Vacant Buildable Lands Model

VBLM Presentation to BOCC Work Session

October 9, 2013

Topics

- Model Overview and definition of terms
- History of the VBLM
- Additional Resources

What does the model do?

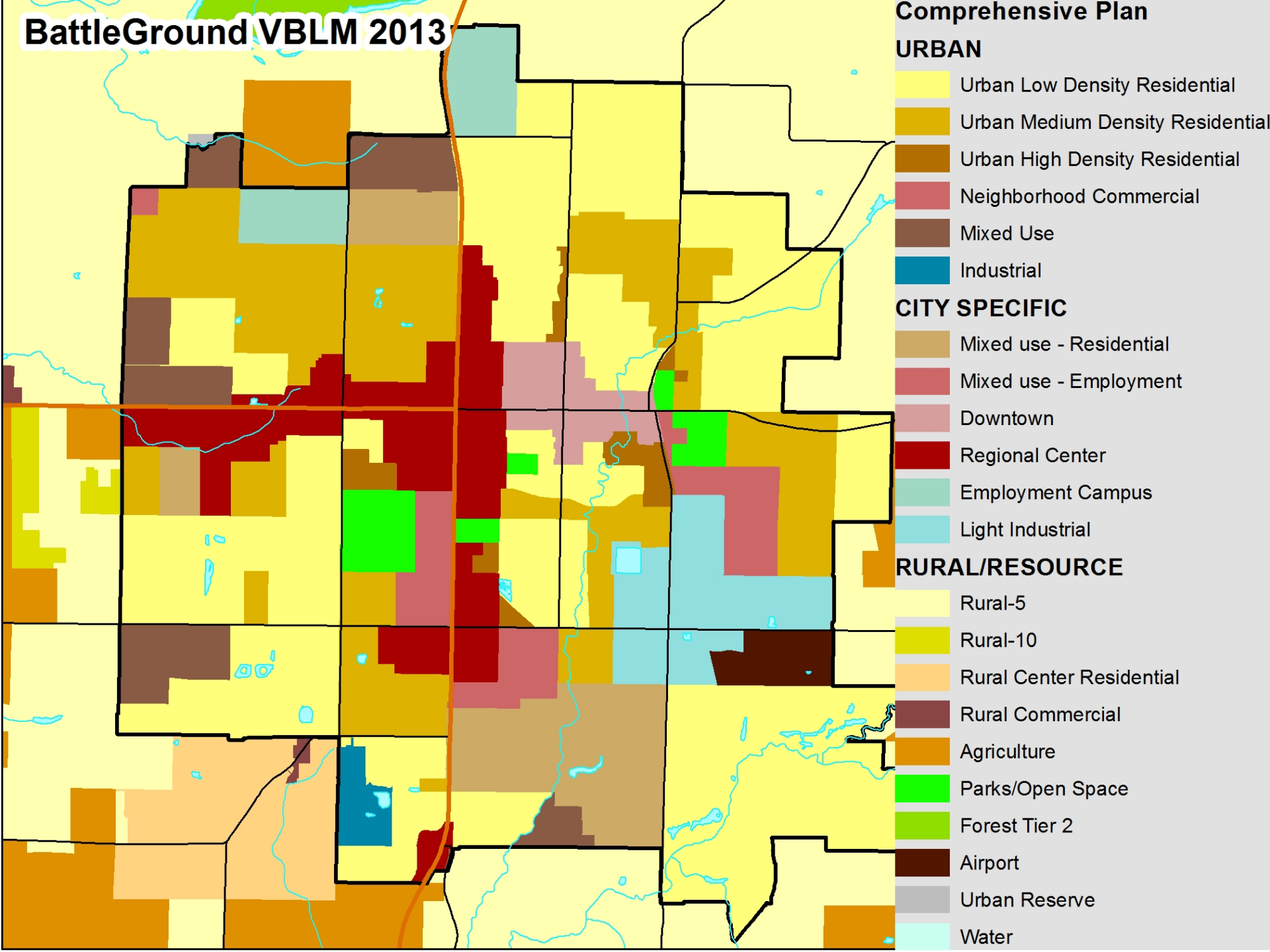
- Measures acres of developable land
- Based on a formula agreed upon by the Cities, County, and the Community
- Based on the best available data
  - GIS map layers
  - Assessor/Treasurer records

VBLM is actually 3 models

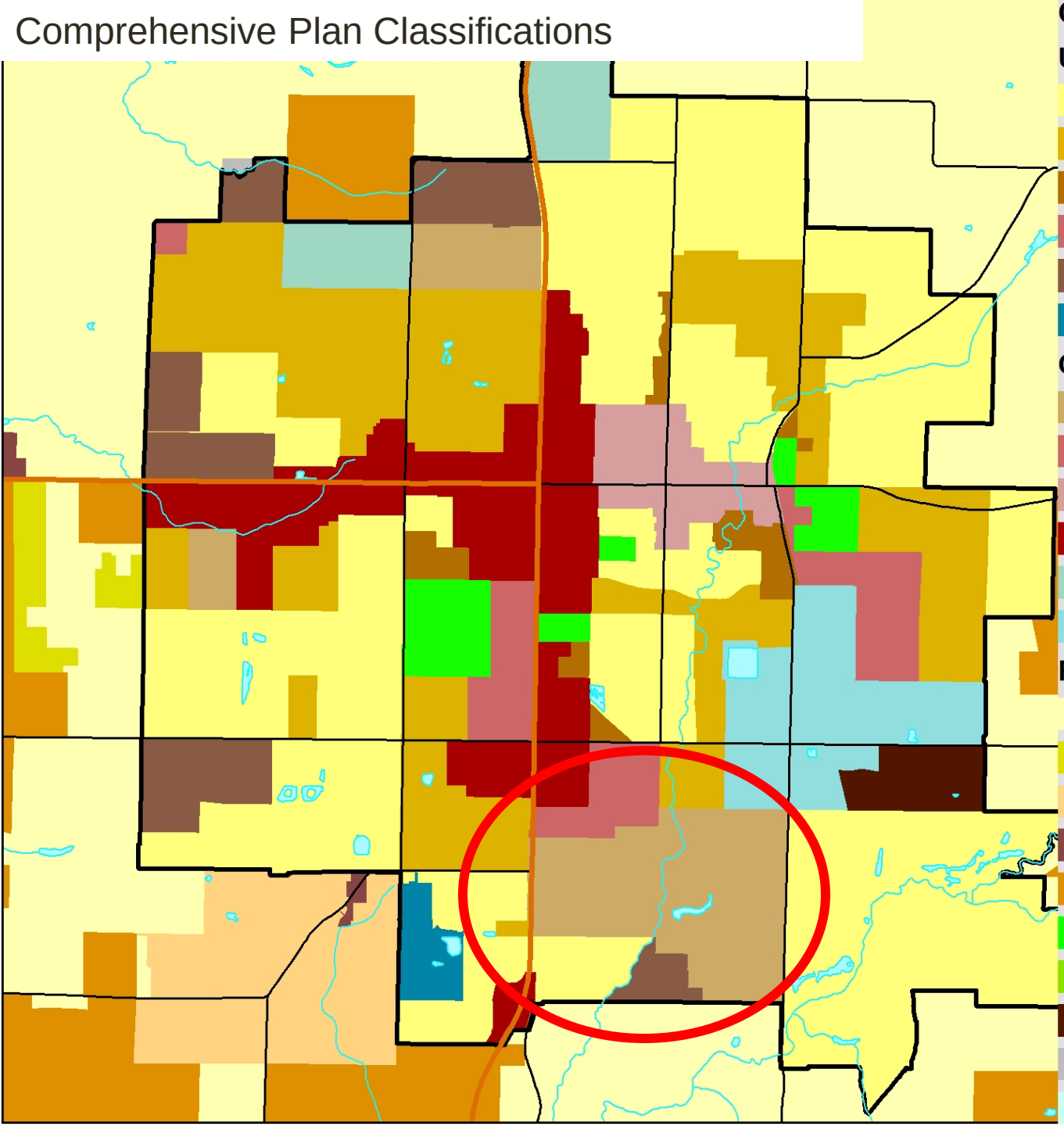
- Residential
- Commercial
- Industrial

Source: Comprehensive Plan map

50 designations grouped into the 3 models


BattleGround VBLM 2013
Comprehensive Plan
URBAN
Urban Low Density Residential
Urban Medium Density Residential
Urban High Density Residential
Neighborhood Commercial
Mixed Use
Industrial
CITY SPECIFIC
Mixed use - Residential
Mixed use - Employment
Downtown
Regional Center
Employment Campus
Light Industrial
RURAL/RESOURCE
Rural-5
Rural-10
Rural Center Residential
Rural Commercial
Agriculture
Parks/Open Space
Forest Tier 2
Airport
Urban Reserve
Water

Comprehensive Plan Classifications



Comprehensive Plan

URBAN

- Urban Low Density Residential
- Urban Medium Density Residential
- Urban High Density Residential
- Neighborhood Commercial
- Mixed Use
- Industrial

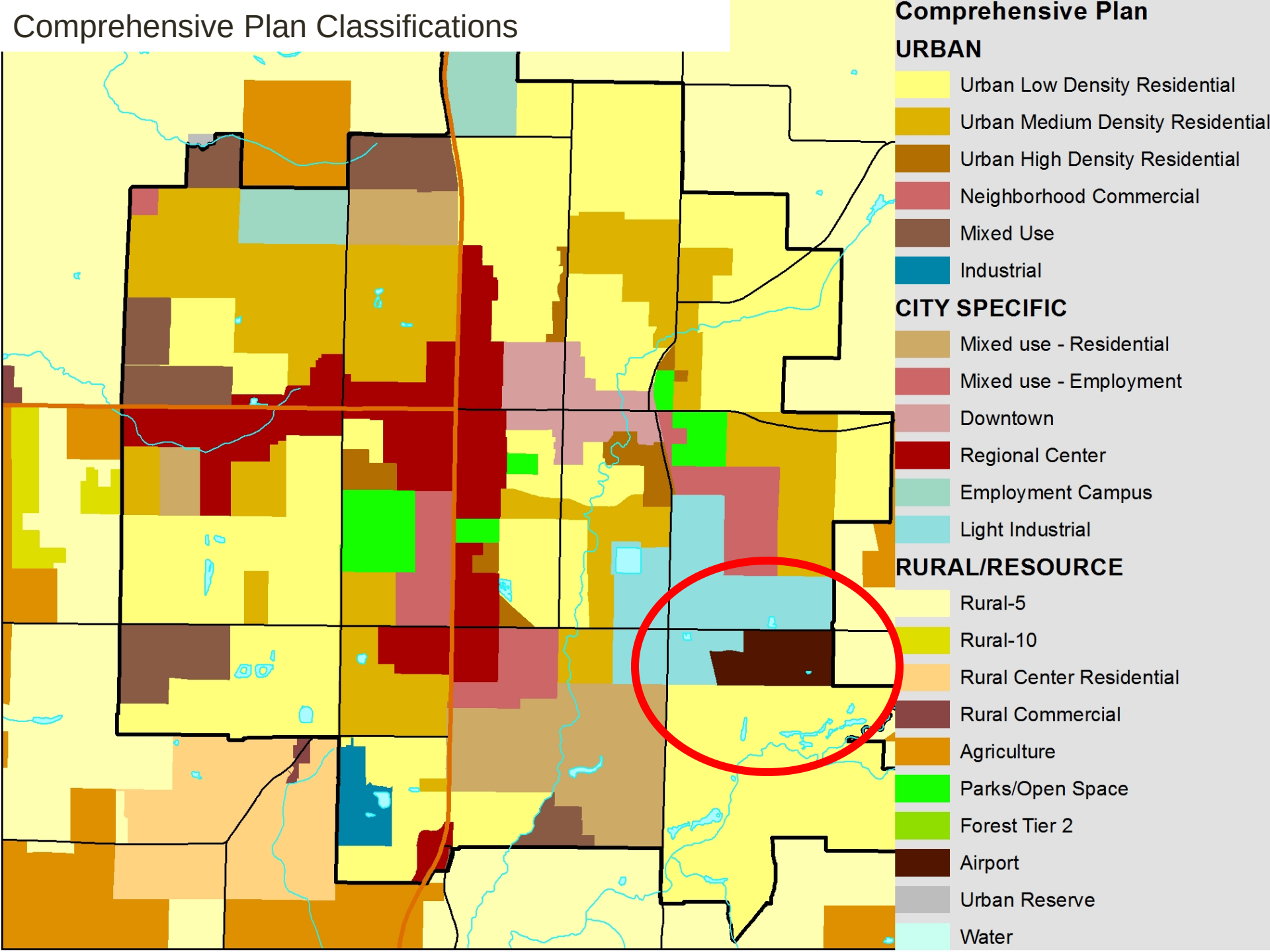
CITY SPECIFIC

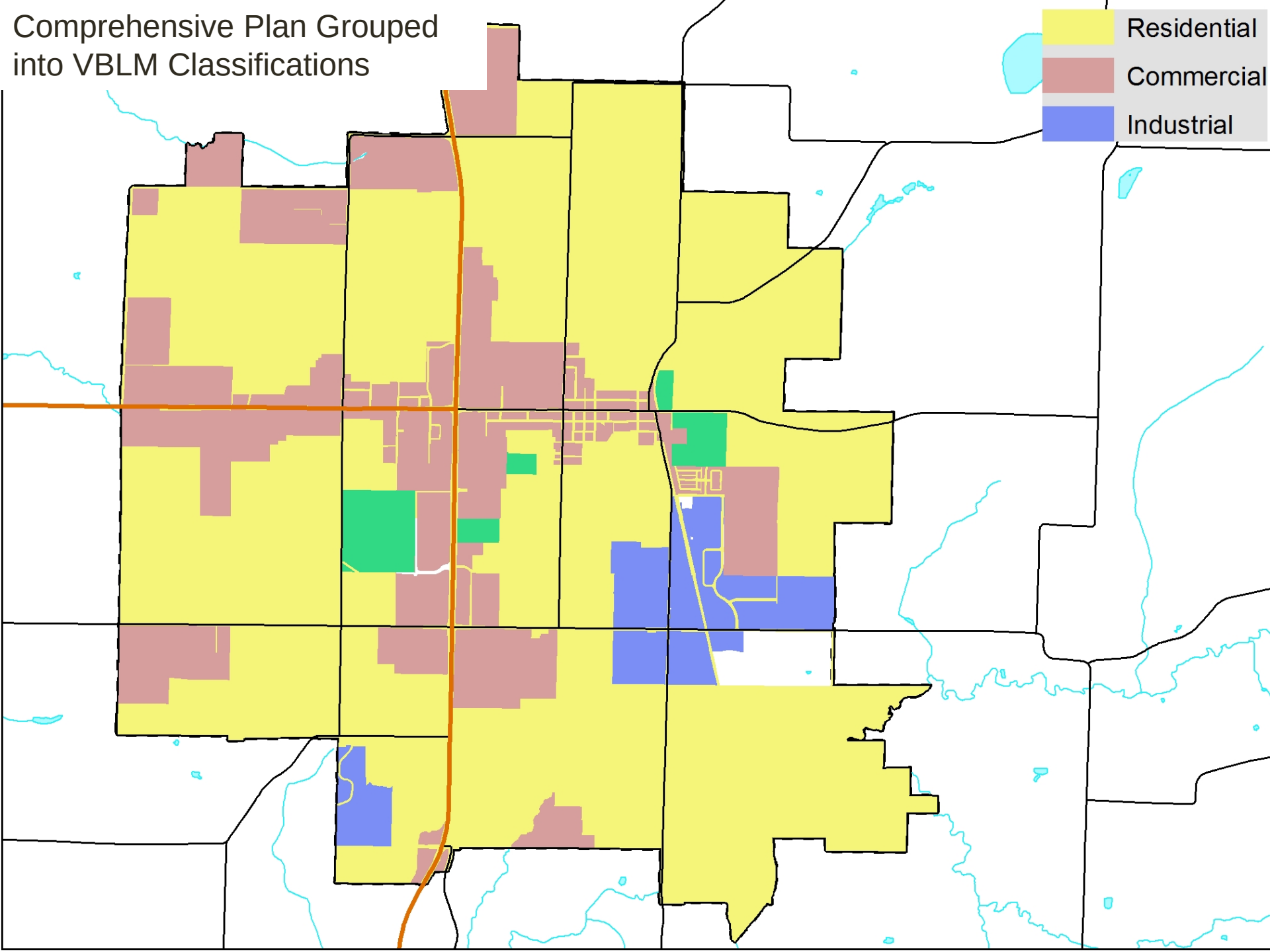
- Mixed use - Residential
- Mixed use - Employment
- Downtown
- Regional Center
- Employment Campus
- Light Industrial

RURAL/RESOURCE

- Rural-5
- Rural-10
- Rural Center Residential
- Rural Commercial
- Agriculture
- Parks/Open Space
- Forest Tier 2
- Airport
- Urban Reserve
- Water

Comprehensive Plan Classifications




Comprehensive Plan Grouped into VBLM Classifications
Residential
Commercial
Industrial

What is Vacant?

Residential

Building Value < $13000

Commercial

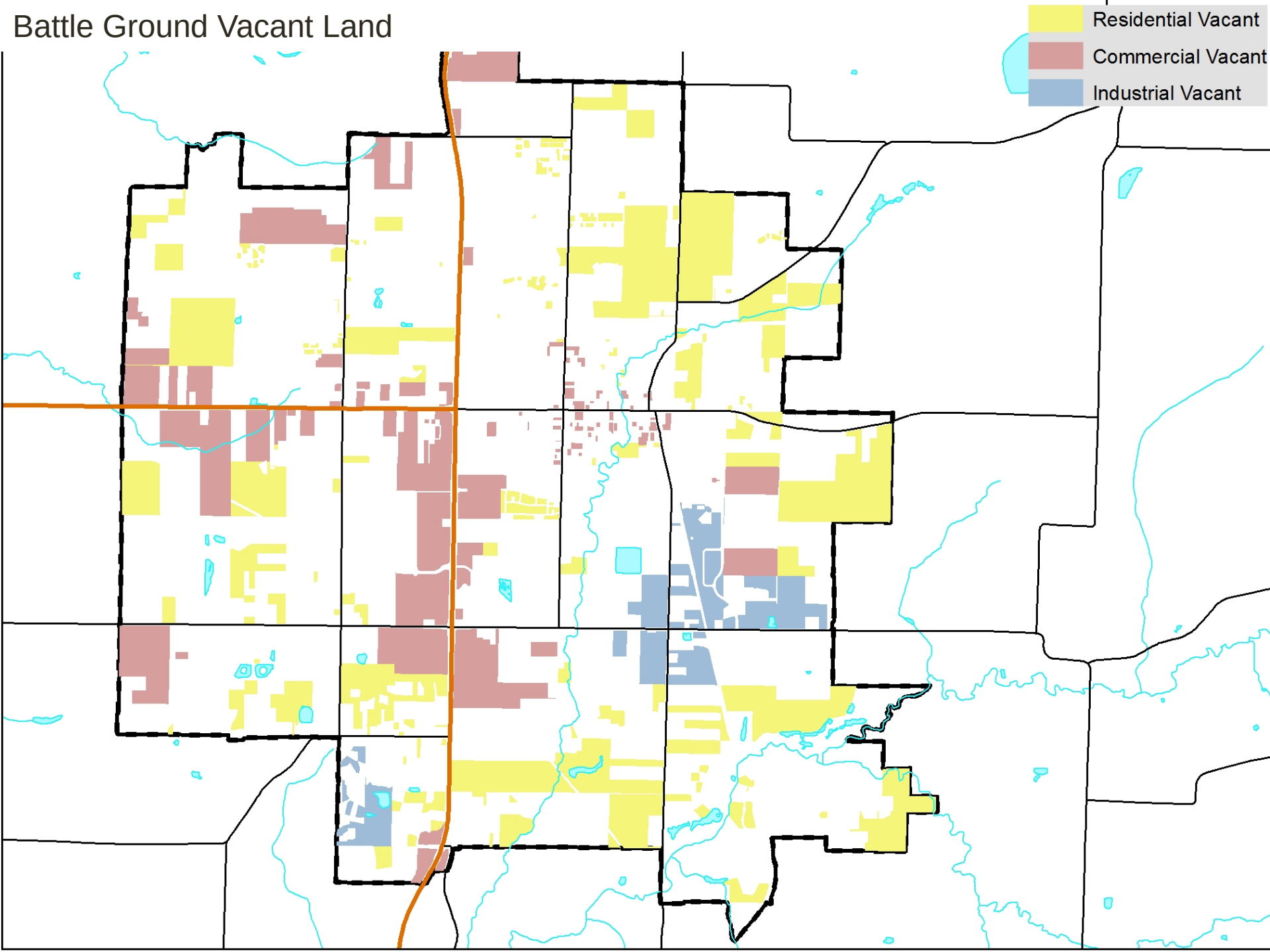
Building Value < $67,000

Industrial

Building Value < $67,000

Source: Assessor

Battle Ground Vacant Land



Underutilized Property

Larger parcels with a structure that could subdivide.

