag Land:

Value: + $8M
Return: + $2M
Water: + 1,000 ac-ft
Labor: + 35 workers
Trucks: - 250 trips
Econometric (Predictive) Model

1. Crop Map
2. Econometric Model
3. Diet/Land Needs
4. I-Place’s
5. Infrastructure/Fiscal Model (IMPACS)

Number of People % Local Type of Consumption = How Much Land Needed

Type & Amount of Infrastructure & Services Needed Cost to Build, Maintain & Provide Services $$$ Revenue Generated from Land Use Plan
Econometric (Predictive) Model

**Purpose:** Understand future risks and uncertainties that affect agriculture

- Global markets’ affect on local producers?
- What factors most affect which crops?
- Possible changes in crop patterns?
Econometric Model Background

- Agriculture is a dynamic landscape
- Perennials are “permanent,” less complicated
- Annual crops are rotated, complicated
- Helpful to simply: alfalfa, grain, rice, tomato
- Statistical analysis groups parcels into types of agriculture
Determining Crop Probabilities

Factors in crop decisions:

- Temperature
- Precipitation
- Soil quality
- Elevation & slope
- Proximity to roads, rivers, cities
- Water & weather
- Costs and prices
Predictive Model: Factors affecting viability

Variables affecting crops:
- Chemicals
- Equipment
- Fertilizer
- Fuel
- Irrigation
- Labor
- Seed
- Commodity Prices
Predictive Model: Scenario Examples

Russian drought and fire reduce wheat harvest
  → Grain prices increase
Oil resources become more scarce
  → Fuel, chemical and fertilizer prices increase
Construction industry heats up again
  → Labor prices increase
Drought persists
  → Surface water decrease, Irrigation costs increase
Predictive Model: Stable vs. Double Grain Prices

Crop Type: Grain

[Bar chart showing the distribution of crop types under different grain price conditions.]
Predictive Model: Stable vs. Double Fuel Prices

Crop Type: Tomato
Change in Fallowing on Annual Crop Land due to Change in Cost or Price

% of Annual Crop Land Fallowed

Change in Cost or Price

Approx. 640,000 ac. of annual crop land currently

Base Conditions ≈ 80,000 acres fallow
Change in Fallowing on Annual Crop Land due to Change in Cost or Price

- **Irrigation Costs**
- **Labor Costs**
- **Fertilizer Costs**
- **Irrigation Costs**
- **Fuel Costs**
- **Equipment Costs**
- **Chemical Costs**
- **Fertilizer Costs**
- **Seed Costs**
- **Commodity Price**

Approx. 640,000 ac. of annual crop land currently fallowed.
Rural Communities
Fiscal Model
New Tools for Understanding Agricultural Viability

1. Crop Map
2. Econometric Model
3. Diet/Land Needs
4. Infrastructure/Fiscal Model (IMPACS)

- Scenario
- Land Use Plan
- Revenue generated from land use plan
- Type & amount of infrastructure & services needed
- Cost to build, maintain & provide services
Fiscal Impacts Model

**Purpose:** Help small rural communities make growth decisions that are fiscally sustainable

**Challenges:**
- Growth of any kind sometimes looks like economic progress
- Needed infrastructure investments to fix existing problems sometimes contribute to this problem

**Example:** Better balanced land uses more fiscally viable than housing subdivision
Modeling Objectives

- Address the imbalance between infrastructure and service costs and revenue
- Estimates infrastructure and service needs and costs from various land use plans
- Estimates revenues from same plan
- Identifies gaps and determines additional revenue needed
- Can be used for rural or urban areas
Model Inputs

