Westside IRWM Disadvantaged Unincorporated Communities Study
September 12, 2018
Methodology

Prepare the data
A. The CRC team gathered the necessary data for the Westside IRWM area, including the following:
   A. Westside IRWM boundary
   B. Block, blockgroup, tract, place, incorporated areas, census designated areas (CDP), and county boundary data from the US Census
   C. Parcel data from each of the five counties
   D. 2010 Census block-level demographic data (total population, including race/ethnicity)
   E. ACS 2012-2016, 2011-2015, and 2010-2014 Median Household Income (MHI) data by blockgroup, tract, and place
   F. Farmland Mapping Monitoring Program (FMMP) data
   G. Water service boundary downloaded in June 2018 from the California Environmental Health Tracking Program
   H. Public Water System Compliance Status, downloaded in June 2018 from the California State Water Resources Control Board

Calculate parcel density
A. Using the Kernel Density tool (which calculates the density of point features around each output raster cell), the CRC made a grid of the IRWM area, calculating the parcel density for each grid cell.
B. We then eliminated cells whose centroid fell within incorporated areas and within blocks with a population of zero. We then selected all lands to be included in the parcel density analysis, instead of those that spatially correlated with the FMMA Urban and Built-Up land designation.

Identify Unincorporated Communities
A. We selected all grid cells with a parcel density of 150 parcels/sq. mi. or greater. The SJV study analyzed areas with a parcel density of 250 parcels/sq. mi. The CRC decided to lower the threshold for an unincorporated community since this is a very rural area.

Identify Disadvantaged Unincorporated Communities
A. The CRC used the latest Median Household Income data from the ACS 2012-2016 dataset. The MHI for California was $63,783 for this dataset; hence, the Disadvantaged Community (DAC) threshold was $51,026. The CRC identified all blockgroups, tracts, and places with an MHI of $51,026 or lower, and created one feature class for DAC analysis.
B. We then intersected the DAC and filtered parcel density feature classes to determine possible Disadvantaged Unincorporated Communities (DUC). We named them according to their proximity to other incorporated areas or CDPs.
C. We eliminated DUCs appearing to border larger communities and demonstrating low density parcels.
D. We changed the boundaries of 5 DUCs to exclude surrounding agricultural lands.
E. Finally, we expanded the boundaries of 5 DUCs to reflect the entire community.

Determine proximity to safe drinking water
A. The CRC compared the initial DUC feature class to the most current water service boundary data.
B. We found that the high density areas of many DUCs were overlapped by a public water system; however, several DUCs, especially surrounding Clear Lake, appeared to lie outside of the nearby service area or are only partially intersected.
DUC Median Household Income Comparison

California MHI ($63,783)
DAC Threshold ($51,026)
"Severe" DAC Threshold ($38,270)
*No data for South Middleton*
*No data for Big Valley Rancheria, Finley, Sulpher Bank Point, Rocky Point, South Middleton*
### Proximity Analysis: Distance from DUCs to In-Compliance PWSs

<table>
<thead>
<tr>
<th>Distance to Closest Safe Drinking Water Supplier within a 10-mile radius of each DUC</th>
<th>Number of DUCs</th>
<th>Percentage of DUCs</th>
<th>Number of people</th>
<th>Percentage of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>High density areas of DUC fully intersected</td>
<td>12</td>
<td>46.2%</td>
<td>20,177</td>
<td>52.9%</td>
</tr>
<tr>
<td>Partially intersected</td>
<td>9</td>
<td>34.6%</td>
<td>15,736</td>
<td>41.3%</td>
</tr>
<tr>
<td>Less than 500 feet</td>
<td>2</td>
<td>7.7%</td>
<td>1,643</td>
<td>4.3%</td>
</tr>
<tr>
<td>500 feet to 1 mile</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>1 to 3 miles</td>
<td>2</td>
<td>7.7%</td>
<td>395</td>
<td>1.0%</td>
</tr>
<tr>
<td>More than 3 Miles</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>No safe water supplier within 10-mile radius</td>
<td>1</td>
<td>3.8%</td>
<td>185</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100%</td>
<td>38,136</td>
<td>100%</td>
</tr>
</tbody>
</table>

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### Proximity of DUCs to a Safe Drinking Water Supply

- **High density areas fully intersected**
- **Partially intersected**
- **Less than 500 feet**
- **1 to 3 miles**
- **No safe water supplier within 10-mile radius**

**Proximity to an In-Compliance PWS**

- Green: High density areas fully intersected
- Yellow: Partially intersected
- Orange: Less than 500 feet
- Orange: 1 to 3 miles
- Red: No safe water supplier within 10-mile radius

**Legend**

- Blue: Westside IRWM Boundary
- Pink: Incorporated Areas
- Pink: Westside IRWM Regions

**Data sources:** Census 2010, CA SWRCB, CEHTP, Westside IRWM

Map created by S. Watterson, Sep 2018
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Westside IRWM Communities: Nice

- DUC Population: 2809
- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Lucerne DUC Area

Nice DUC Area

Westside IRWM Locator Map

Sources: Census 2010; CA SWRCB; CEHTP; Colusa, Lake, Napa, Solano, and Yolo counties; FMWP; Westside IRWM Map created by S. Watterson, September 2018

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Document Path: C:\Users\ahaller\Box\Westside Water Justice\Mapping\Presentations\180912_Sep17\Westside_CommunityMaps\closeup.png
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Westside IRWM Locator Map

Westside IRWM Communities:
Lucerne

DUC Population: 3105

- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System (PWS)**
- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHTP; Colusa, Lake, Napa, Solano, and Yolo counties; FMMP; Westside IRWM Map created by S. Watterson, September 2018

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Westside IRWM Communities: Lower Lake

DUC Population: 1434

- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System (PWS)**

- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHPT; Colusa, Lake, Napa, Solano, and Yolo counties; FMMP; Westside IRWM Map created by S. Watterson, September 2018

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Westside IRWM Communities:
Twin Lakes

DUC Population: 281

- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System (PWS)**

- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHTP; Colusa, Lake, Napa, Solano, and Yolo counties; FMWP; Westside IRWM Map created by S. Watterson, September 2018

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Westside IRWM Communities: Middletown

DUC Population: 1334

- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System (PWS)**

- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHTP; Colusa, Lake, Napa, Solano, and Yolo counties; FMMIP; Westside IRWM Map created by S. Waterton, September 2018

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Westside IRWM Communities:
Guinda

DUC Population: 185

- Parcels on urban & built-up lands
- Parcels on all other lands*
- Possible DUCs
- DUCs intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System (PWS)**

- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHTP; Colusa, Lake, Napa, Solano, and Yolo counties; FMWP; Westside IRWM
Map created by S. Watterson, September 2018
Further Discussion

- Do you agree with identified DUCs?
- Do you think some DUCs should be eliminated from the list, and are there other communities that should be on it?
- Are there other elements or data that should be represented on the maps?
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Westside IRWM Communities:
Upper Lake
DUC Population: 1173

- Parcels on urban & built up lands
- Parcels on all other lands*
- Possible DUCs
- DUC intersected by a water provider
- Incorporated Areas
- Tribal Lands
- Westside IRWM Boundary

Public Water System [PWS]**
- In Compliance
- Returned to Compliance
- Out of Compliance
- Not Available

* Some parcels might be holdings/undeveloped
** Boundaries and compliance status current as of June 6, 2018

Sources: Census 2010; CA SWRCB; CEHPT; Colusa, Lake, Napa, Solano, and Yolo counties; FMWP; Westside IRWM Map created by S. Watterson, September 2018

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