Building Value per Acre (BVA) = Building Value / Number of Acres

Residential

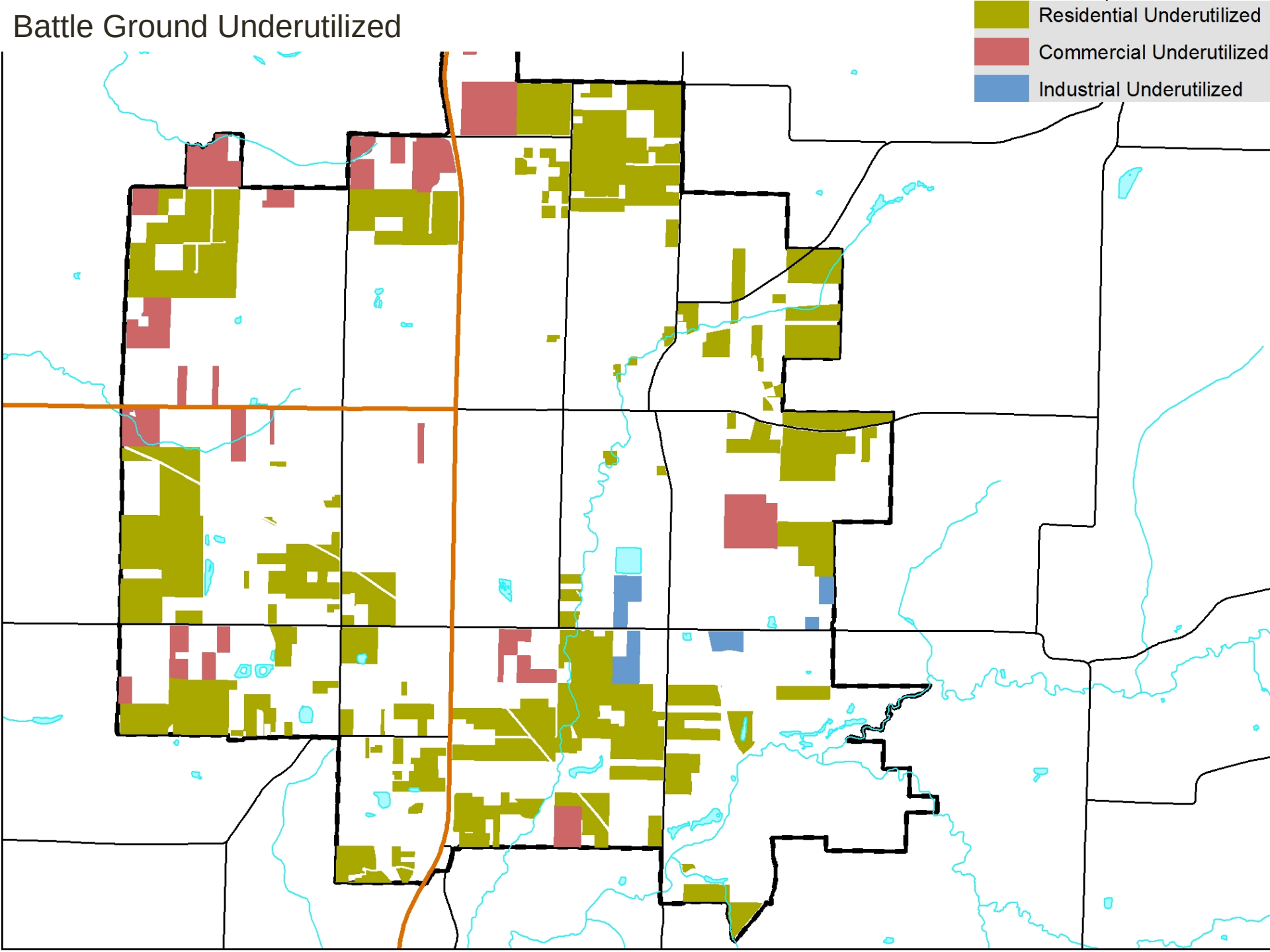
- Minimum lot size 1 acre
- Bottom 20th percentile of BVA

Commercial /Industrial

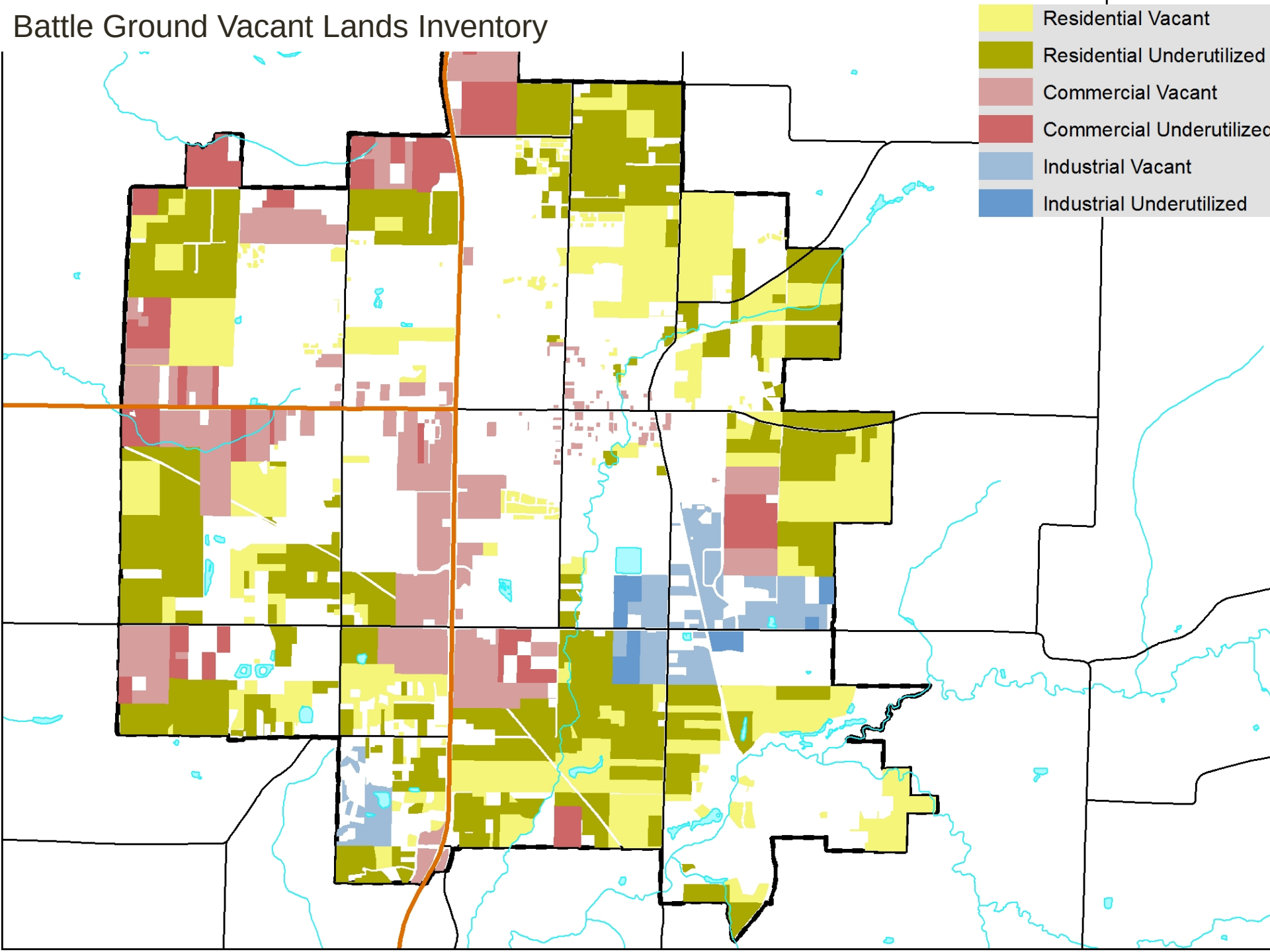
- BVA less than $50,000

Source: Assessor

Battle Ground Underutilized



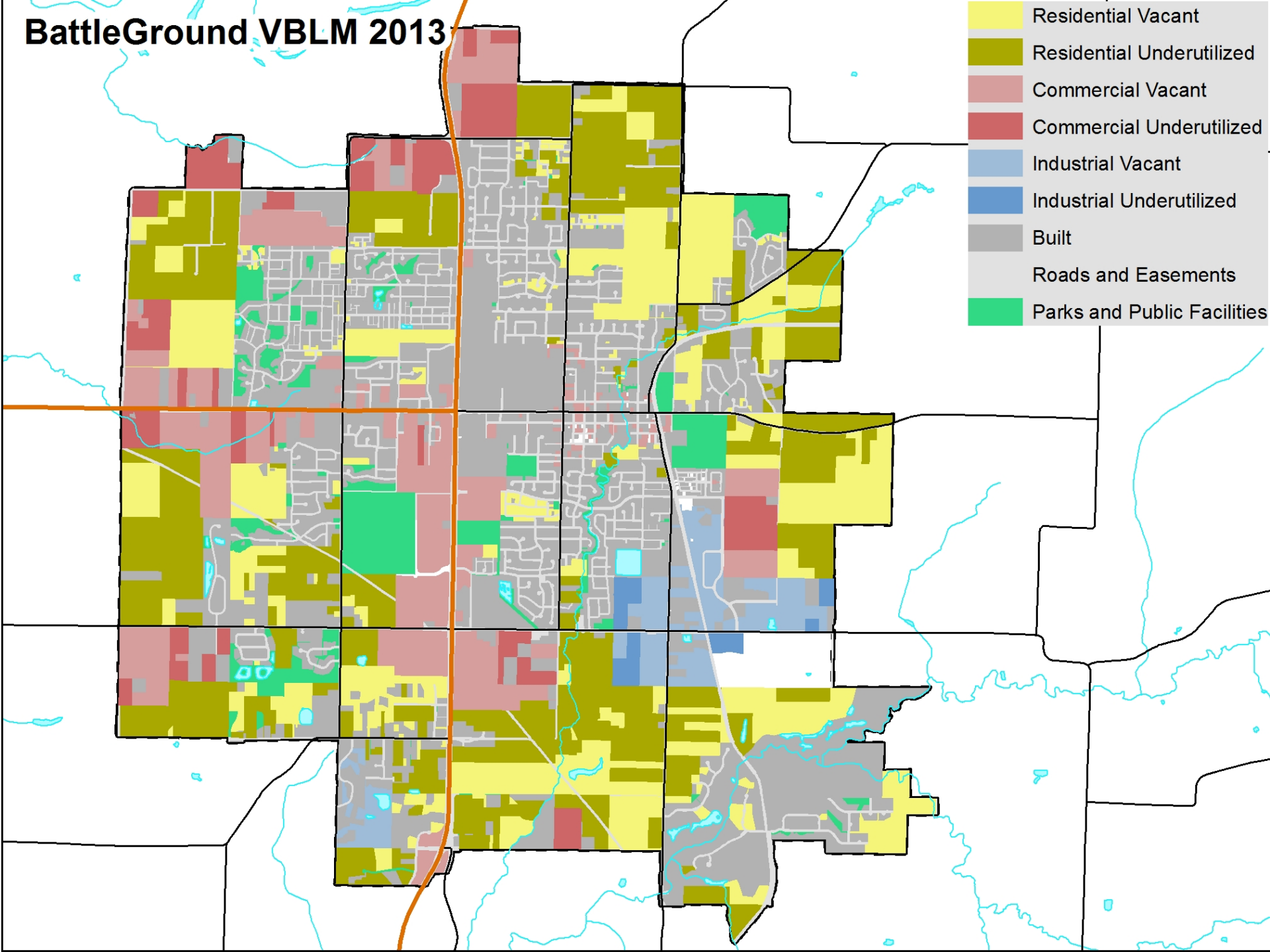
Battle Ground Vacant Lands Inventory



Not Vacant or Underutilized

Built Classifications

- Built (undifferentiated)
- Easements and Right of Way
- Parks
- Private Open space
- Public Facilities
- Exempt Properties
- Court Yards
- Mansions
- Condos
- Mobil Home Parks


BattleGround VBLM 2013
Residential Vacant
Residential Underutilized
Commercial Vacant
Commercial Underutilized
Industrial Vacant
Industrial Underutilized
Built
Roads and Easements
Parks and Public Facilities

Rates of Development

- Vacant land will develop faster than Underutilized
- Some land will never develop
  - A larger portion of Underutilized will not develop
- Environmental Constraints will further limit development potential

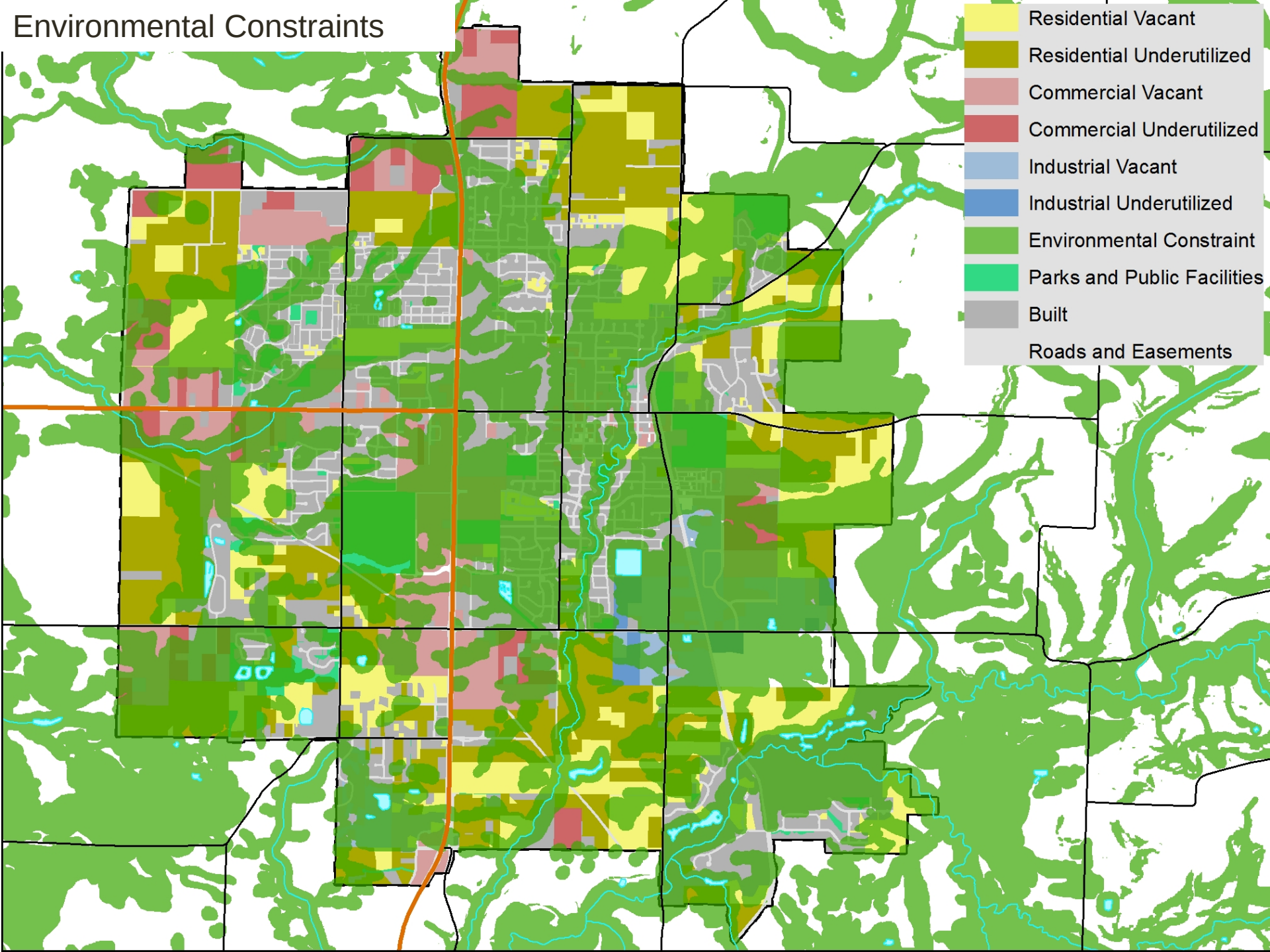
Environmental Constraints

Limit development on vacant or underutilized land

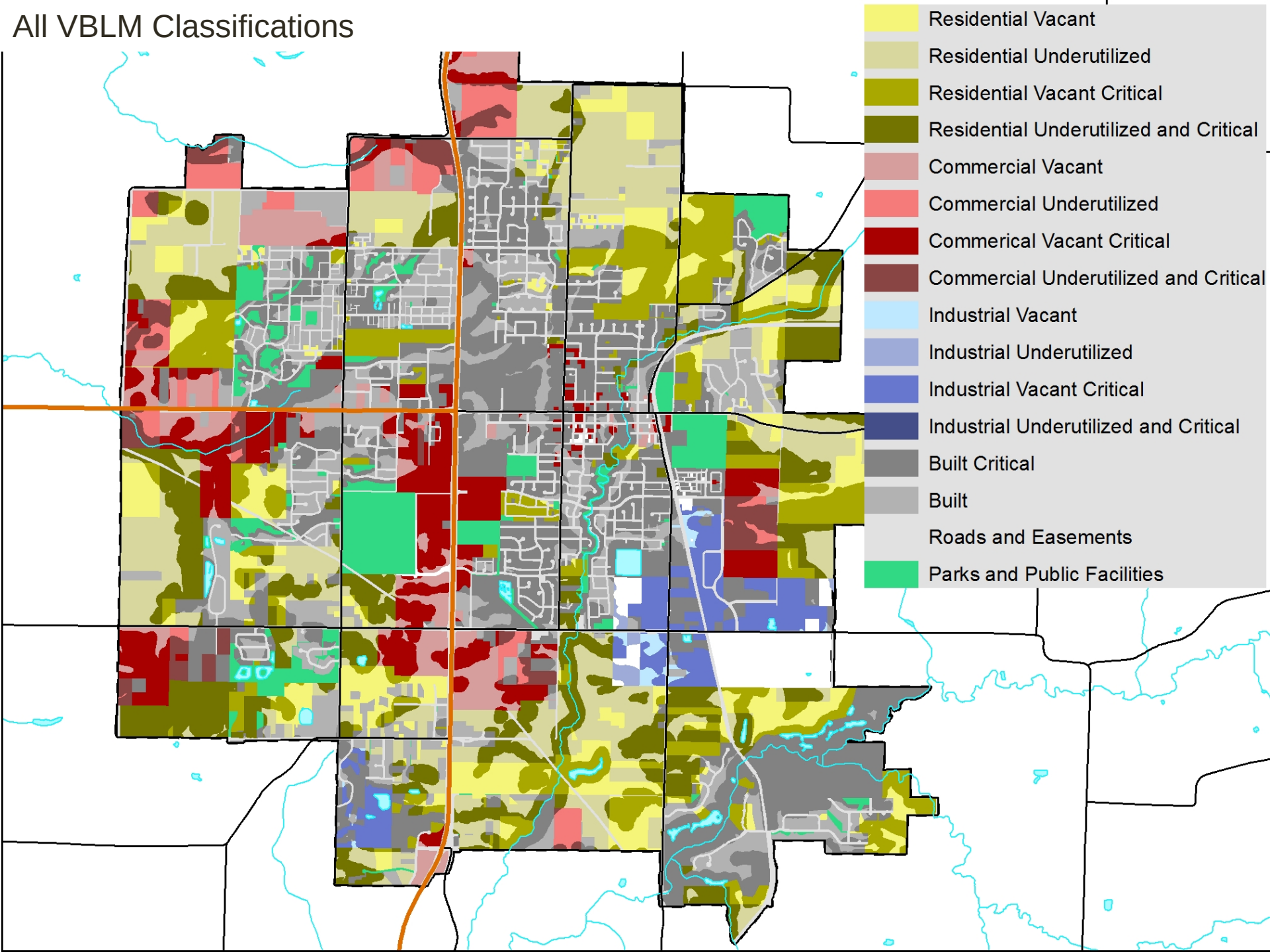
Steep Slopes
Landslide Areas
Riparian Areas
Flood plains
Wetlands
Habitat and Species