- Land use information (acres and type of development)
- Development parameters (e.g., street pattern, amount of infill)
- Systems specifications (e.g., water system demand and capacity)
<table>
<thead>
<tr>
<th>Code</th>
<th>Residential</th>
<th>Acres</th>
<th>% of Land</th>
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<tbody>
<tr>
<td>LU_Res1</td>
<td>Rural Residential</td>
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<td>0.0%</td>
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<tr>
<td>LU_Res2</td>
<td>Very Low Density Residential</td>
<td>4.0</td>
<td>7.8%</td>
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<tr>
<td>LU_Res3</td>
<td>Low Density Residential</td>
<td>19.0</td>
<td>37.3%</td>
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<td>LU_Res4</td>
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<tr>
<td>LU_Res5</td>
<td>Medium-High Density Residential</td>
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<td>LU_Res6</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>33.0</strong></td>
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<table>
<thead>
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<th>Code</th>
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<th>Acres</th>
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<tr>
<td>LU_Mix2</td>
<td>Mixed Use Employment Focus</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>0.0</strong></td>
<td><strong>0.0%</strong></td>
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3-A BLOCK STREET PATTERN:

- Grid Block
- Modified Grid Block
- Mixed Block
- Cul-de-Sac Block
- Rural Block

3-B STREET WIDTH:

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<th>Type</th>
<th>Description</th>
<th>ROW (ft)</th>
<th>Pavement width (ft)</th>
<th>Sidewalk Width (ft)</th>
<th>Sidewalk Completeness</th>
<th>Curb &amp; Gutter Completeness</th>
<th>Lighting Spacing (ft)</th>
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<td>46.00</td>
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<td>StreetB</td>
<td>collector street</td>
<td>60.00</td>
<td>46.00</td>
<td>4.00</td>
<td>100.00%</td>
<td>100.00%</td>
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<tr>
<td>StreetC</td>
<td>local access 1</td>
<td>50.00</td>
<td>36.00</td>
<td>3.00</td>
<td>100.00%</td>
<td>100.00%</td>
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<td>local access 2</td>
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<td>0.00%</td>
<td>0.00%</td>
<td>500</td>
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Assign Development Pattern to Land Uses:

- LU_Res1 Rural Residential
- LU_Res2 Very Low Density Residential
- LU_Res3 Low Density Residential
- LU_Res4 Medium Density Residential
- LU_Res5 Medium-High Density Residential
- LU_Res6 High Density Residential
- LU_Mix1 Mixed Use Residential Focus
- LU_Mix2 Mixed Use Employment Focus
- LU_NRes1 Moderate Intensity Office
- LU_NRes2 Community/Neighborhood Commercial/Office
- LU_NRes3 Light Industrial Office

Default Street Pattern:
- StreetC
- StreetB
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<th></th>
<th>High</th>
<th>Median</th>
<th>Low</th>
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<td>Interior GPCD</td>
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<td>55</td>
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<td>Toilets, Kitchen Sinks etc.</td>
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<td><strong>13,992,275</strong></td>
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<td><strong>11,193,820</strong></td>
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Non-Residential Potable Water Demand Rates

Total Non Residential FTE 594

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<td>3,806,950</td>
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<td>Elkhorn</td>
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Assumption: For Water Supply, unlimited amount of G.W. supply will be available.

Assumption: For Water Treatment, Water Storage and Sewer Treatment, empty cells mean no public/community facilities.

Sources:
1. Georgetown Divide Public Utility District Capital Facility Charge Study
2. Yolo County Draft Winters Municipal Services Review Infrastructure Needs and Deficiencies. RMC Water and Wastewater Services, 2007
3. County of Yolo 2030 Countywide General Plan - Public Facilities and Services Element
5. Yolo County Integrated Regional Water Management Plan
Model Outputs

Infrastructure needs and costs (total & per unit; public & private)