Source: GIS Layers

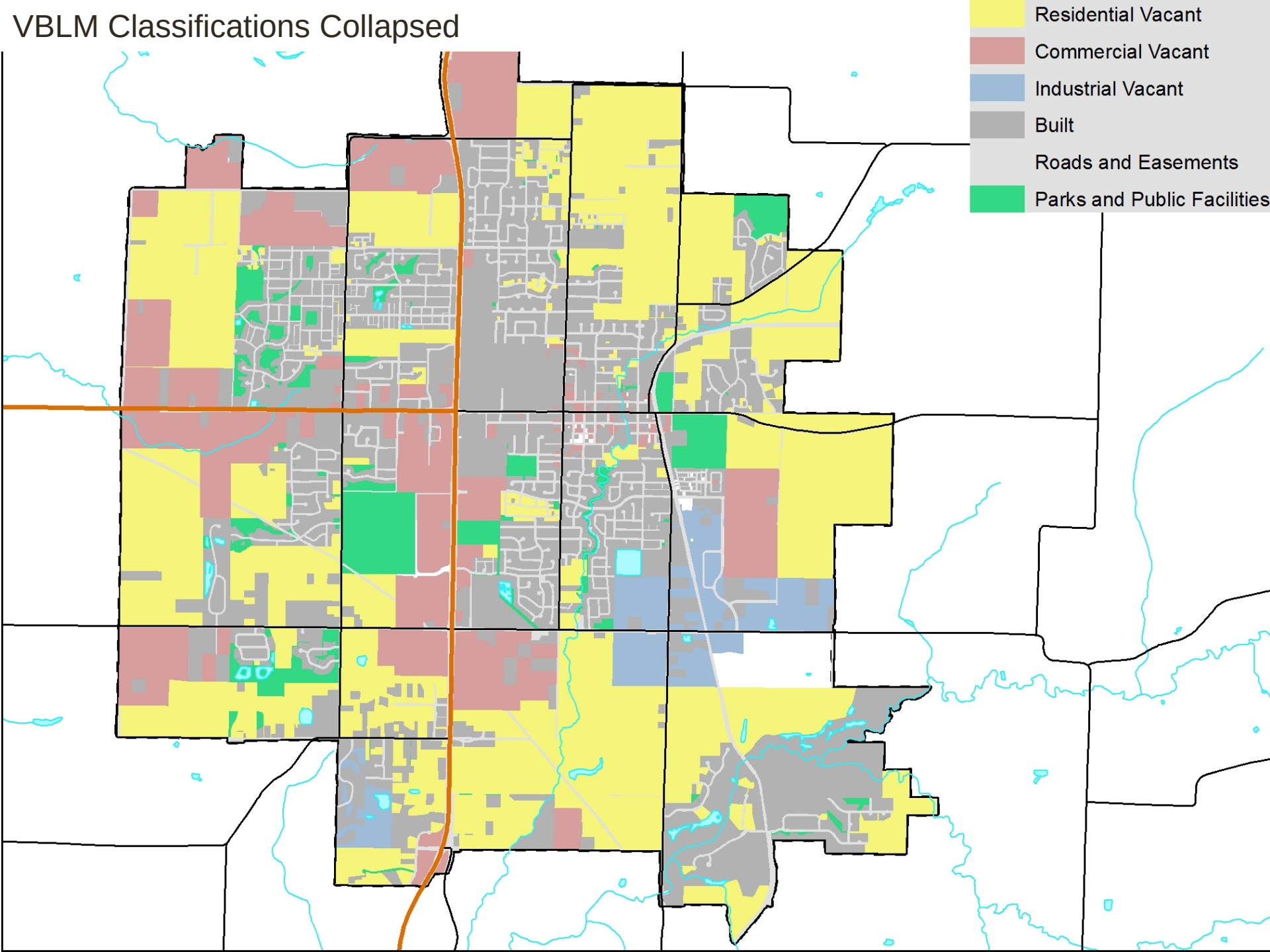
Environmental Constraints



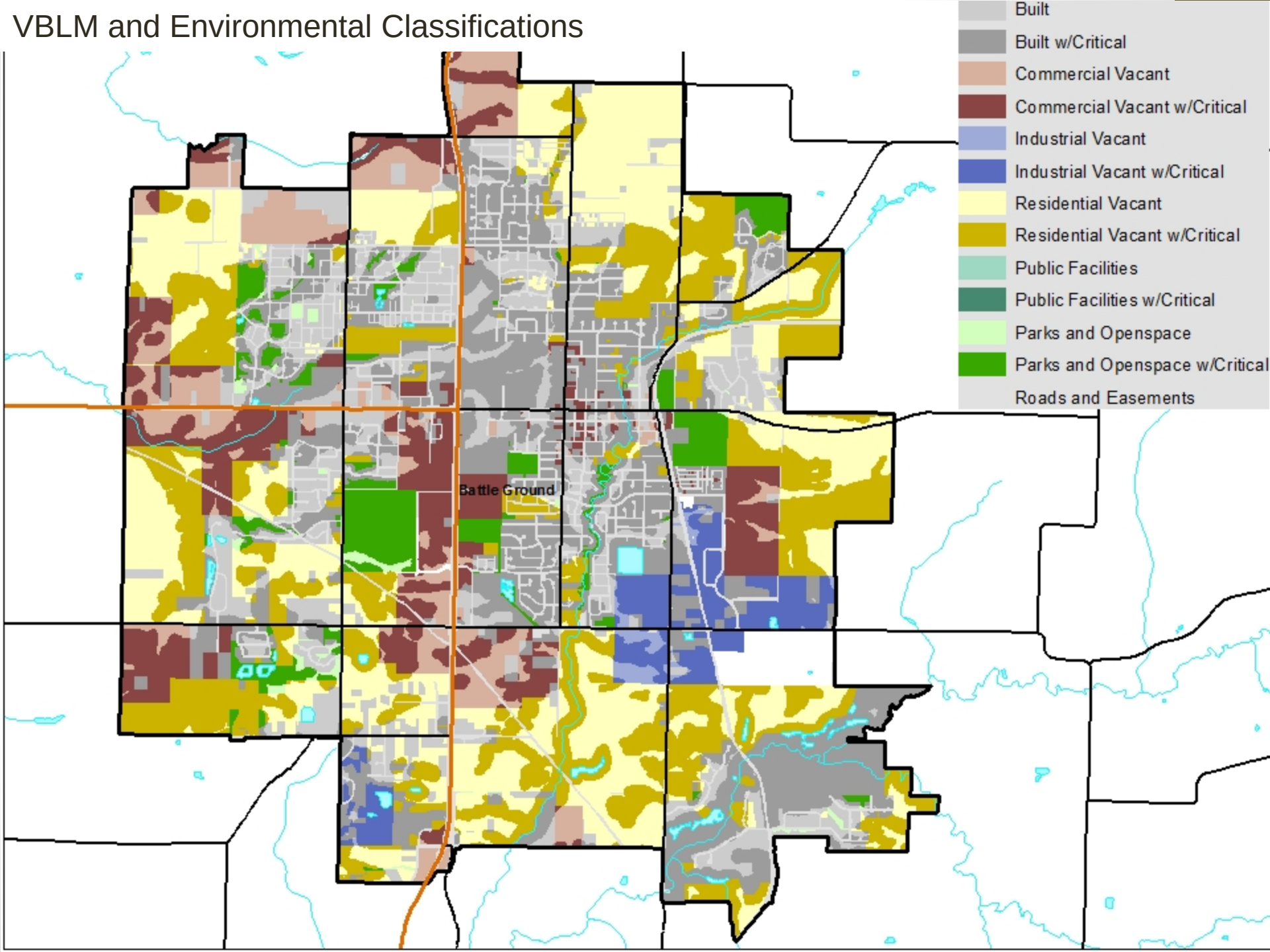
All VBLM Classifications



VBLM Classifications Collapsed

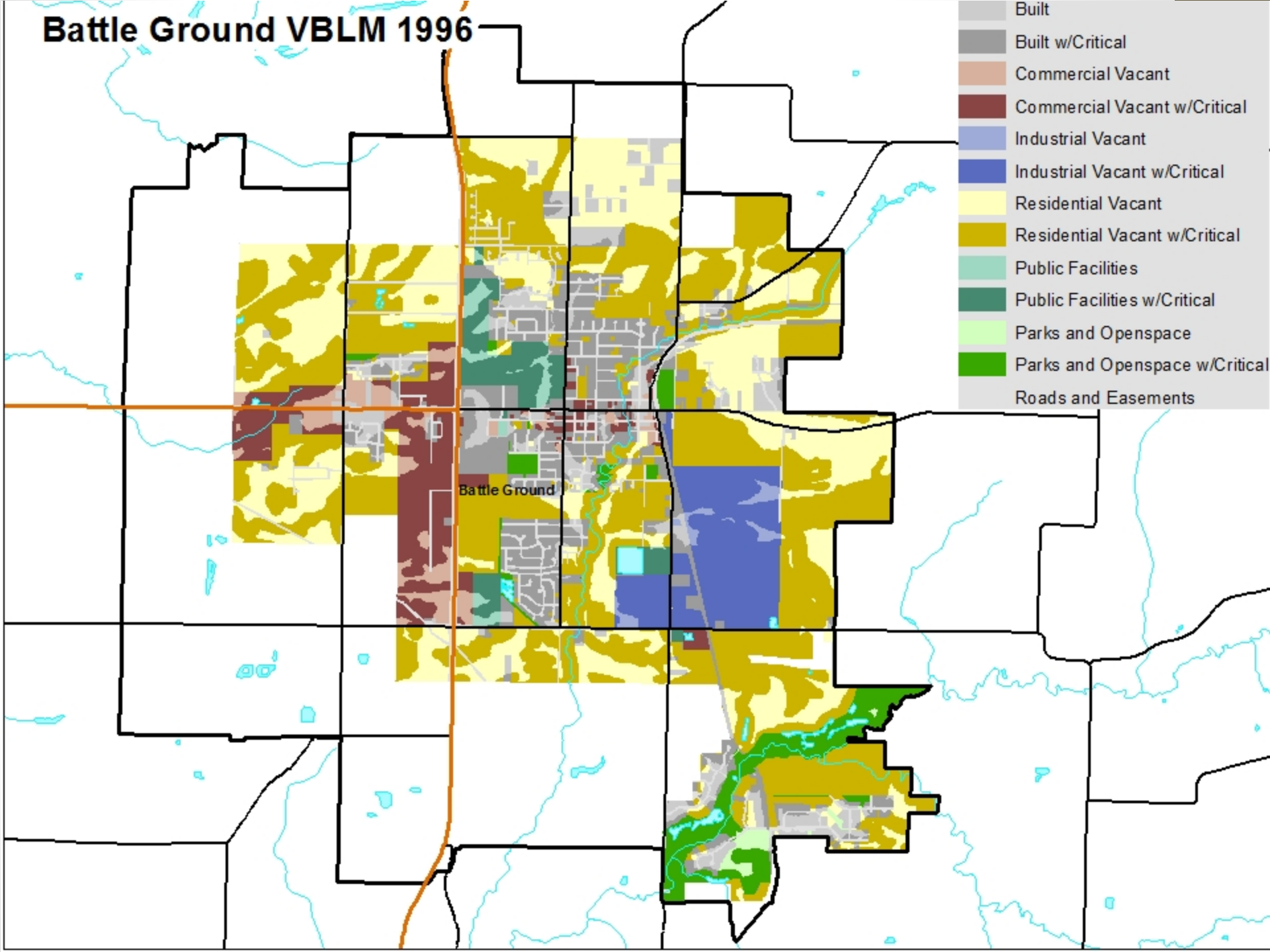


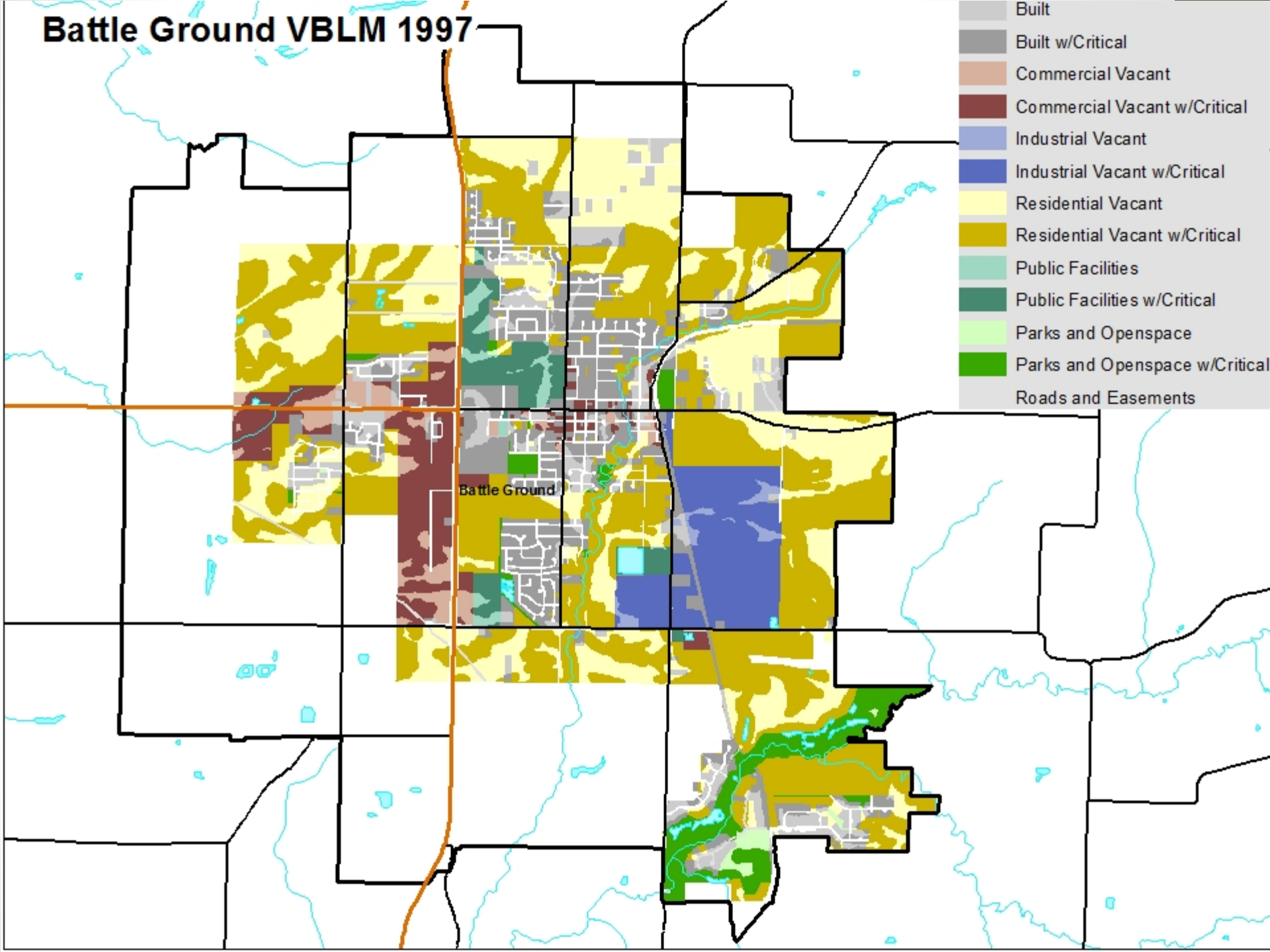
VBLM and Environmental Classifications

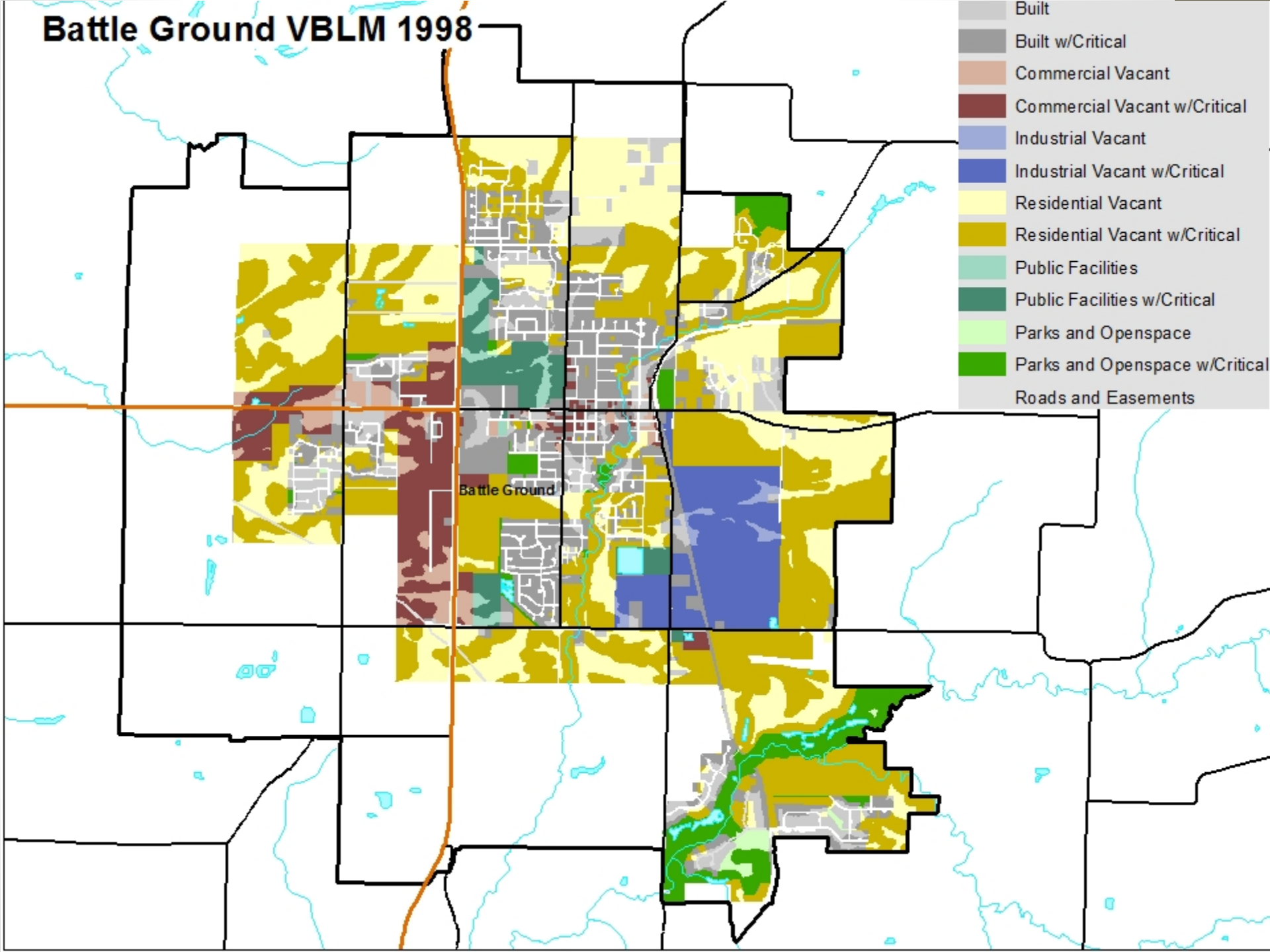


Viewing the model through time.

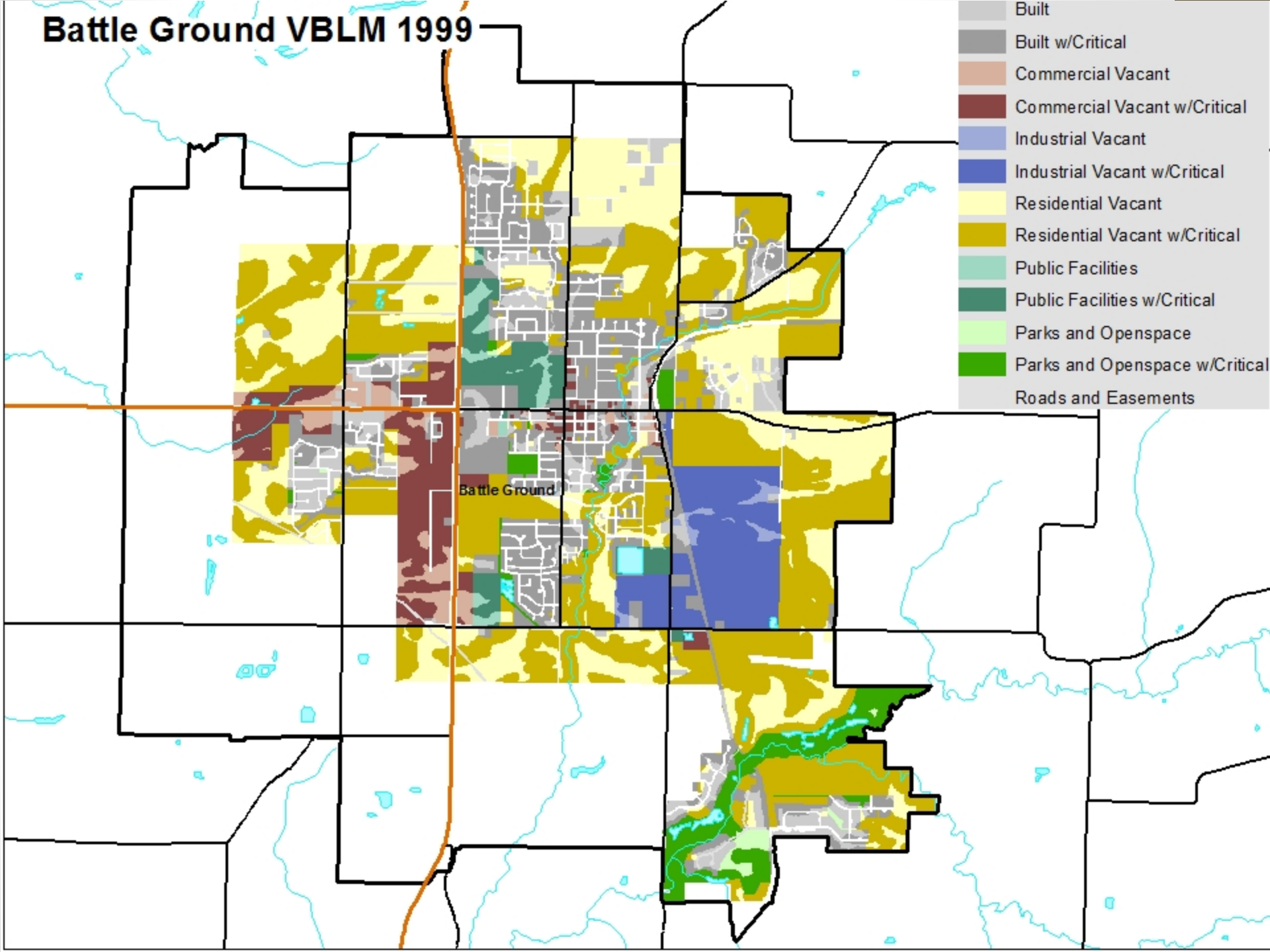
1996 - 2013


Battle Ground VBLM 1996
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

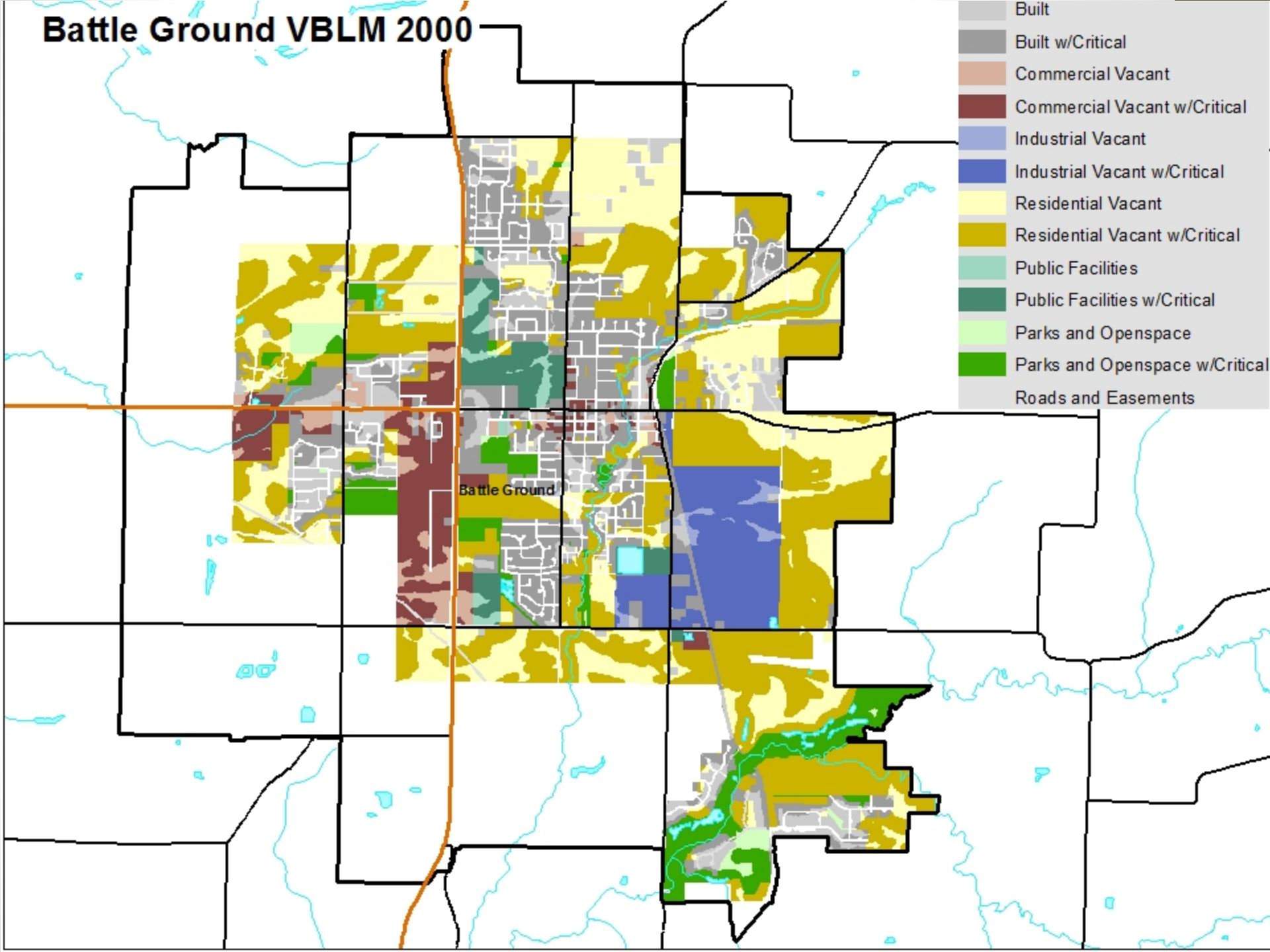

Battle Ground VBLM 1997
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground


Battle Ground VBLM 1998
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

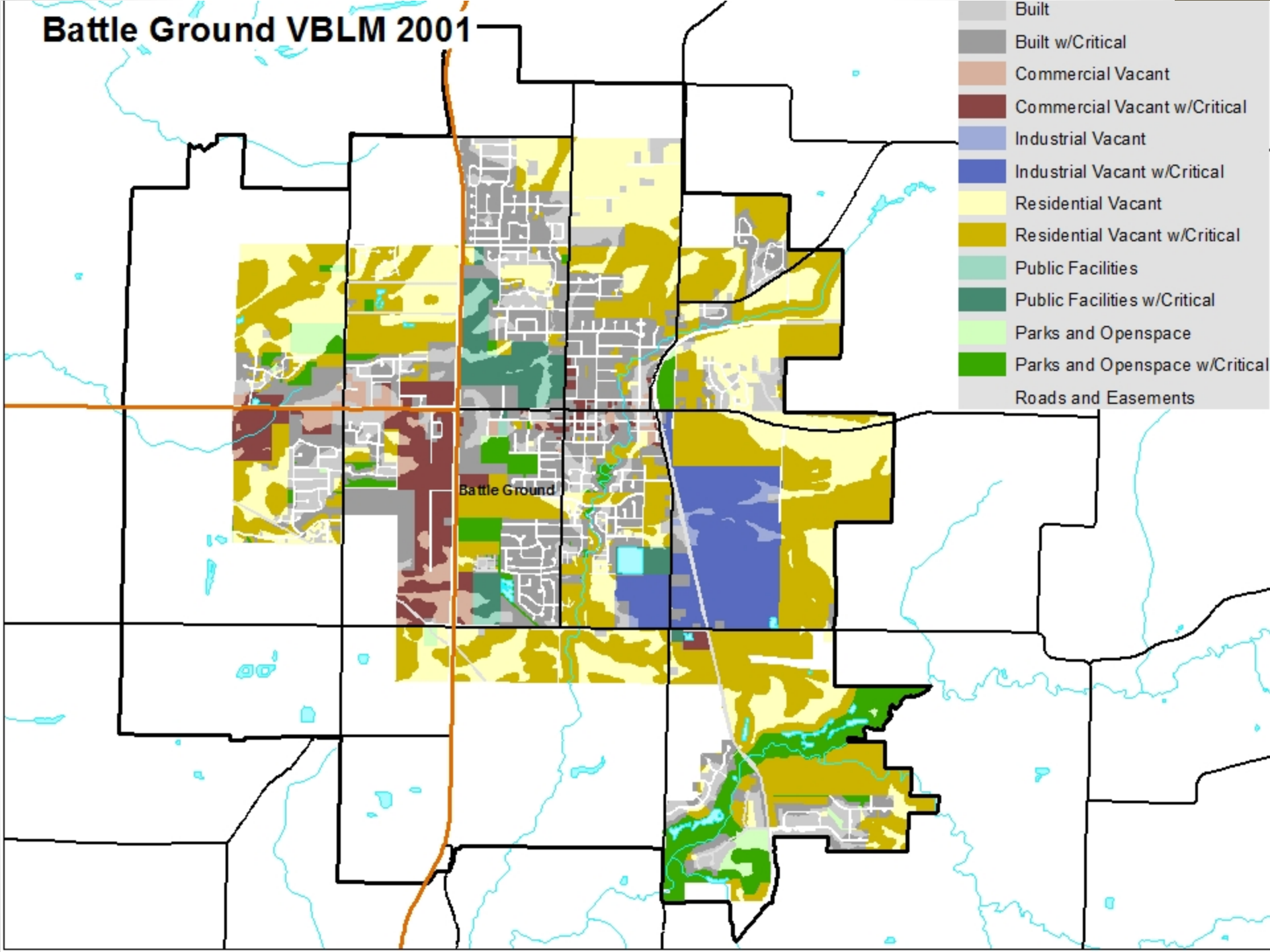
Battle Ground VBLM 1999



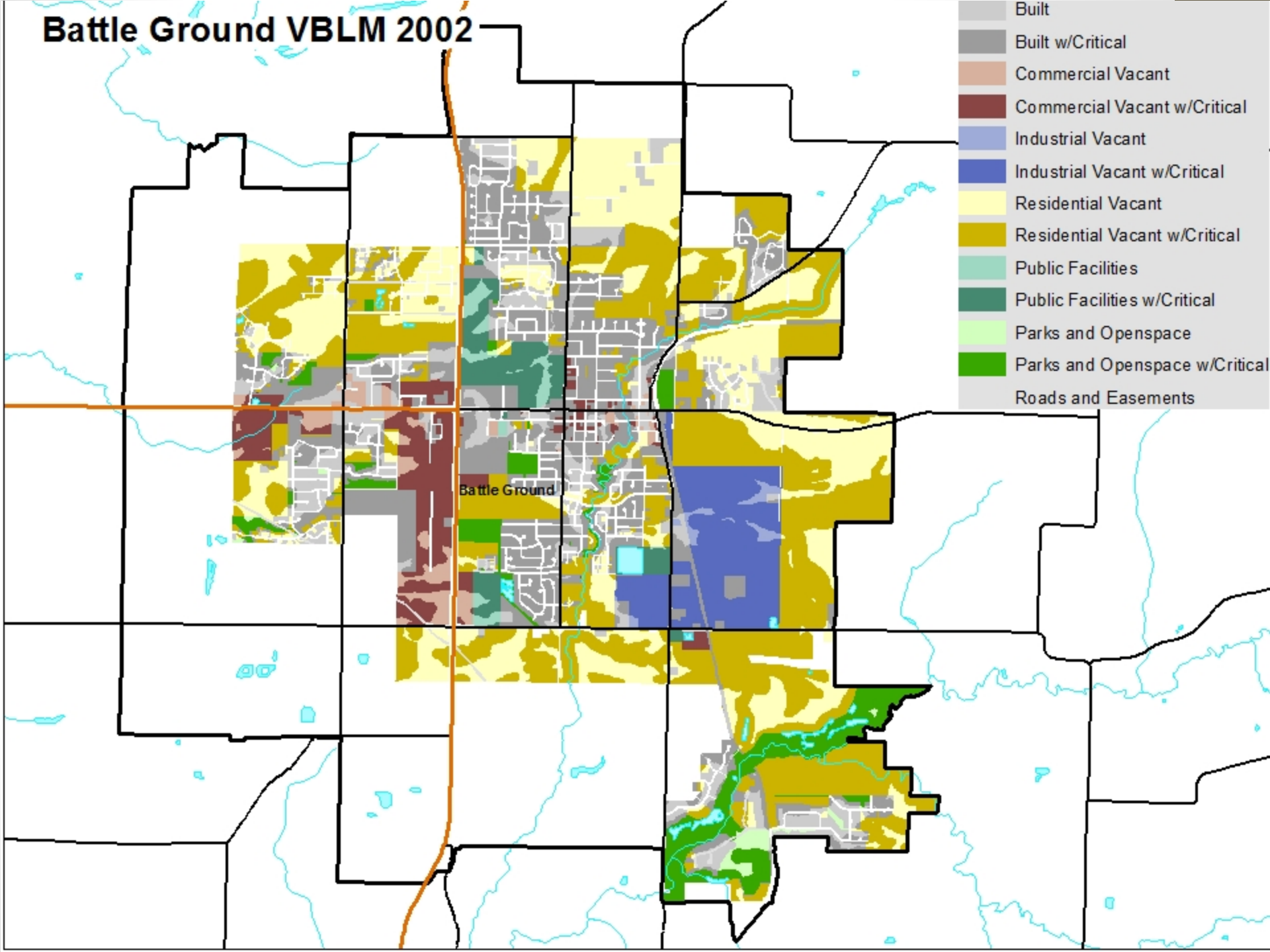
Battle Ground VBLM 2000



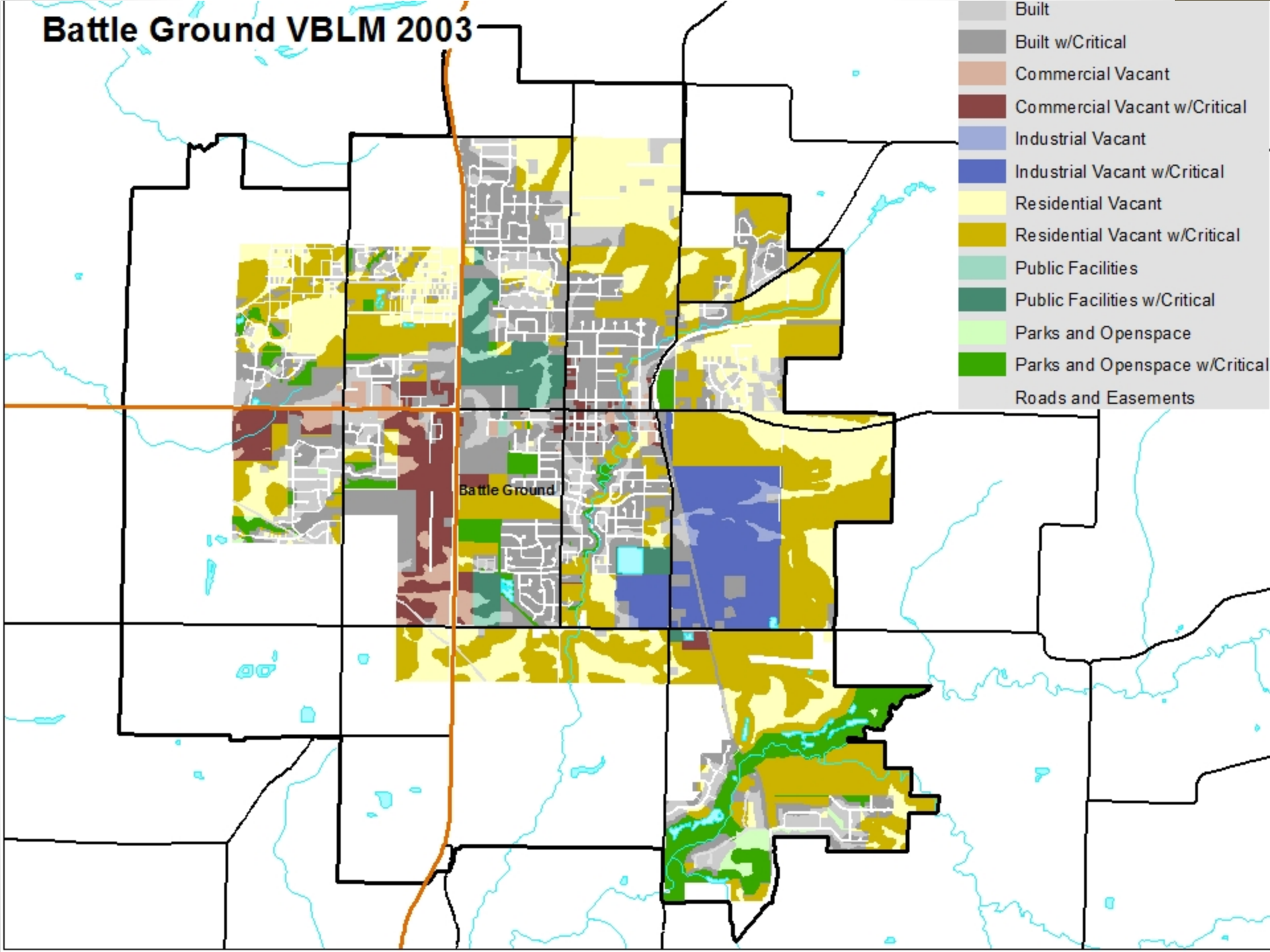
Battle Ground VBLM 2001



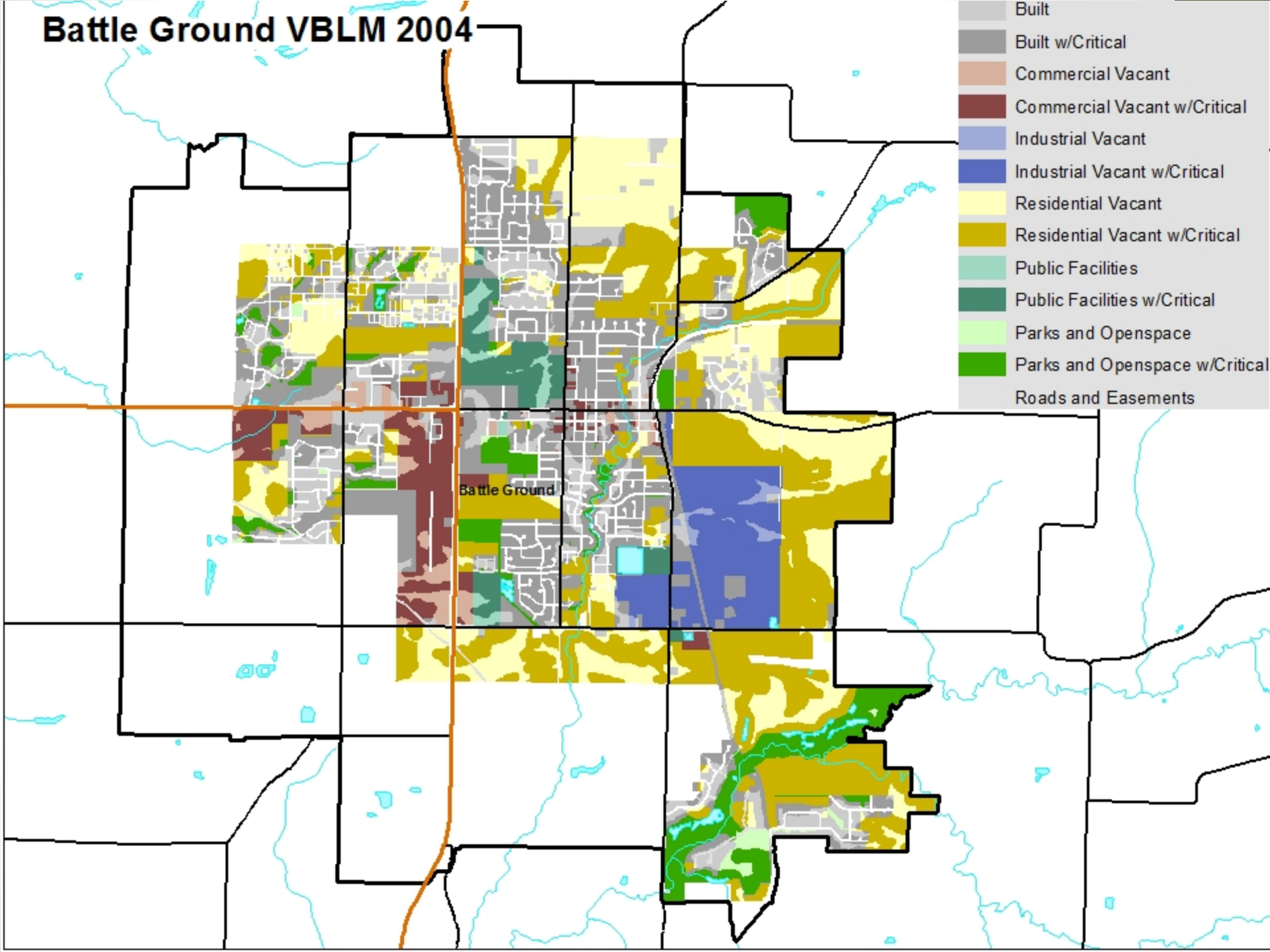
Battle Ground VBLM 2002



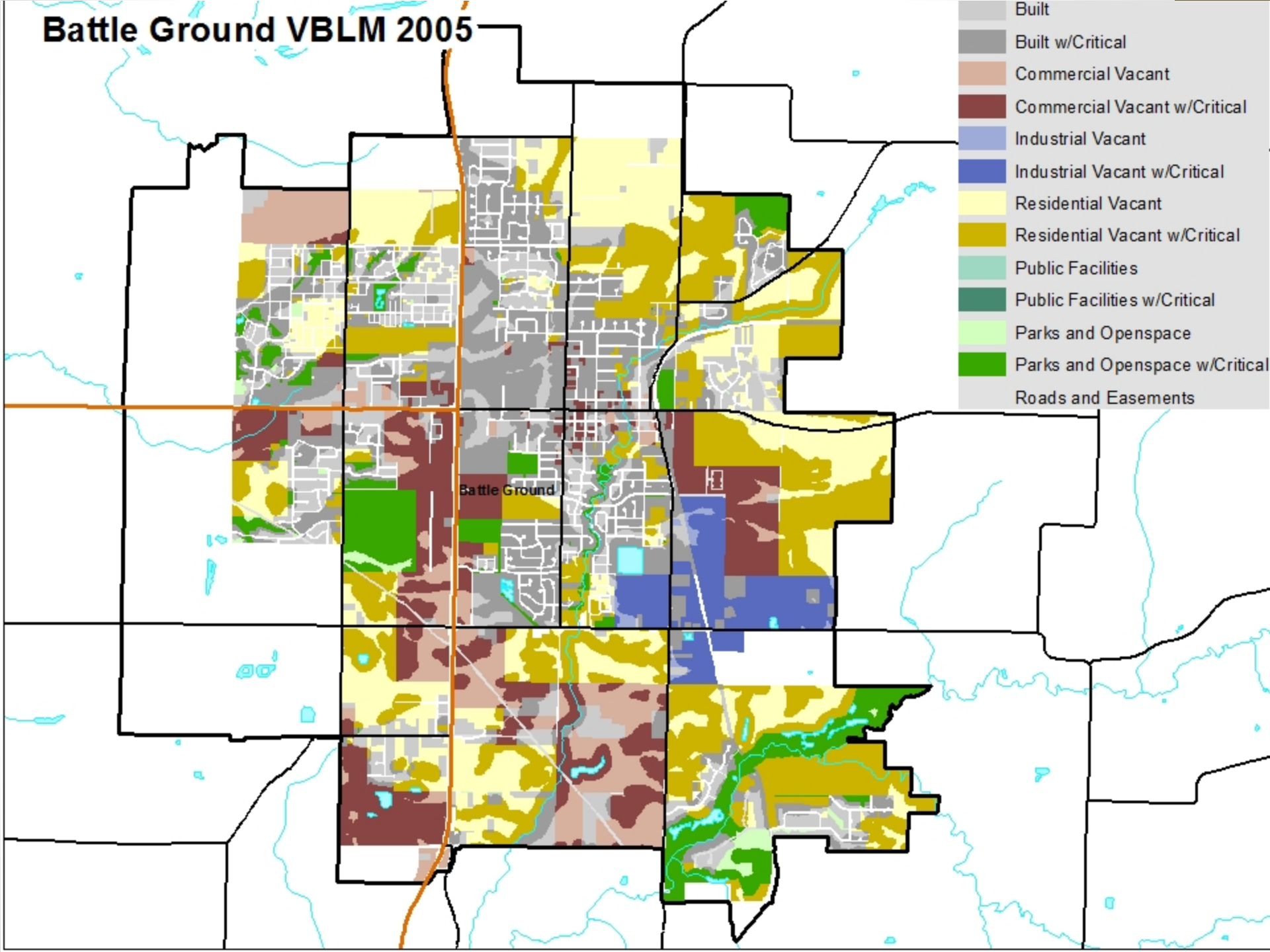
Battle Ground VBLM 2003



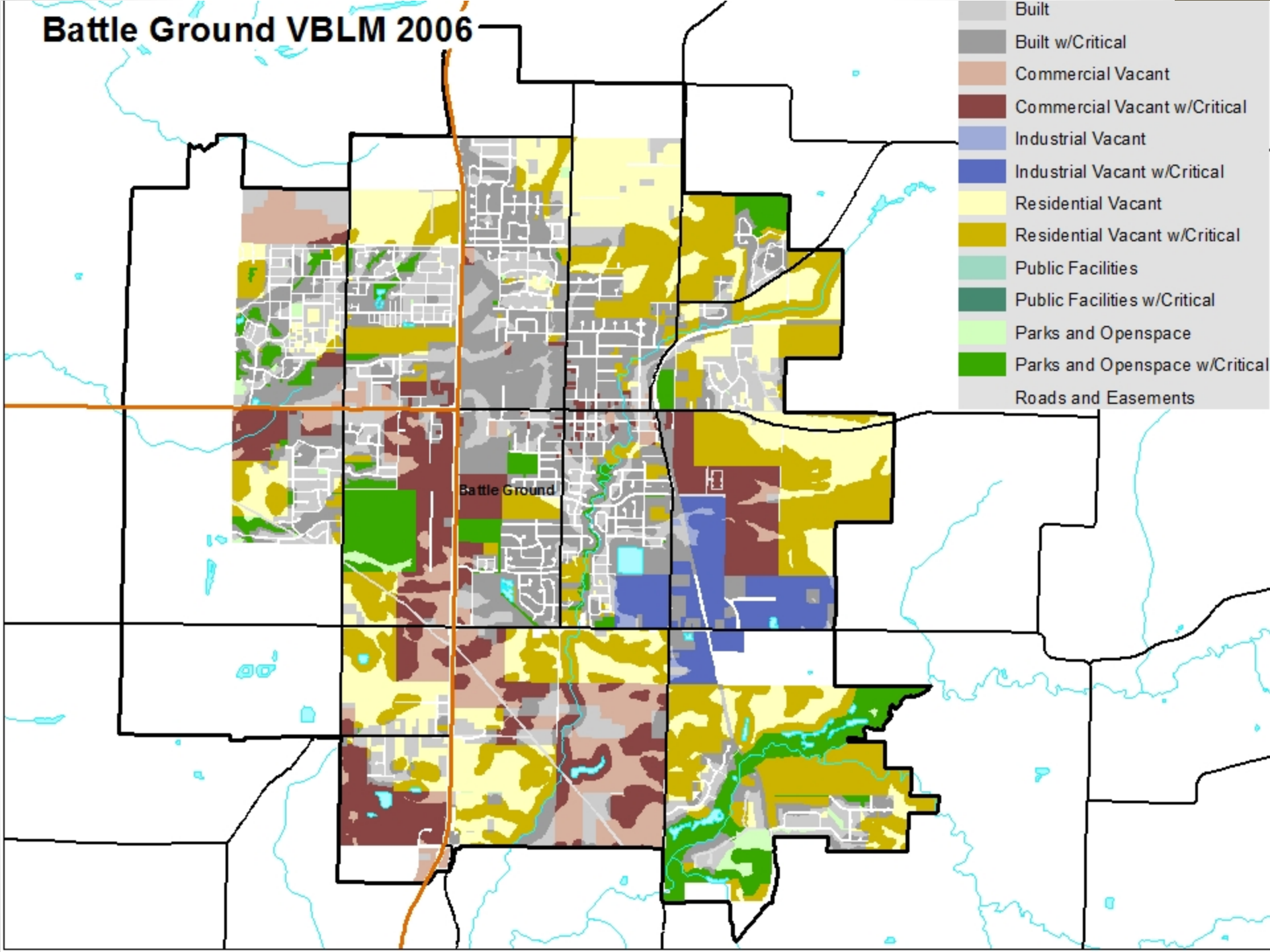