Service costs

Payback period

Revenue sources

Cost-revenue gap
### Municipal Infrastructure Summary

#### Public Sector Cost Implication

<table>
<thead>
<tr>
<th>Component</th>
<th>Total (ft)</th>
<th>E/RU</th>
<th>Capital Construction Costs</th>
<th>Annual O&amp;M Costs</th>
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<td><strong>ROADWAY INFRASTRUCTURE</strong></td>
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<td>Local Streets</td>
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<td>$14,825,203</td>
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<tr>
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<tr>
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<td>Police Officer(s)</td>
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<tr>
<td>Fire Fighter(s)</td>
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<td>0</td>
</tr>
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<td>Other (health, education, etc.)</td>
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<td>-</td>
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<td><strong>Public Sector Costs</strong></td>
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<td>$2,206</td>
<td>$115,499</td>
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**Annual O&M Costs**

- **Capital Costs**: $314
- **Cost / ERU**: $2,206
- **Annual O&M Costs**: $115,499
- **O&M / ERU**: $314
## Simple Payback Analysis

**Total Public Sector Costs**: $811,830
- **Public Sector Annual O&M Costs**: $115,498
- **Annual Revenue (Taxes etc.)**: $144,785
- **Annual Net Revenue**: $29,287

**Actual Simple Payback**: 27.7 yrs
**Desired Simple Payback**: 20 yrs
**Gap per ERU (desired payback)**: $110 per year

## Bond Analysis

- **Maturity period (yrs)**: 20 yrs
- **Coupon Rate**: 5.0%
- **Annual Coupon Payments**: $40,591

**Total Additional Funds**: -$11,394
**Bond Gap per ERU**: $31

## Life Cycle Cost Analysis

- **Discount Rate**: 5.0%
- **Analysis Time Period (yrs)**: 20 years
- **Maintenance Escalation rate**: 0.0%

**Net Present Value (NPV) savings (20 yrs)**: -$277,203

## Revenue per Year

<table>
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<tr>
<th>Category</th>
<th>Revenue per Year</th>
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<tbody>
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<td>Residential</td>
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<tr>
<td>Mix-Use</td>
<td>0.0</td>
</tr>
<tr>
<td>Retail</td>
<td>75.6</td>
</tr>
<tr>
<td>Office</td>
<td>12.3</td>
</tr>
<tr>
<td>Other</td>
<td>0.0</td>
</tr>
</tbody>
</table>

## Positive Revenue Sources

- **Residential**: 9%
- **Mix-Use**: 0%
- **Retail**: 38%
- **Office**: 53%
- **Other**: 0%

## Savings (Net Present Value)

<table>
<thead>
<tr>
<th>Year</th>
<th>Positive</th>
<th>Negative</th>
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<tbody>
<tr>
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<tr>
<td>...</td>
<td><a href="#">Graph</a></td>
<td><a href="#">Graph</a></td>
</tr>
<tr>
<td>Code</td>
<td>Residential</td>
<td>Acres</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>LU_Res1</td>
<td>Rural Residential</td>
<td>0.0</td>
</tr>
<tr>
<td>LU_Res2</td>
<td>Very Low Density Residential</td>
<td>4.0</td>
</tr>
<tr>
<td>LU_Res3</td>
<td>Low Density Residential</td>
<td>16.0</td>
</tr>
<tr>
<td>LU_Res4</td>
<td>Medium Density Residential</td>
<td>10.0</td>
</tr>
<tr>
<td>LU_Res5</td>
<td>Medium-High Density Residential</td>
<td>0.0</td>
</tr>
<tr>
<td>LU_Res6</td>
<td>High Density Residential</td>
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<tr>
<td>Total</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Mixed Use</th>
<th>Acres</th>
<th>% of Land</th>
<th>HHI Size</th>
<th>FAR</th>
<th>Avg Lot Size</th>
<th>Avg ELD Footprint</th>
<th>Avg DUB/BD</th>
<th>Stiff</th>
<th>Set Back</th>
<th>DU</th>
<th>Residents</th>
<th>FTE</th>
<th>GFA</th>
<th>ERU</th>
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<tbody>
<tr>
<td>LU_Mix1</td>
<td>Mixed Use Residential Focus</td>
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<td>576</td>
<td>20</td>
<td>111</td>
<td>167</td>
<td>38</td>
<td>177</td>
<td>132</td>
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<table>
<thead>
<tr>
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<th>% of Land</th>
<th>HHI Size</th>
<th>FAR</th>
<th>Avg Lot Size</th>
<th>Avg ELD Footprint</th>
<th>Avg DUB/BD</th>
<th>Stiff</th>
<th>Set Back</th>
<th>DU</th>
<th>Employees</th>
<th>FTE</th>
<th>GFA</th>
<th>ERU</th>
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</thead>
<tbody>
<tr>
<td>LU_NRes1</td>
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<td>2.0%</td>
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<td>126</td>
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<tr>
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<td>23</td>
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<td>275</td>
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<td></td>
<td>0</td>
<td>506</td>
<td>506</td>
<td>206</td>
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## Municipal Infrastructure Summary

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<th>Component</th>
<th>Quantities</th>
<th>Capital Construction Costs</th>
<th>Annual O&amp;M Costs</th>
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<td>Total (€)</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>PERU</td>
<td>PERU</td>
<td>PERU</td>
</tr>
<tr>
<td><strong>ROADWAY INFRASTRUCTURE</strong></td>
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<tr>
<td>Local Streets</td>
<td>8,944</td>
<td>17,8</td>
<td>15,022,004</td>
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<td>Major Streets</td>
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<td>2,093,459</td>
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<td>Street Upgrades</td>
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<td>10</td>
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<tr>
<td><strong>Total Streets &amp; Roadway</strong></td>
<td>12,453</td>
<td>24,5</td>
<td>27,255,463</td>
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<td>11,9</td>
<td>146,022</td>
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<td>Laterals</td>
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<td><strong>Total Water Distribution</strong></td>
<td>35,278</td>
<td>67,1</td>
<td>3,178,030</td>
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<tr>
<td>Supply, Treatment, Storage</td>
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</tr>
<tr>
<td><strong>Total Water</strong></td>
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<td>2,493,304</td>
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<td><strong>STORMWATER INFRASTRUCTURE</strong></td>
<td>34,178</td>
<td>66,1</td>
<td>5,422,243</td>
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<td>66,1</td>
<td>5,422,243</td>
</tr>
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<td><strong>TOTAL INFRASTRUCTURE</strong></td>
<td>135,660</td>
<td>268,8</td>
<td>20,096,287</td>
</tr>
</tbody>
</table>

### Annual O&M Costs

- **Roadway Infrastructure**: 17%
- **Water Infrastructure**: 36%
- **Stormwater Infrastructure**: 12%
- **Sewer Infrastructure**: 27%
- **Service Infrastructure**: 3%
- **Parks Infrastructure**: 82%

### Total Infrastructure Costs

- **Site (Developer) Costs**: $19,977,609
- **Public Sector Costs**: $17,910,419
- **Total Infrastructure Costs**: $37,888
- **Annual O&M Costs**: $709,975
- **O&M ERU**: $232
Fiscal Model Discussion

- Are your small communities experiencing growth pressure?
- How are they dealing with issues, such as:
  - Job-housing balance
  - Infrastructure investment and O&M
  - Services
- Are these responses different than the past?
- Is this model helpful?
  - What are we missing? (What can be improved?)
Understanding the Local Food Economy
Local Food System

**Purpose:** Estimate supply and infrastructure needs to meet consumer demand for locally grown food

- Changing diets
- Expanded direct markets
- New wholesale and institutional markets
- Retail and value-added markets
Production and Consumption

Consumption
2.2 million tons

- 2% Locally Produced

Production
3.4 million tons
Local food analysis chart

Production
- Crop Map
- Landscape Types
- Viability Indicators/Pro Forma
  - Yield type and amount
  - Market prices/revenue
  - Cost of production
  - Return
- Farmer Training & Land Connecting