Battle Ground VBLM 2004



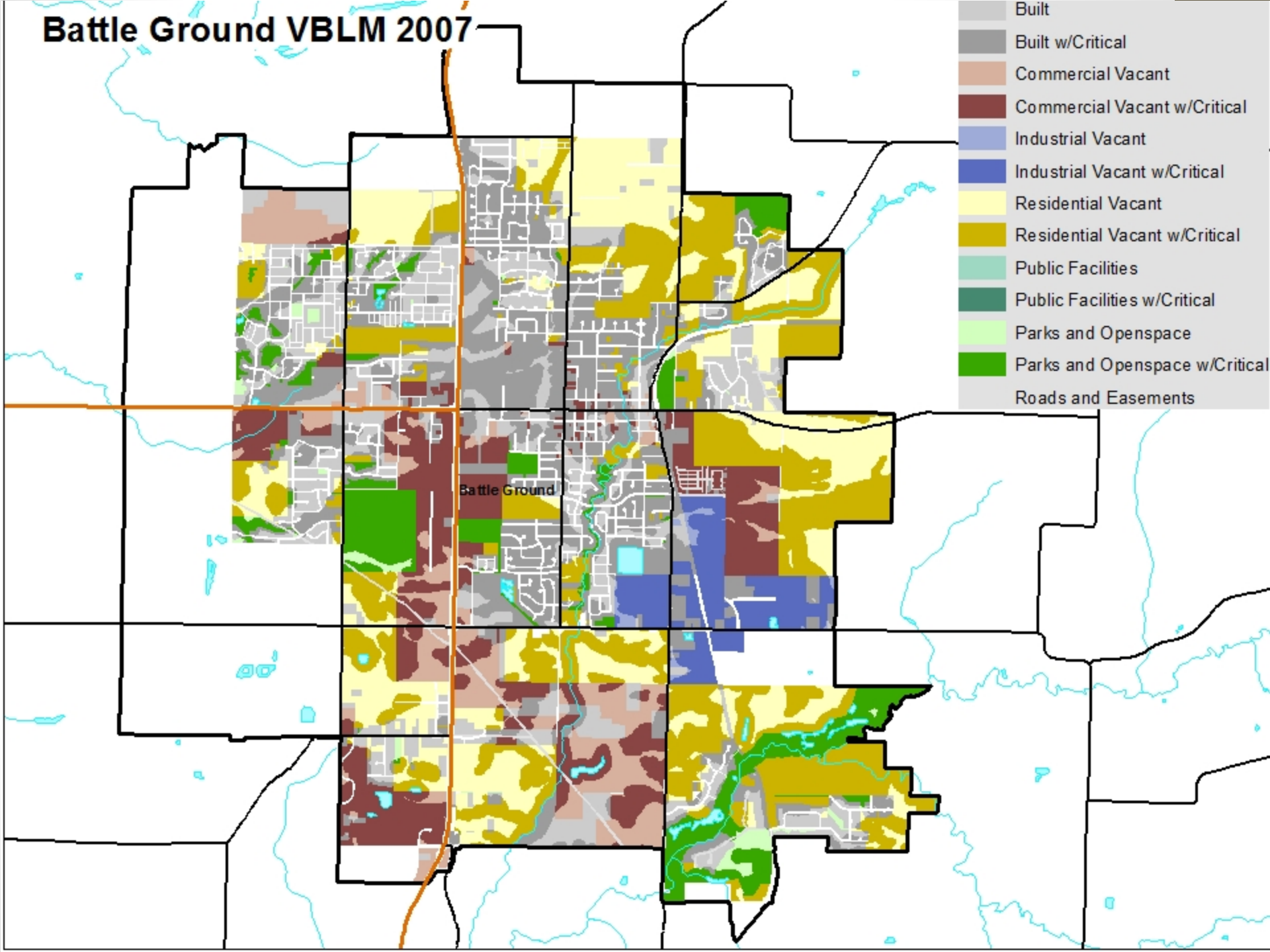
Battle Ground VBLM 2005



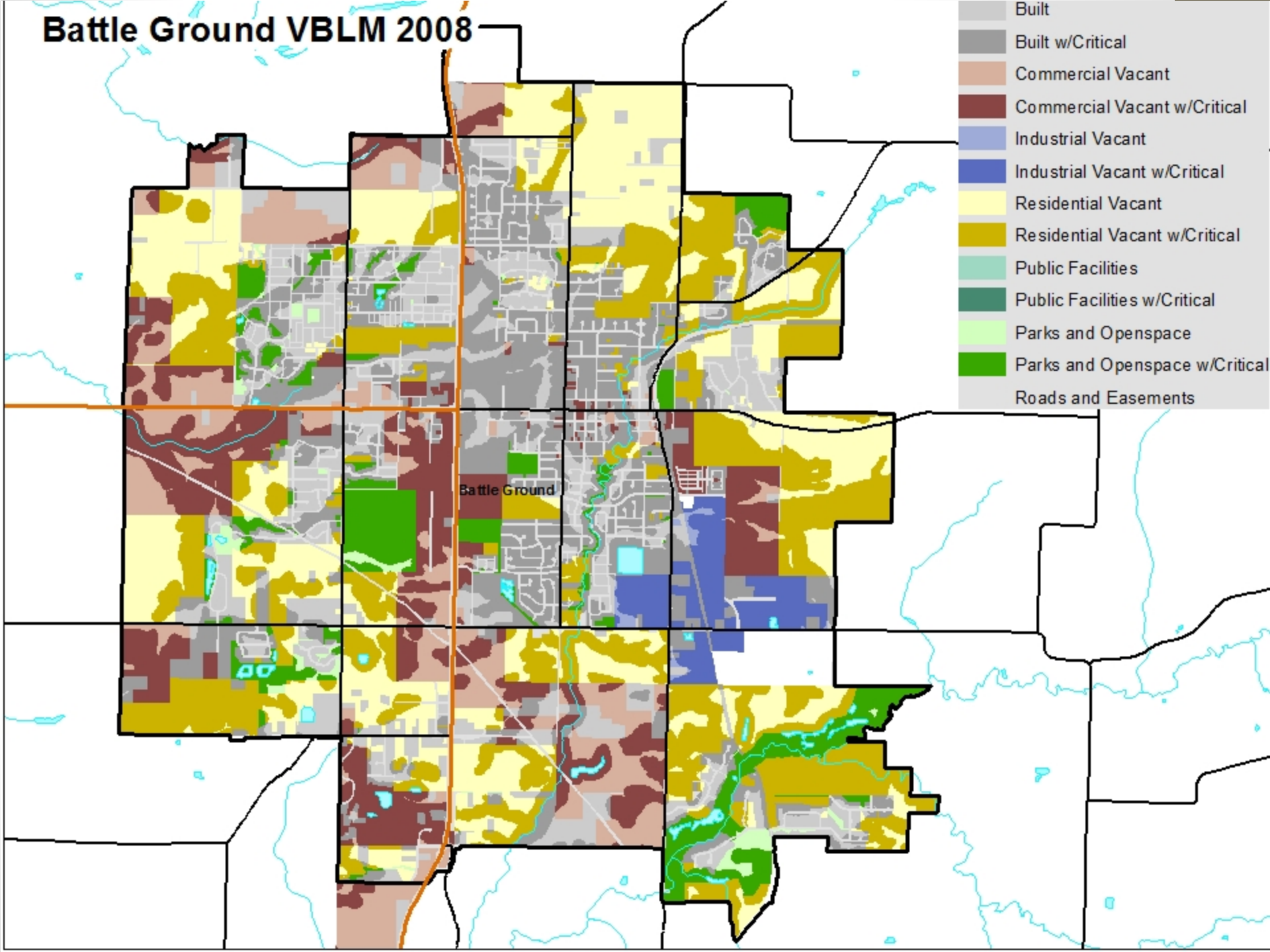
Battle Ground VBLM 2006

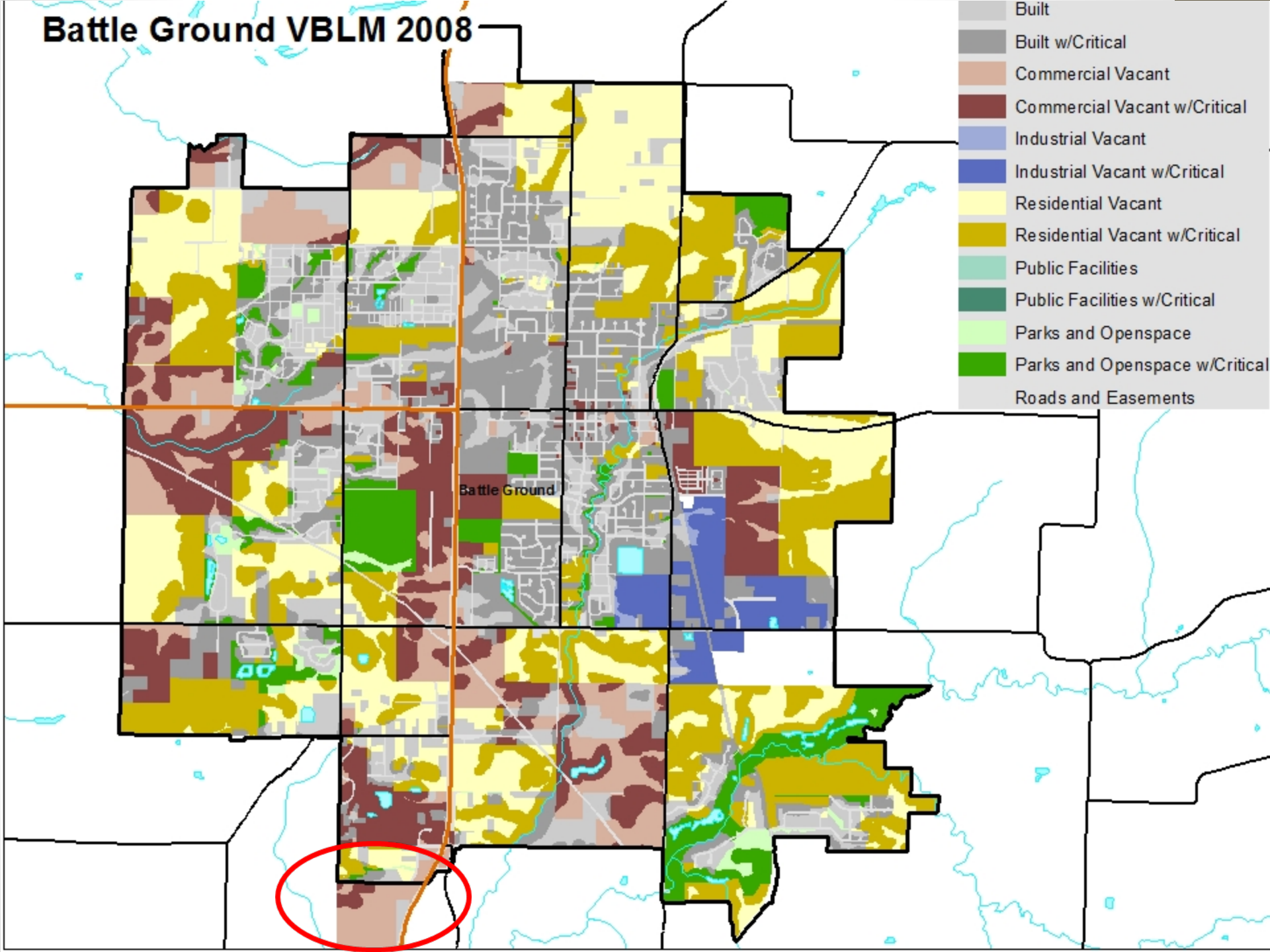


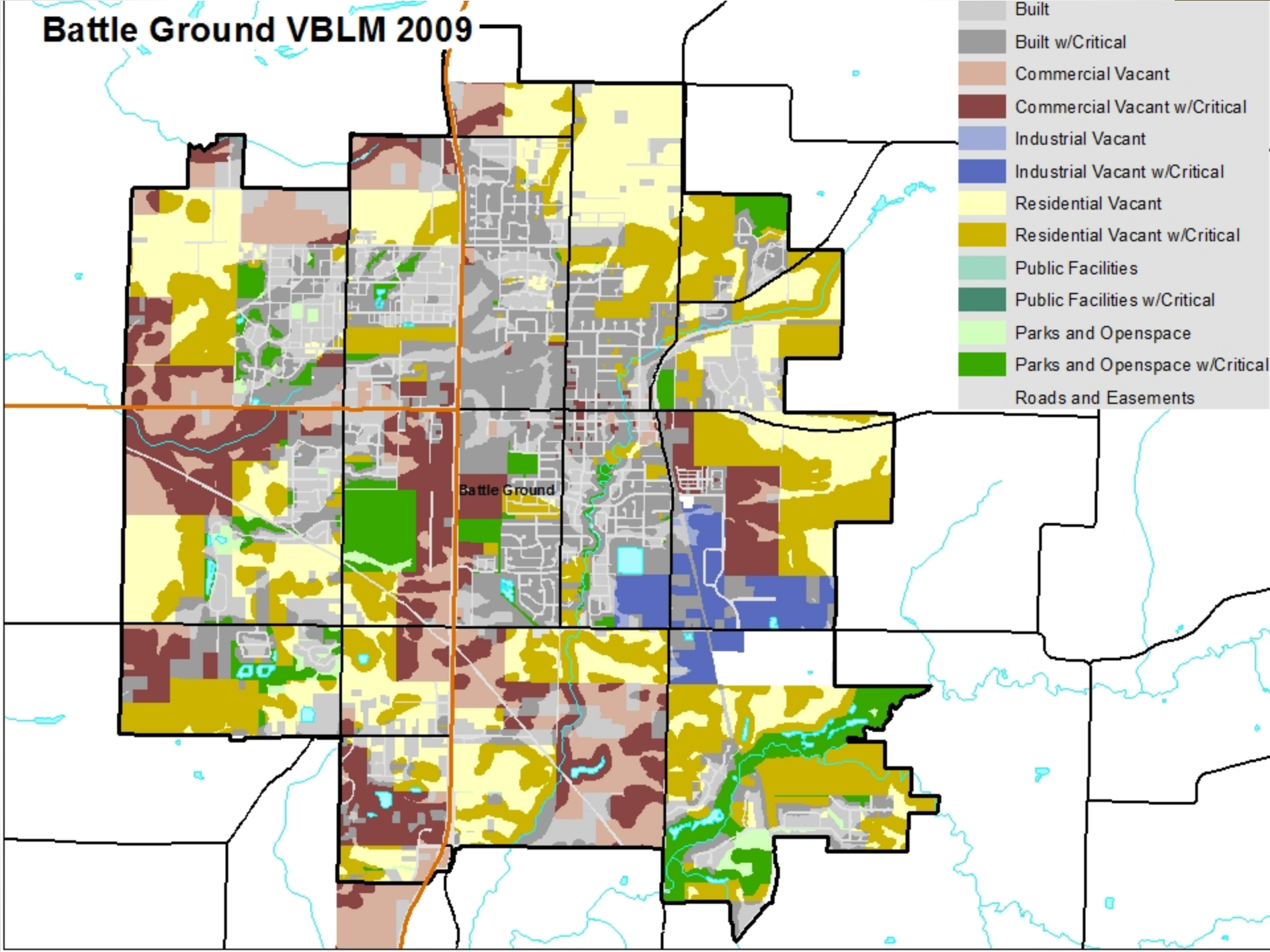
Battle Ground VBLM 2007



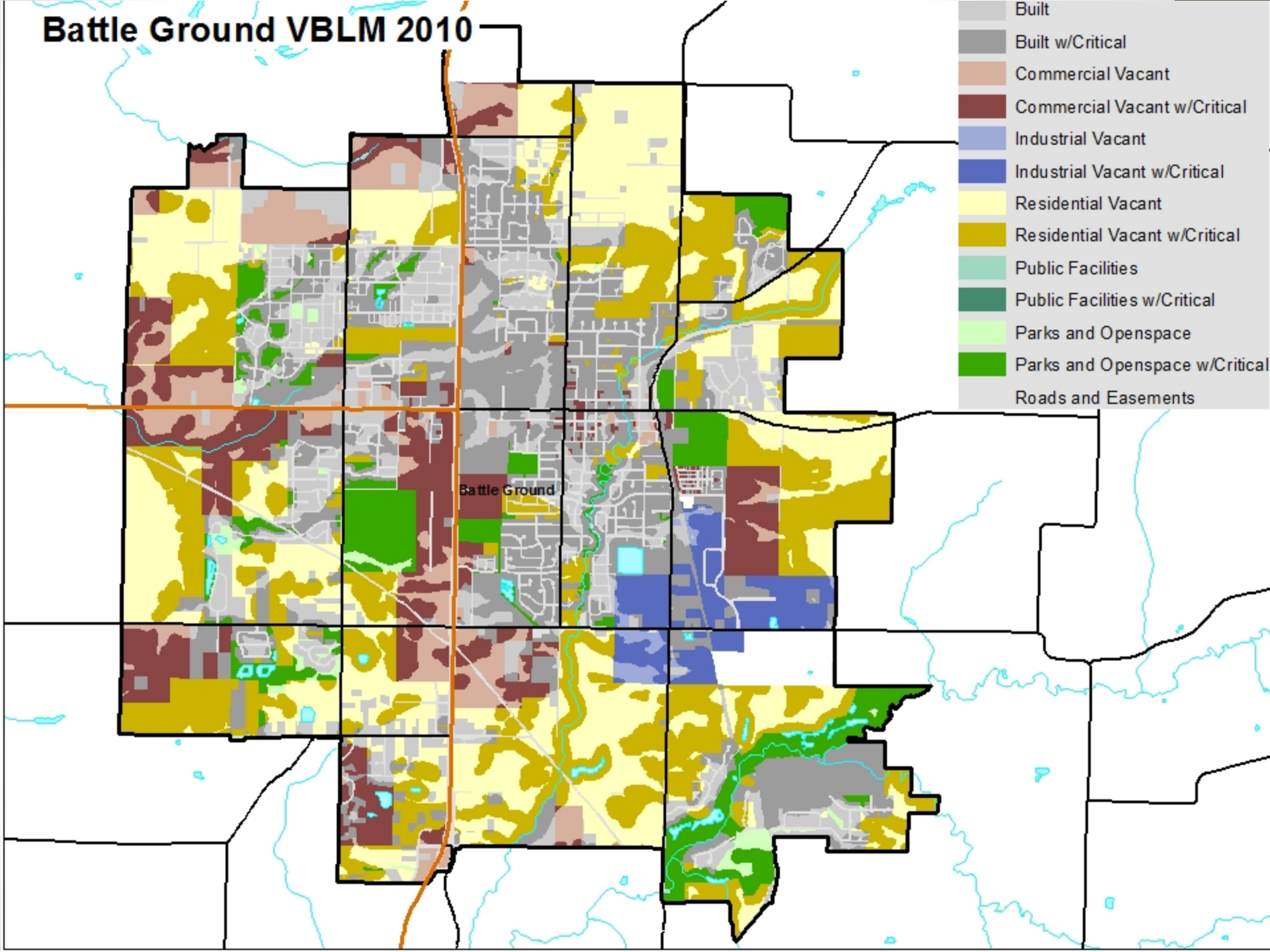
Battle Ground VBLM 2008



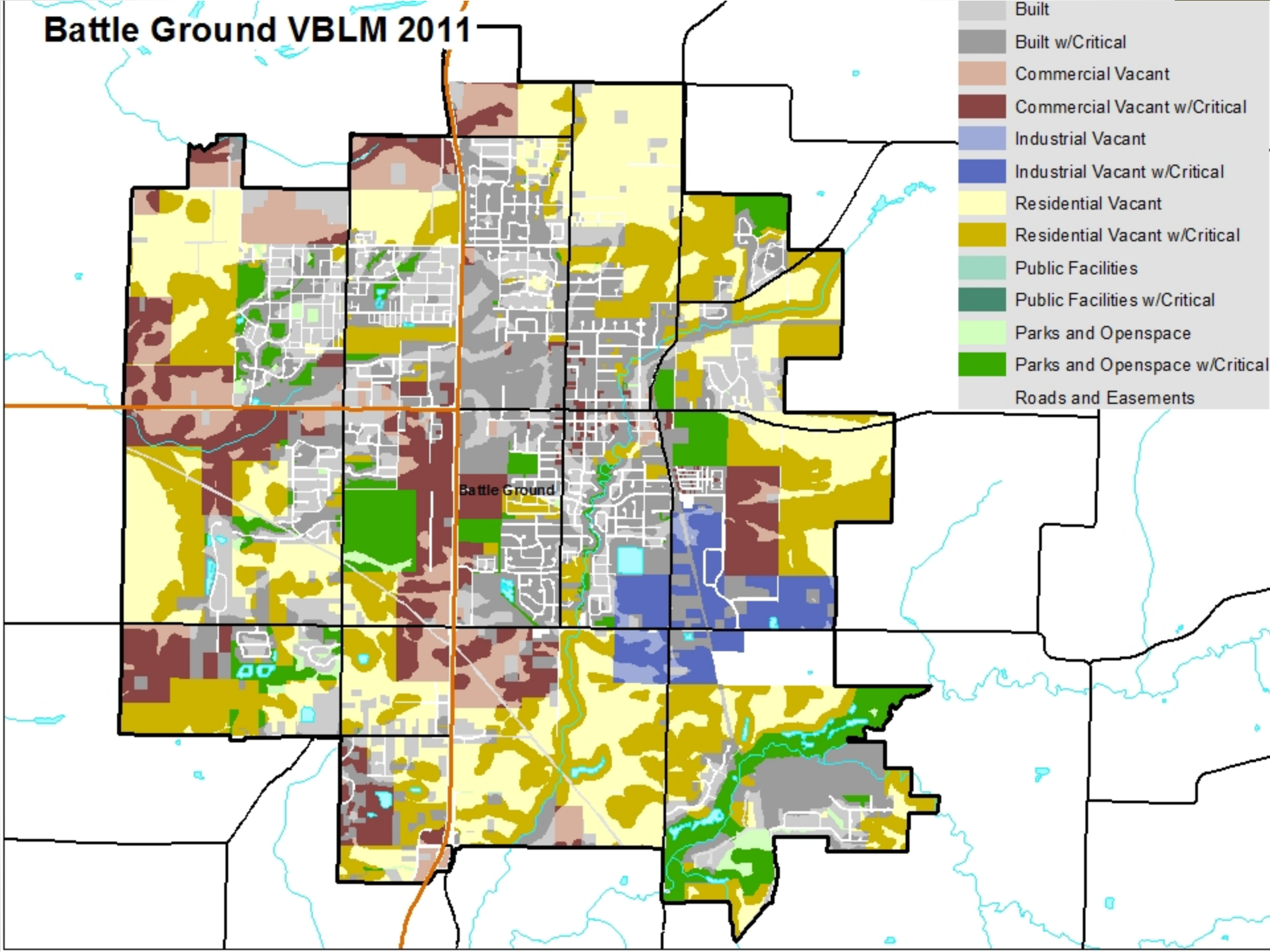

Battle Ground VBLM 2008
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground


Battle Ground VBLM 2009
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

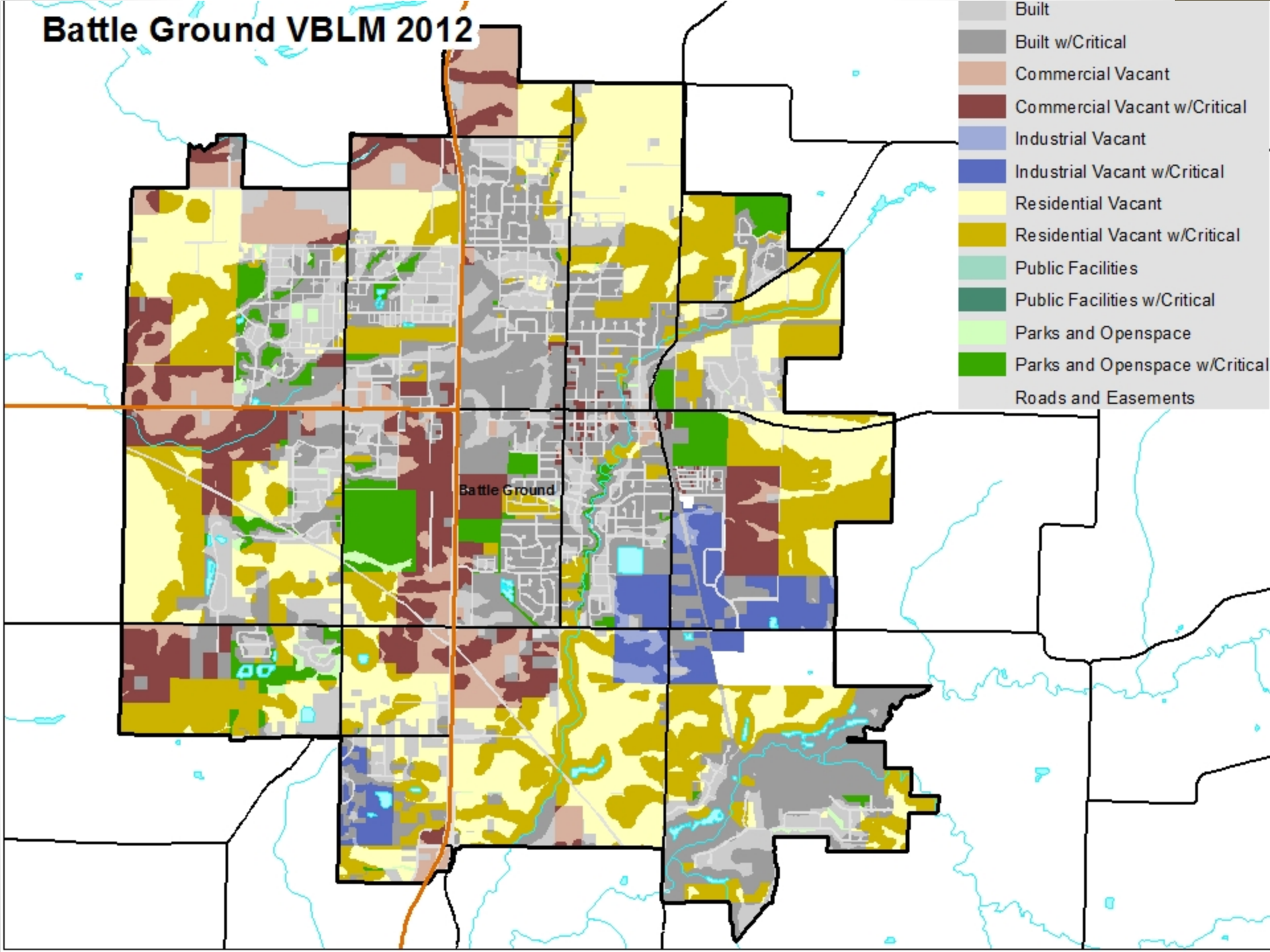
Battle Ground VBLM 2010

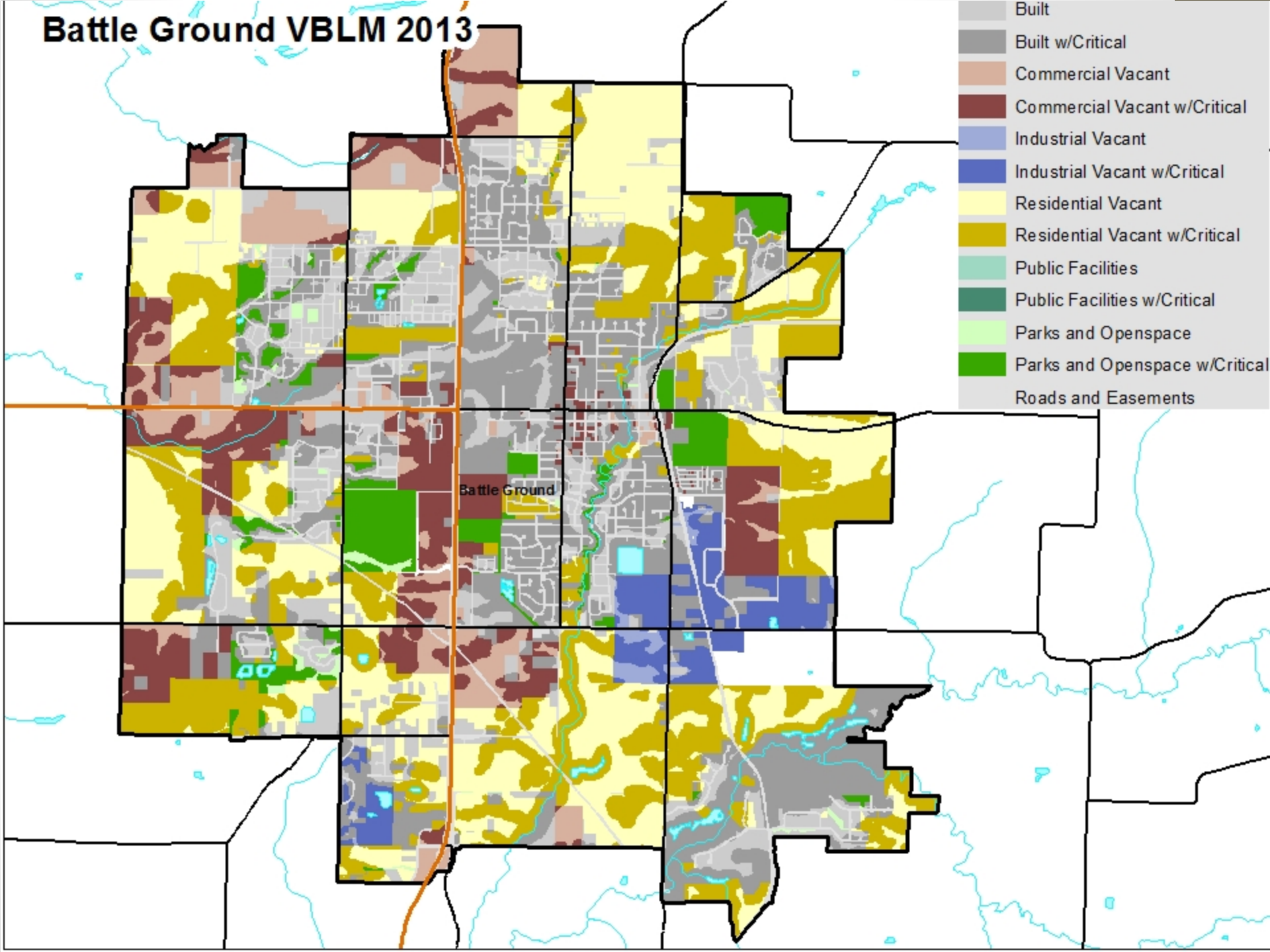


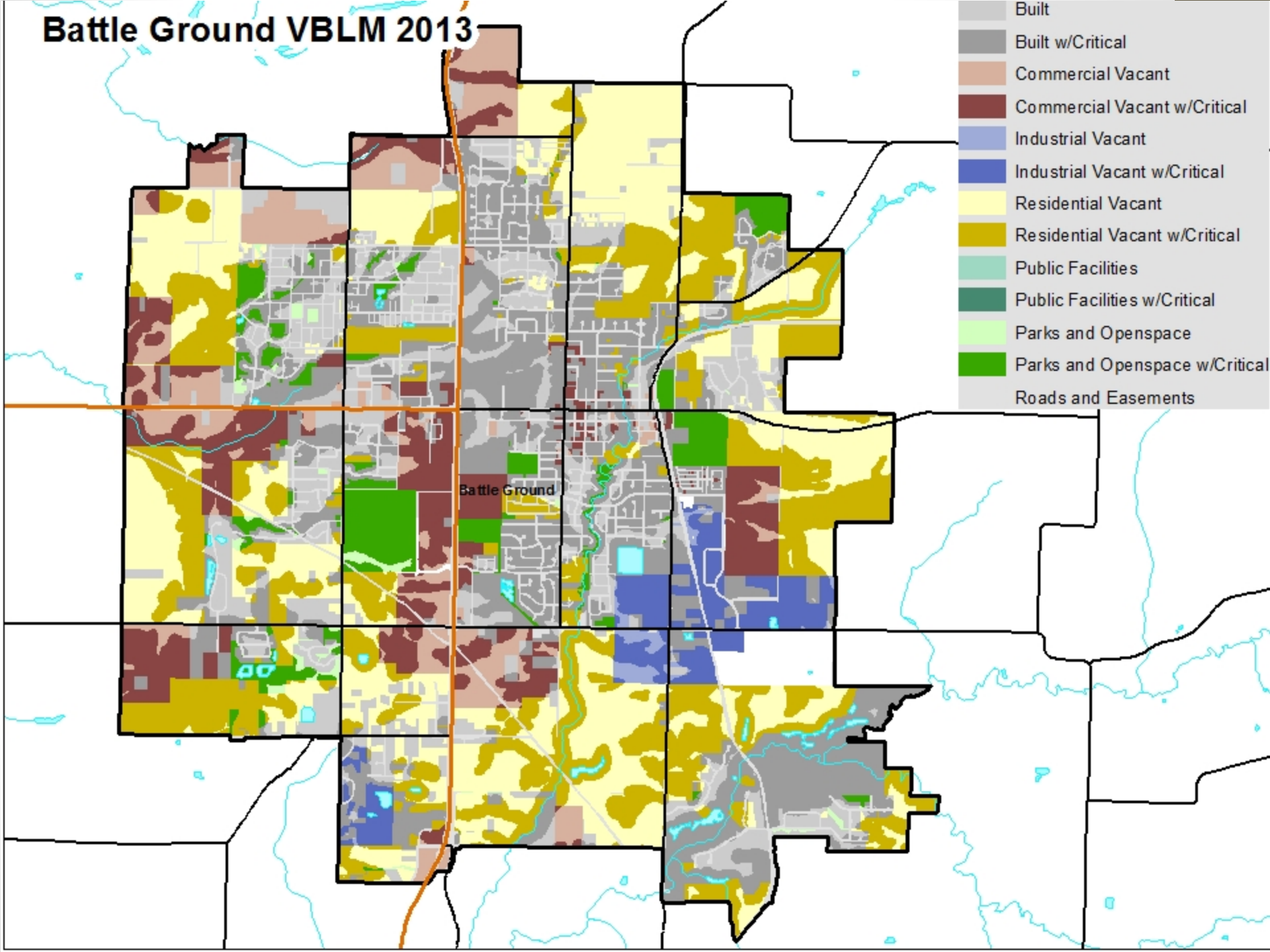
Battle Ground VBLM 2011

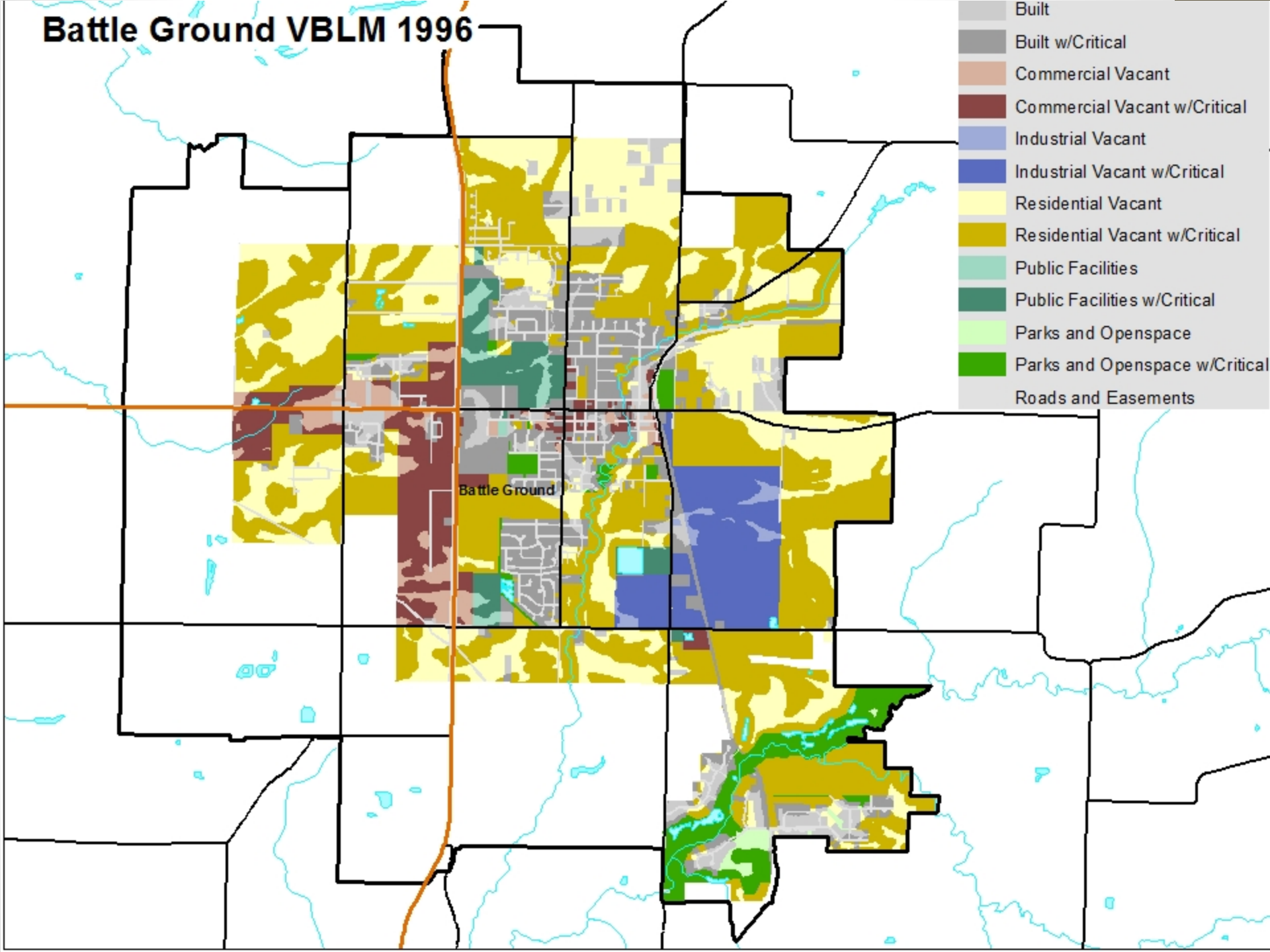


Battle Ground VBLM 2012




Battle Ground VBLM 2013
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground


Battle Ground VBLM 2013
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground


Battle Ground VBLM 1996
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

Model Runs

Model parameters:

- Year: Selects Assessment Year, Parcel Layer
- UGA Boundary: Sets the extent for each city
- Comprehensive Plan:

A Letter is assigned to each UGA alternative.

Adopted plan keeps the letter.

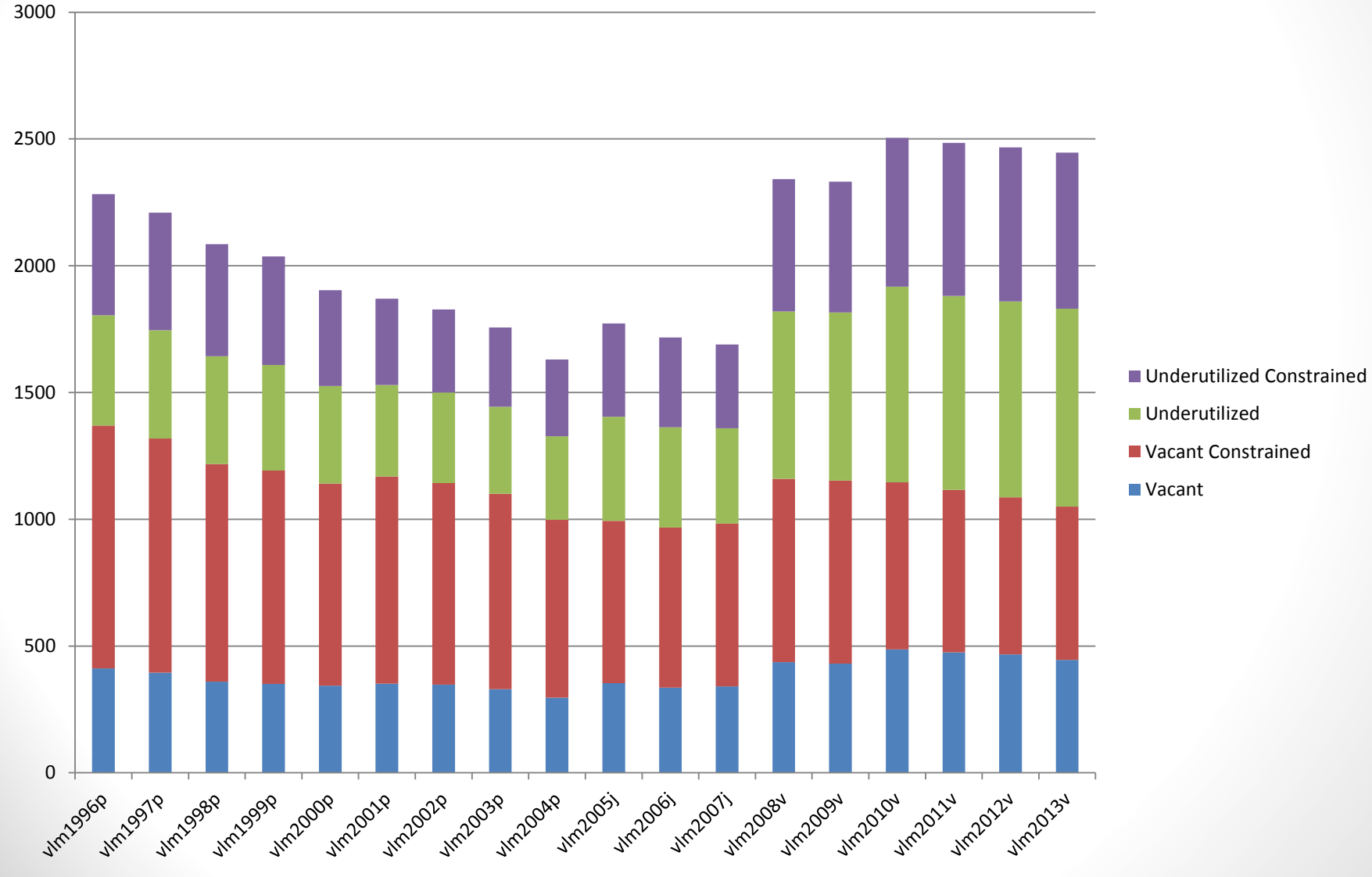
Adopted Model Names.