Infrastructure
- Roads
- Distribution
- Processing
- (Cold) Storage

Consumption
- Education & Marketing
- New Markets
- Amount & Type
- Land Needs
• Aggregate local produce
• Volume for larger customers
• Use existing distributors to get local food to market
• Marketing and labeling as “local”
• Shared facilities
- Diversify products
- Serve customers that need processed food
- Commercial kitchens
- Repurpose existing processing
- Mobile processing
- Shared facilities
### Illinois Packing House Financial Data and Acreage Sensitivity Analysis

<table>
<thead>
<tr>
<th>Acres</th>
<th>Net Revenue</th>
<th>Gross Margin</th>
<th>SG&amp;A</th>
<th>Operating Income</th>
<th>Operating Margin</th>
<th>Net Income</th>
<th>Seasonal Utilization</th>
<th>Annual Utilization</th>
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<tr>
<td>500</td>
<td>$1,767,136</td>
<td>12.1%</td>
<td>20.2%</td>
<td>($143,350)</td>
<td>-8.1%</td>
<td>($320,527)</td>
<td>13.4%</td>
<td>4.4%</td>
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<tr>
<td>1000</td>
<td>$3,534,272</td>
<td>12.1%</td>
<td>10.1%</td>
<td>$69,760</td>
<td>2.0%</td>
<td>($107,417)</td>
<td>26.8%</td>
<td>8.8%</td>
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<tr>
<td>1260</td>
<td>$4,453,183</td>
<td>12.1%</td>
<td>8.0%</td>
<td>$180,577</td>
<td>4.1%</td>
<td>$2,210</td>
<td>33.7%</td>
<td>11.1%</td>
</tr>
<tr>
<td>2500</td>
<td>$8,835,680</td>
<td>12.1%</td>
<td>5.5%</td>
<td>$583,668</td>
<td>6.6%</td>
<td>$263,889</td>
<td>66.9%</td>
<td>22.1%</td>
</tr>
<tr>
<td>3500</td>
<td>$12,369,952</td>
<td>12.1%</td>
<td>5.3%</td>
<td>$839,135</td>
<td>6.8%</td>
<td>$429,612</td>
<td>93.7%</td>
<td>30.9%</td>
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<tr>
<td>10500</td>
<td>$37,109,856</td>
<td>12.1%</td>
<td>5.0%</td>
<td>$2,619,505</td>
<td>7.1%</td>
<td>$1,584,375</td>
<td>281.0%</td>
<td>92.6%</td>
</tr>
</tbody>
</table>

Source: Ready to Grow: A Plan for Increasing Illinois Fruit and Vegetable Crop Production
New Tools for Understanding Agricultural Viability

1. CROP MAP
2. ECONOMETRIC MODEL
3. DIET/LAND NEEDS
4. I-PLACE'S
5. INFRASTRUCTURE/FISCAL MODEL (IMPACS)

- Crop Map
- Econometric Model
- Diet/Land Needs
- I-Place's
- Infrastructure/Fiscal Model (Impacs)
Linking Consumption to Production

Land Needs Model Inputs:

• Population
• Consumer diet(s)
• Percent local
• Farming system(s)
• Farmer skill level(s)
Farmland Needs for Local Food

Acres (excluding meat and dairy production)

Assumes 1) USDA recommended diet, and 2) mostly expert farmers
New Tools for Understanding Agricultural Viability

1. CROP MAP
2. ECONOMETRIC MODEL
3. DIET/LAND NEEDS
4. INFRASTRUCTURE/FISCAL MODEL (IMPACS)
5. I-PLACE'S

SCENARIOS

- NUMBER OF PEOPLE
- % LOCAL
- TYPE OF CONSUMPTION
- HOW MUCH LAND NEEDED

- TYPE & AMOUNT OF INFRASTRUCTURE & SERVICES NEEDED
- COST TO BUILD, MAINTAIN & PROVIDE SERVICES
- $$$ REVENUE GENERATED FROM LAND USE PLAN
Farm Scale