1994: P

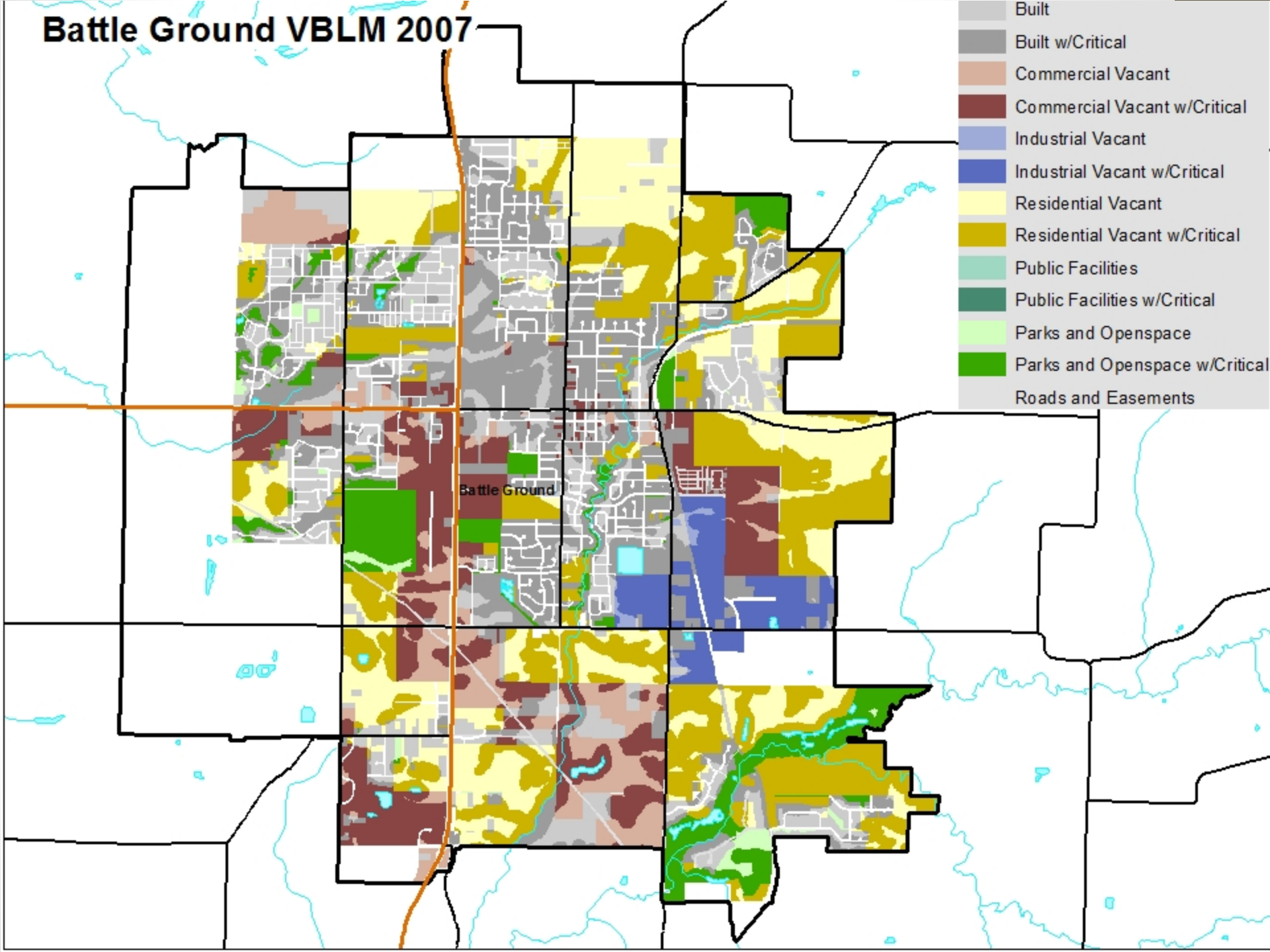
2004: J

2007: V

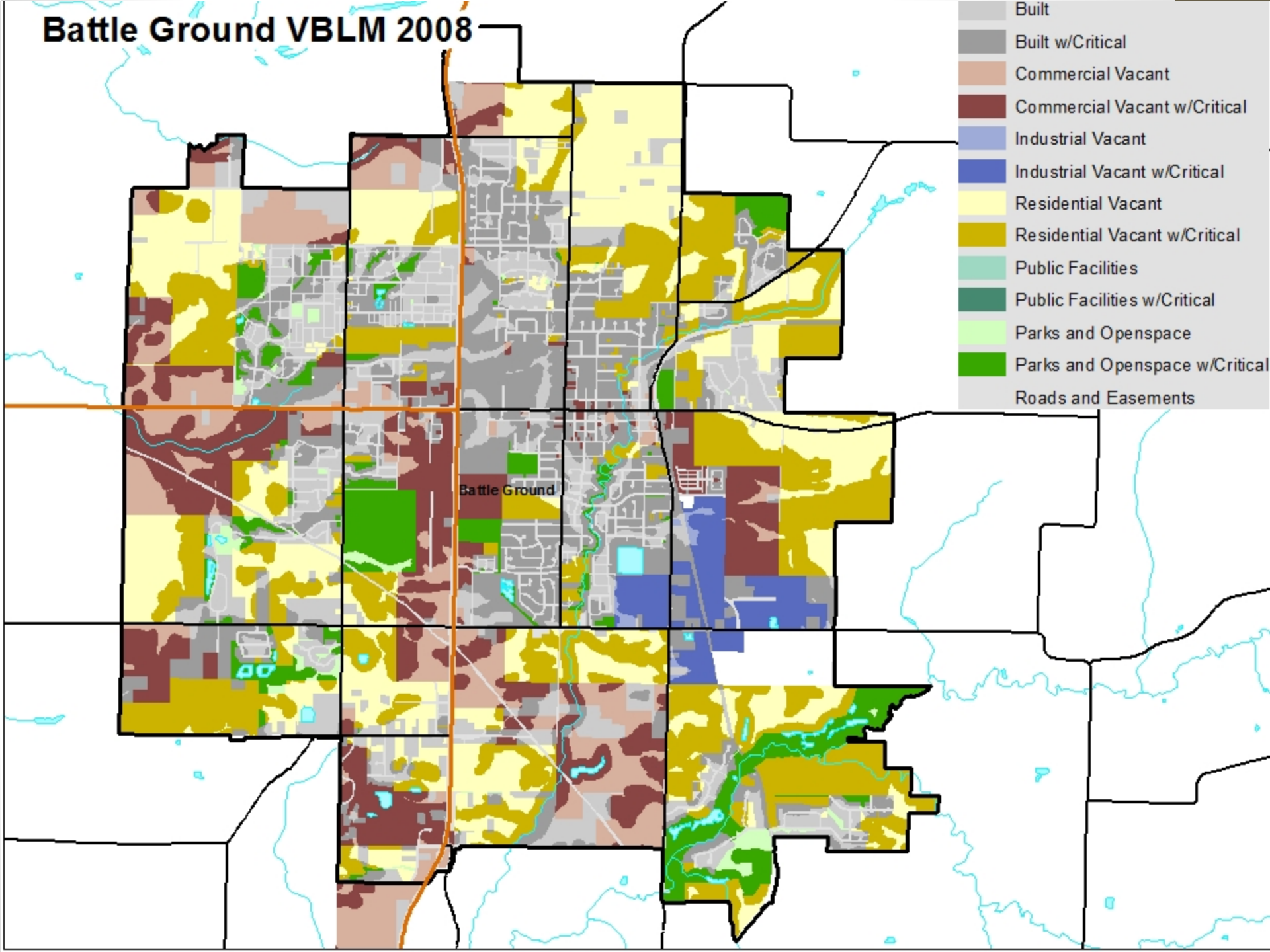
Battle Ground Residential Gross Acres



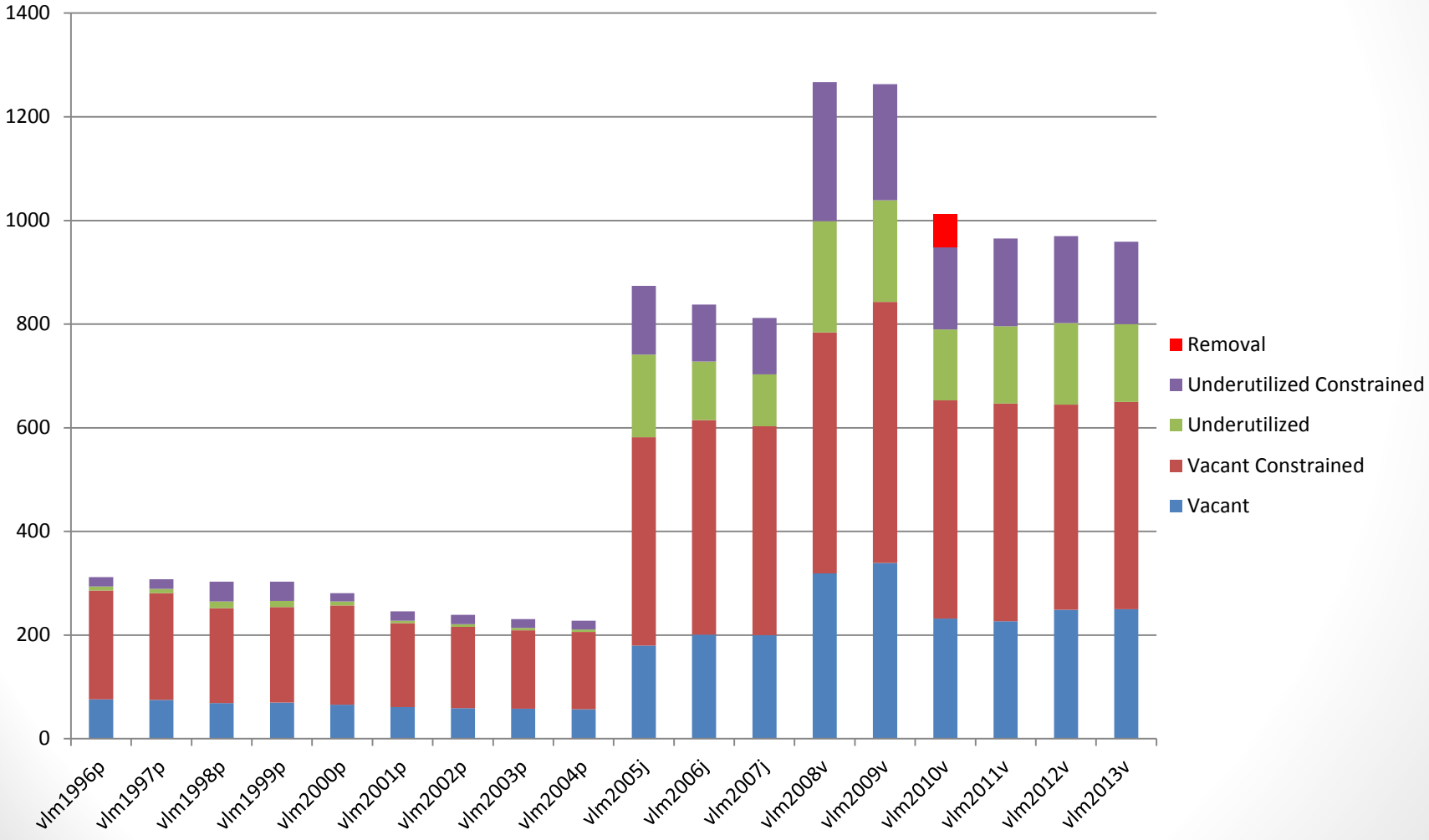
Battle Ground VBLM 2007



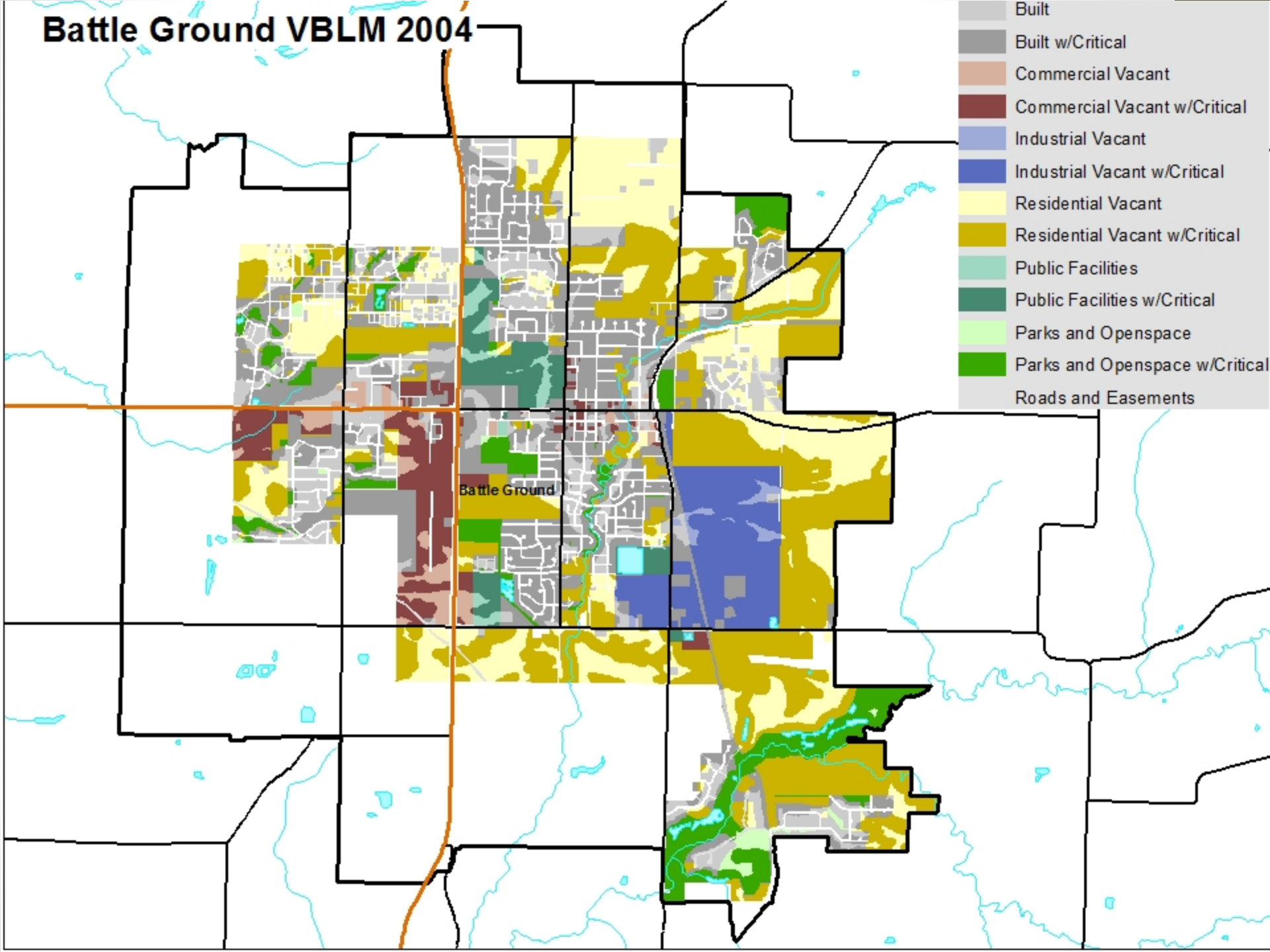
Battle Ground VBLM 2008



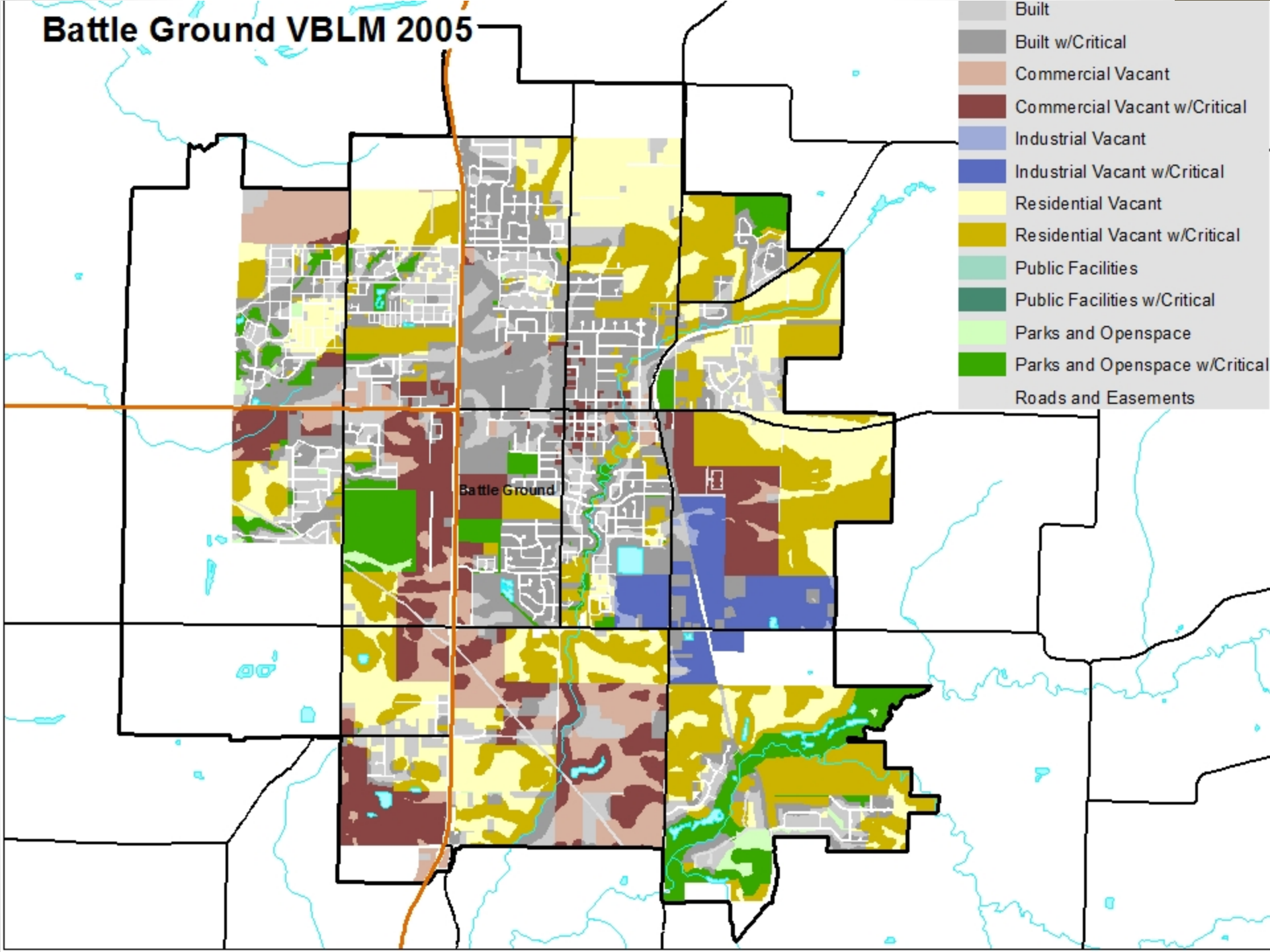
Battle Ground Commercial Gross Acres

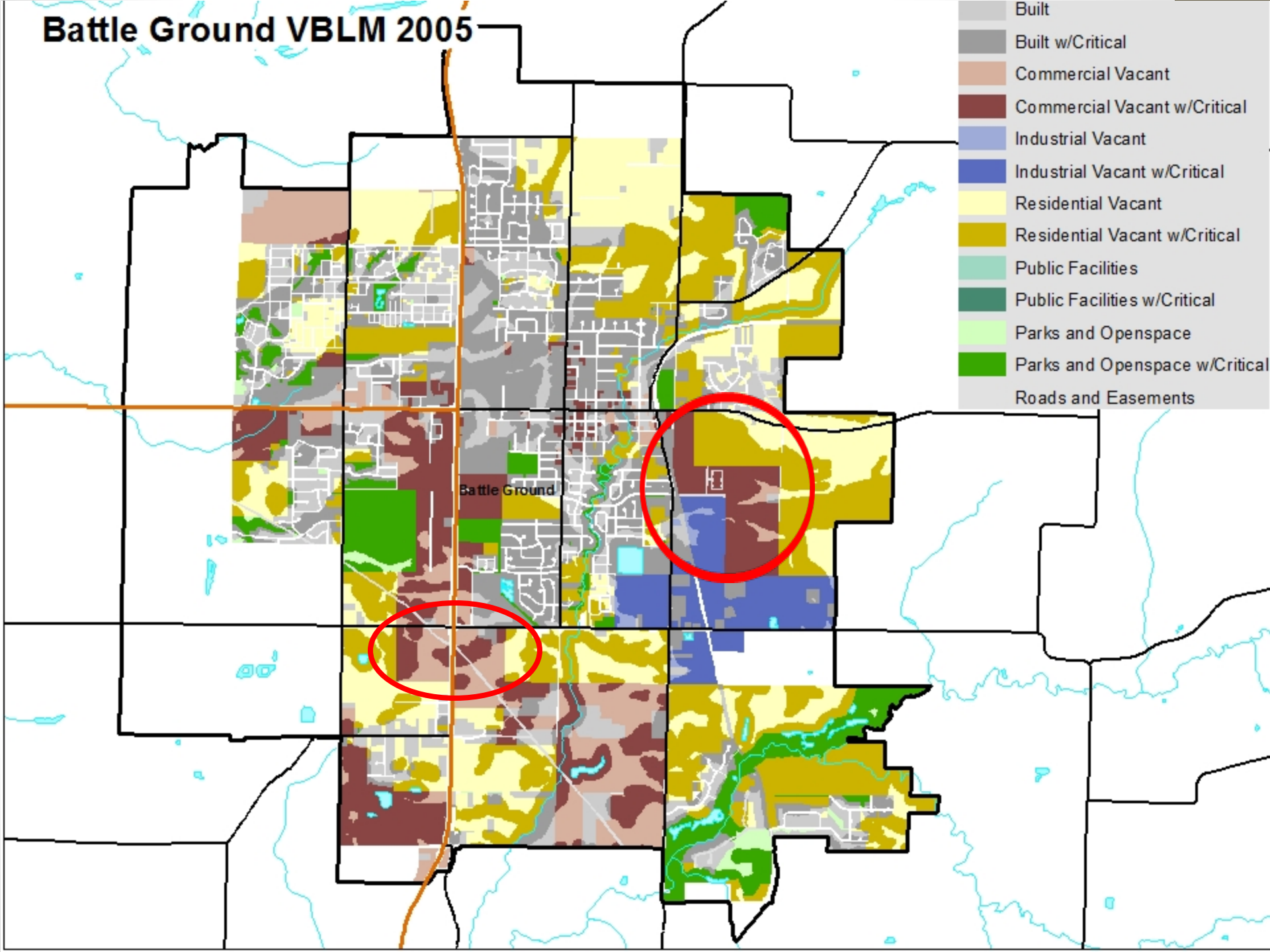


Battle Ground VBLM 2004

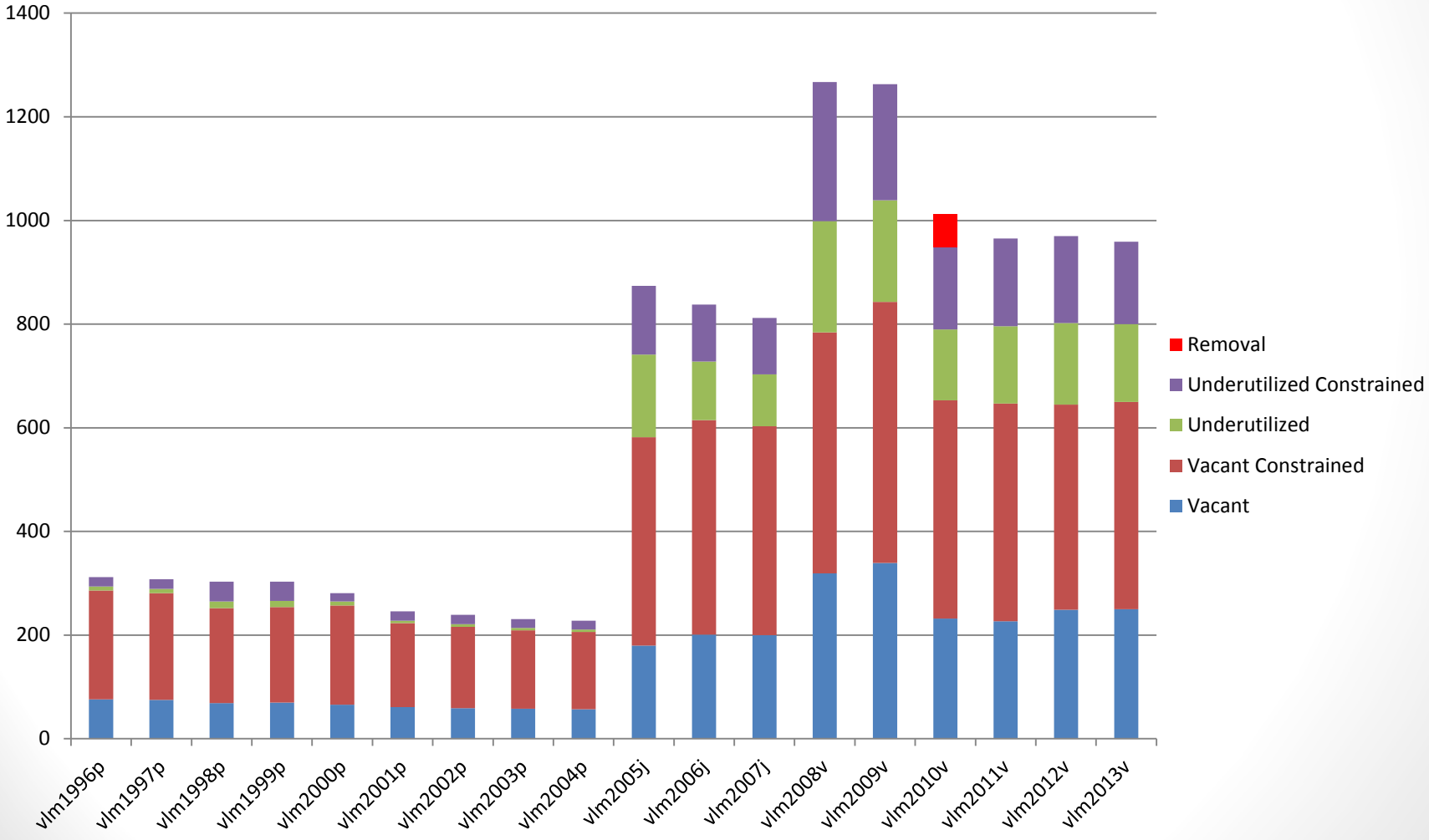


Battle Ground VBLM 2005

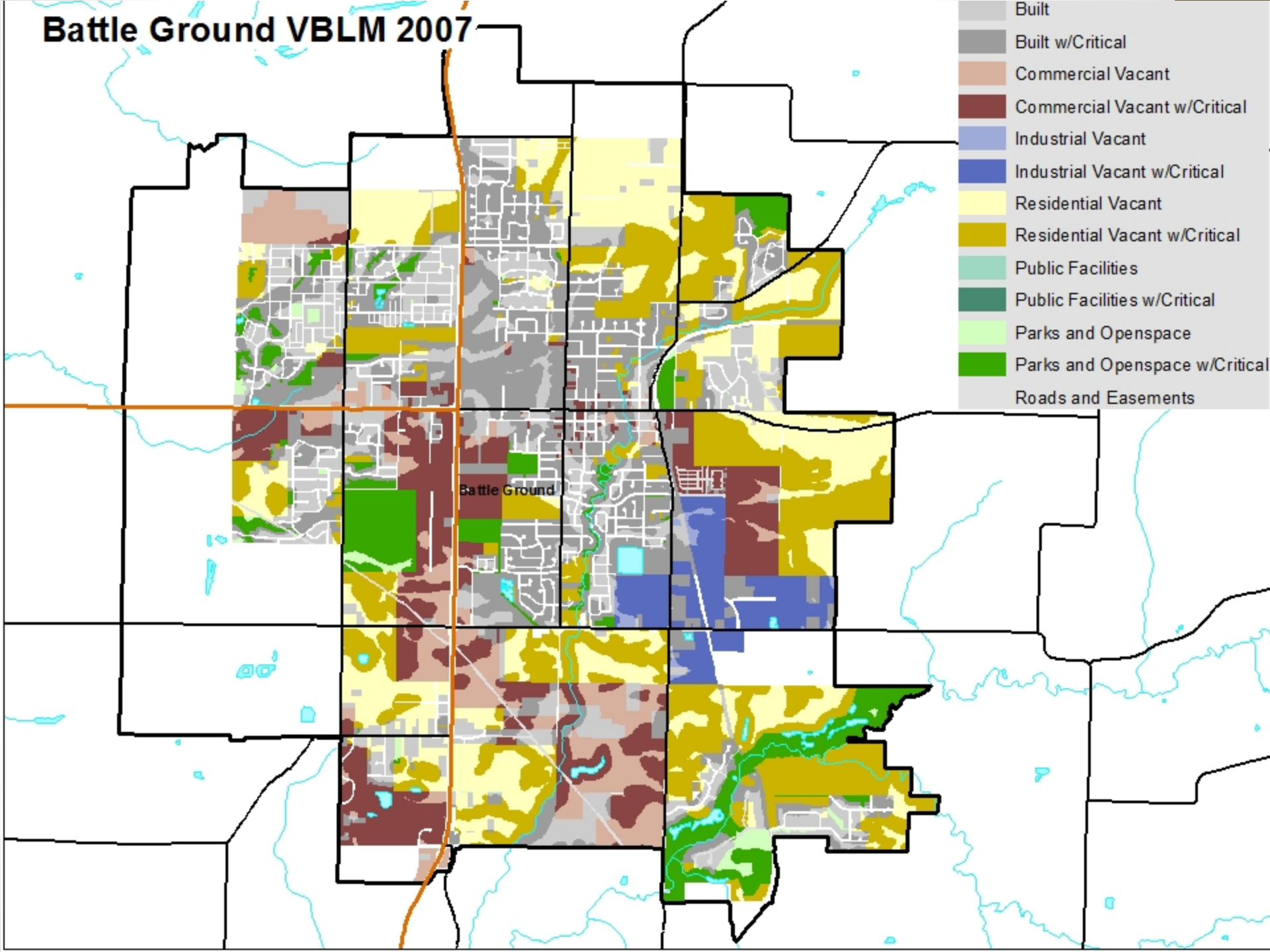