- Wholesale and Institutional buyers have lower price point
- Larger farms may be better able to serve these markets
- Trade off margins for volume
- Hand labor $\rightarrow$ Machine labor
- Larger scale $\rightarrow$ Cost per acre decrease
Markets and Revenue

Local Farm Net Revenue

60 Acre

- Institution/Conventional Wholesaler: $175,000
- Direct: Farmers Market/CSA: $40,000

20 Acre

- Institution/Conventional Wholesaler: $100,000
- Direct: Farmers Market/CSA: $4,000

Comparison: 60 Acre vs 20 Acre

$300,000

$100,000
Land Use
Rural-Urban Interface

Hard Edge

Soft Edge
Rural-Urban Interface:
Percent likelihood of falling at...

- All Farms: 8%
- Hard Edge: 33%
- Soft Edge: 41%
Reducing Conflict

Rural
- Spray
- Dust
- Noise
- Odor

Urban
- Traffic
- Pets
- Invasive Plants
- Vandalism/Theft
Innovations at the Edge and Beyond

Infill & Redevelopment

Rural-Urban Edge
- Buffers
- Ag Parks
- Right-to-Farm
- Policy Boundaries
- City-County Agreements

Supporting Ag Viability Beyond the Edge
- City-County Agreements
- Voter Initiatives
- Supportive Zoning
- Open Space Plans
- Easements, TDRs, etc.
## Habitat Opportunities on Agriculture Lands

<table>
<thead>
<tr>
<th><strong>Rice</strong></th>
<th><strong>Row Crops</strong></th>
<th><strong>Irrigated Pasture</strong></th>
<th><strong>Alfalfa</strong></th>
<th><strong>Orchards</strong></th>
<th><strong>Grazing, no vernal pools</strong></th>
<th><strong>Grazing, with vernal pools</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>10 species including Swainson’s hawk, burrowing owl, peregrine falcon</td>
<td>7 species including Swainson’s hawk, burrowing owl, loggerhead shrike</td>
<td>10 species including Swainson’s hawk, burrowing owl, peregrine, falcon</td>
<td>9 species including Swainson’s hawk, burrowing owl, ferruginous hawk</td>
<td>3 species including Cooper’s hawk, yellow warbler</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16 species including Swainson’s hawk, burrowing owl</td>
<td><strong>Fairy shrimp, tadpole shrimp</strong></td>
</tr>
</tbody>
</table>

*Source: Sierra Club, Mother Lode Chapter*
Surface Water System

SACOG REGION

Source: CA DWR
Ag Land Conversion: Vehicle CO$_2$ Emissions

For every 10 acres:

Agriculture = 0.5–1.0 ton / YEAR
Development = 0.5–1.0 ton / DAY
Transportation

Challenges
Urbanizing rural roads
Conflicts/accidents
Farm worker transport
Road standards
Maintenance
Urban Rural/Edge Travel: Existing Conditions

Average Weekday Traffic Distribution

- **EB-All Veh.**
- **WB-All Veh.**
- **EB-Hvy.Truck**
- **WB-Hvy.Truck**
44% of fatal collisions vs. 13% of population
Expand Rural Mobility
Expanded Mobility: Existing Conditions

- Unsafe & unreliable transportation for ag workers
- Agricultural worker transportation program (AWTP)
Farm to Market Travel: Existing Conditions
Farm to Market Travel: Innovations
Port of West Sacramento
SGC Project Objectives

Support Blueprint (MTP/SCS) implementation by enhancing agricultural viability:
- Community diet and food deserts
- Food system infrastructure needs
- Ag worker support
- Rural community infrastructure
- Ag land protection and farm-to-market travel
Future Work

- Energy production
- Carbon sequestration
- Recreation and open space
- Regulations
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