Battle Ground VBLM 2005
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

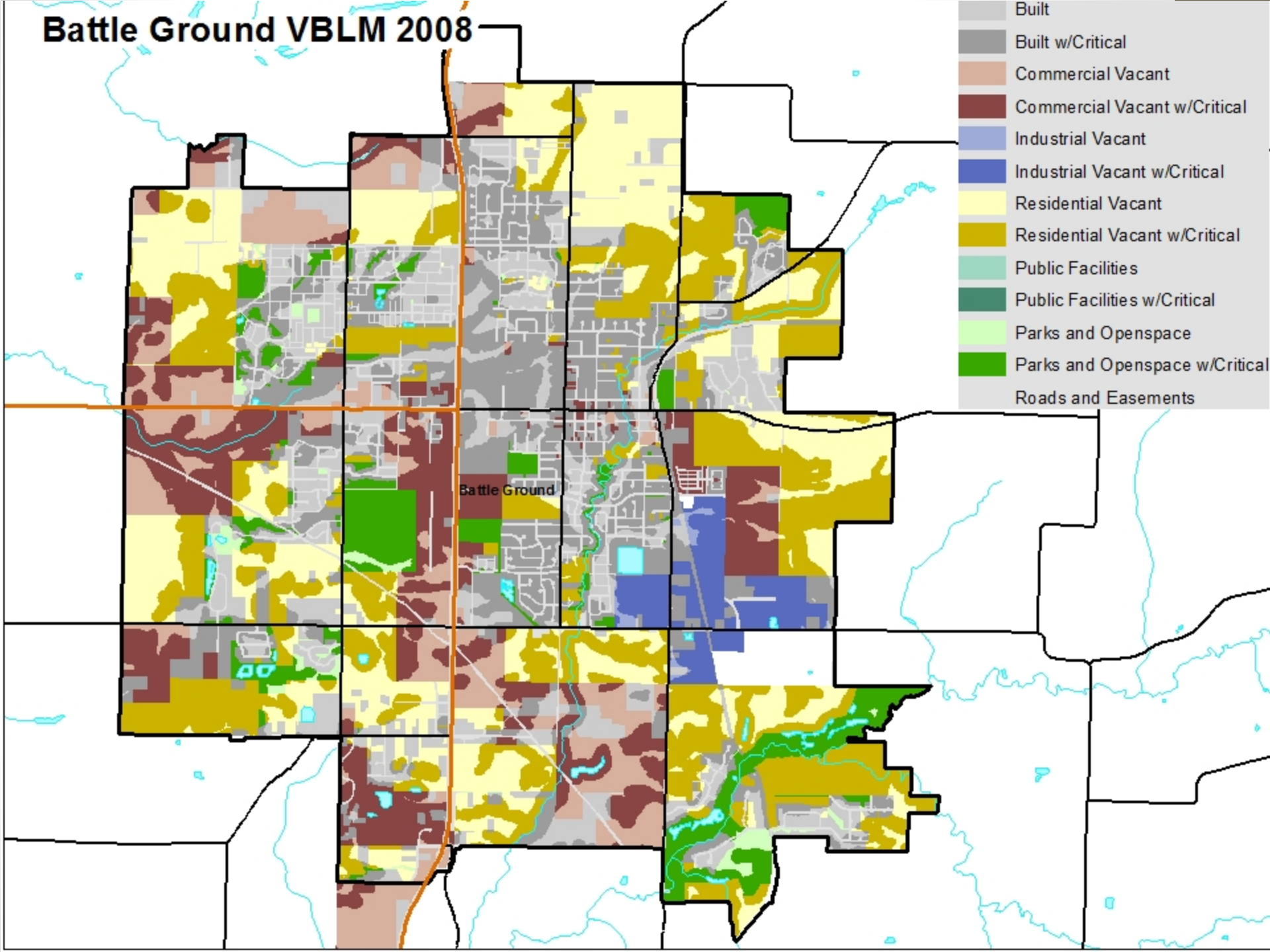
Battle Ground Commercial Gross Acres

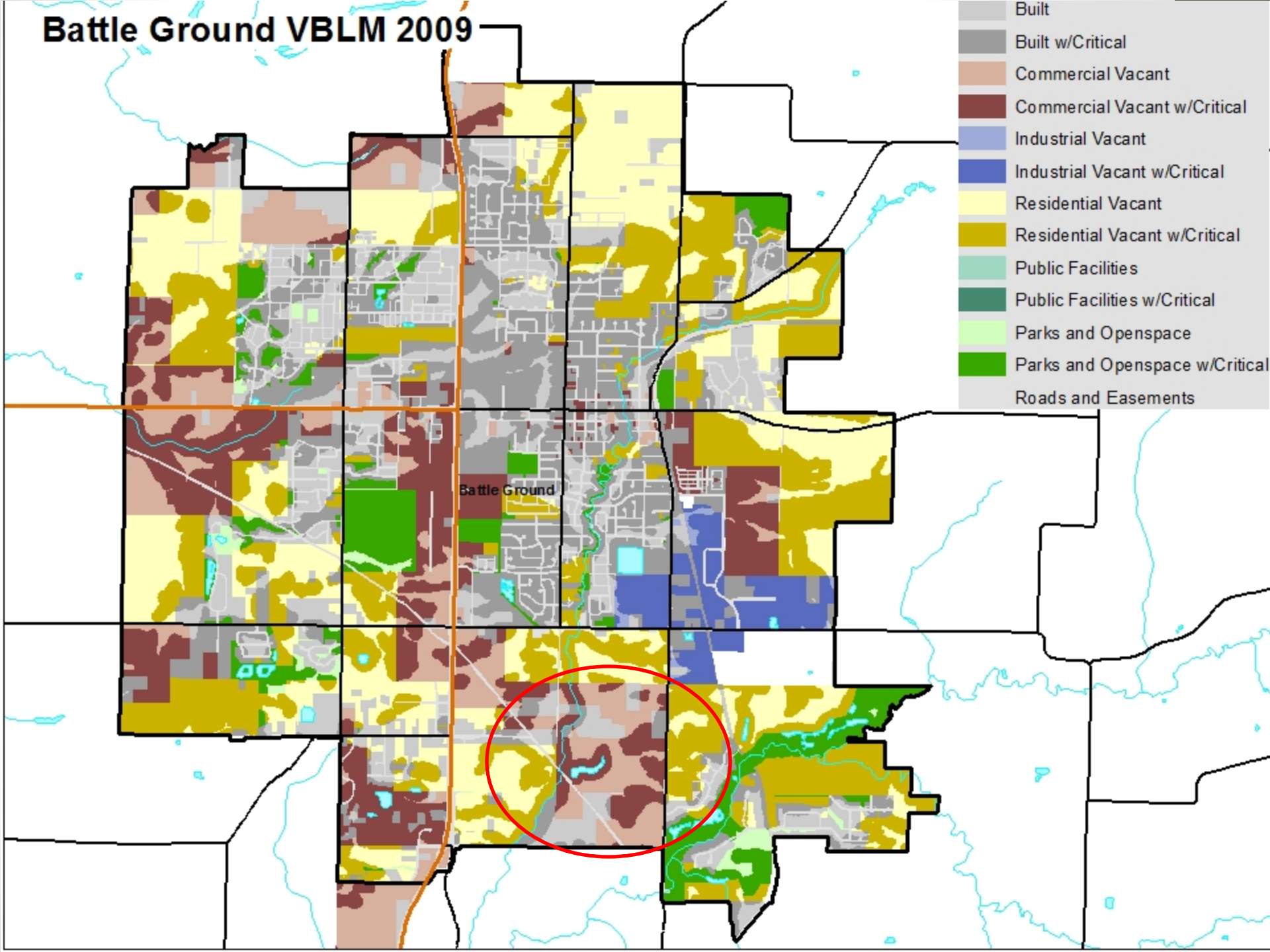


Battle Ground VBLM 2007

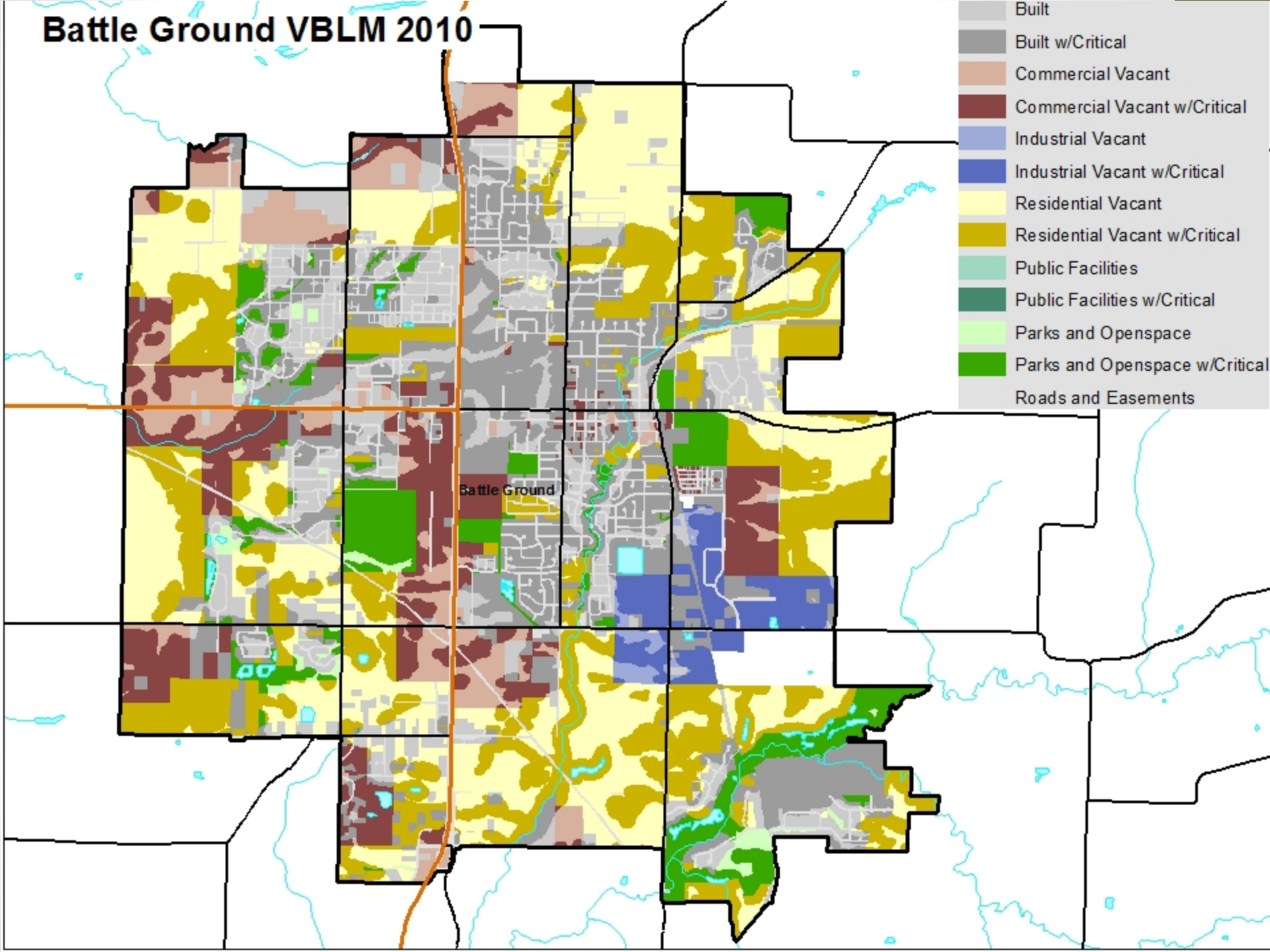


Battle Ground VBLM 2008

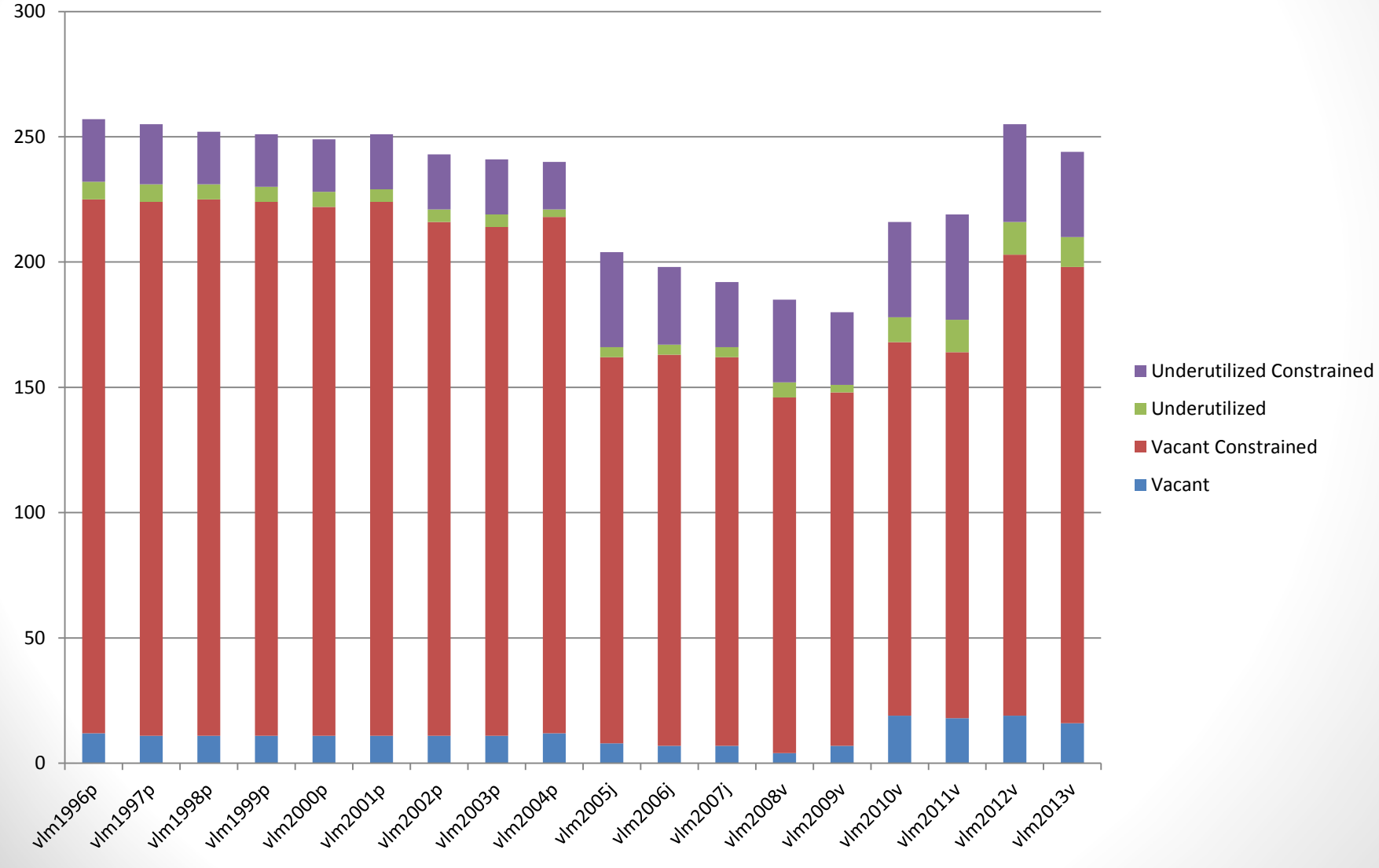



Battle Ground VBLM 2009
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

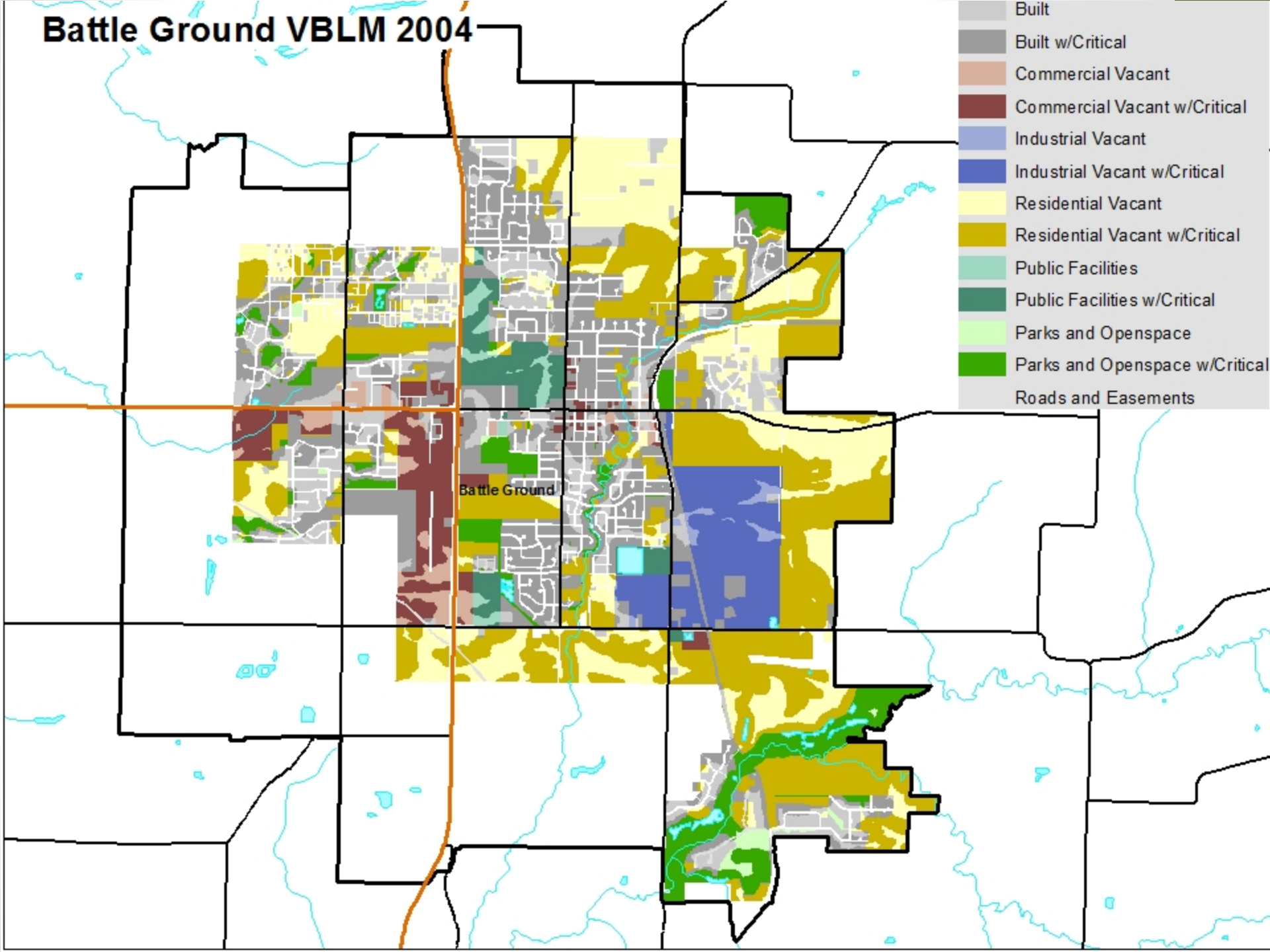
Battle Ground VBLM 2010



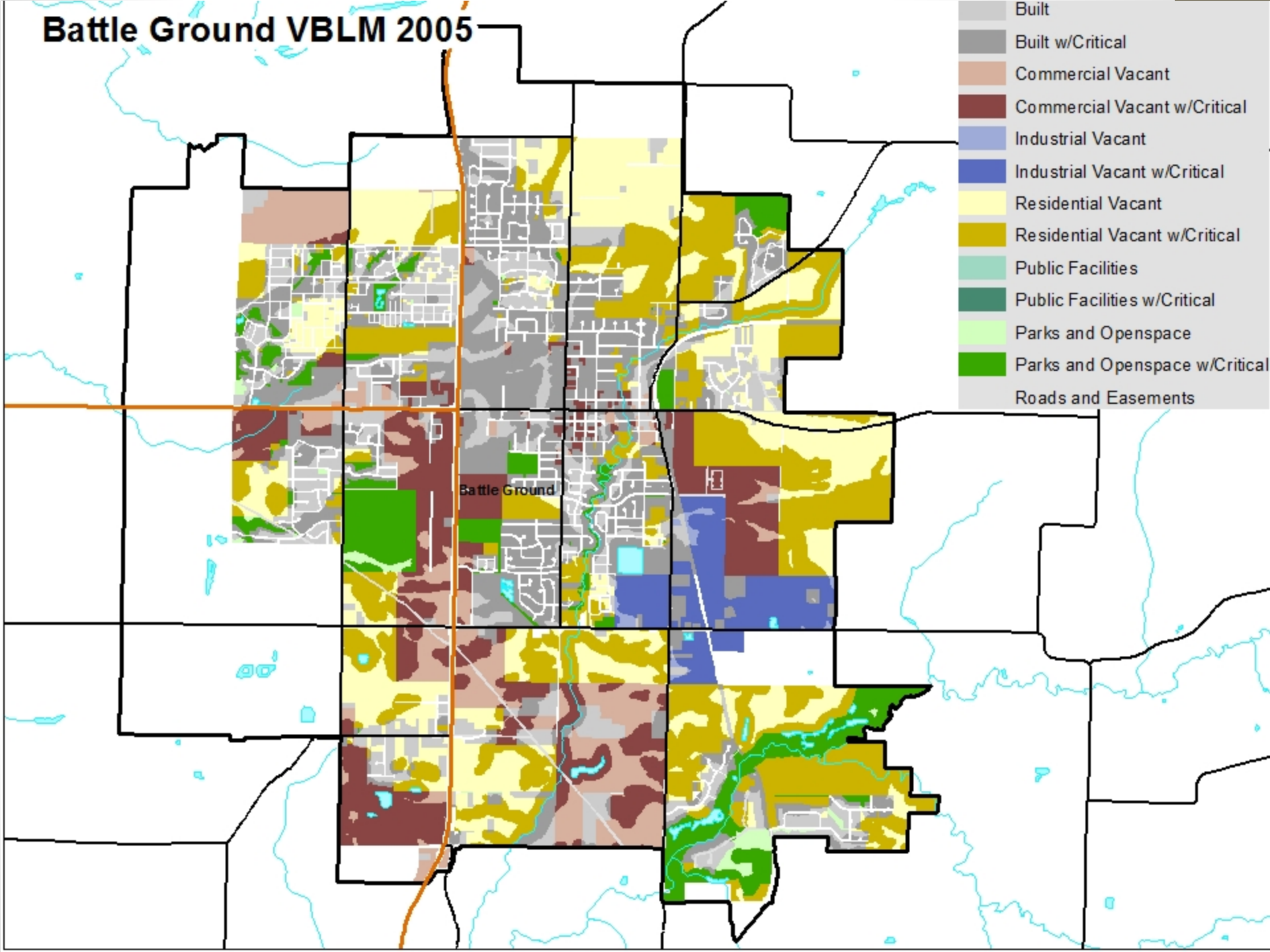
Battle Ground Industrial Gross Acres



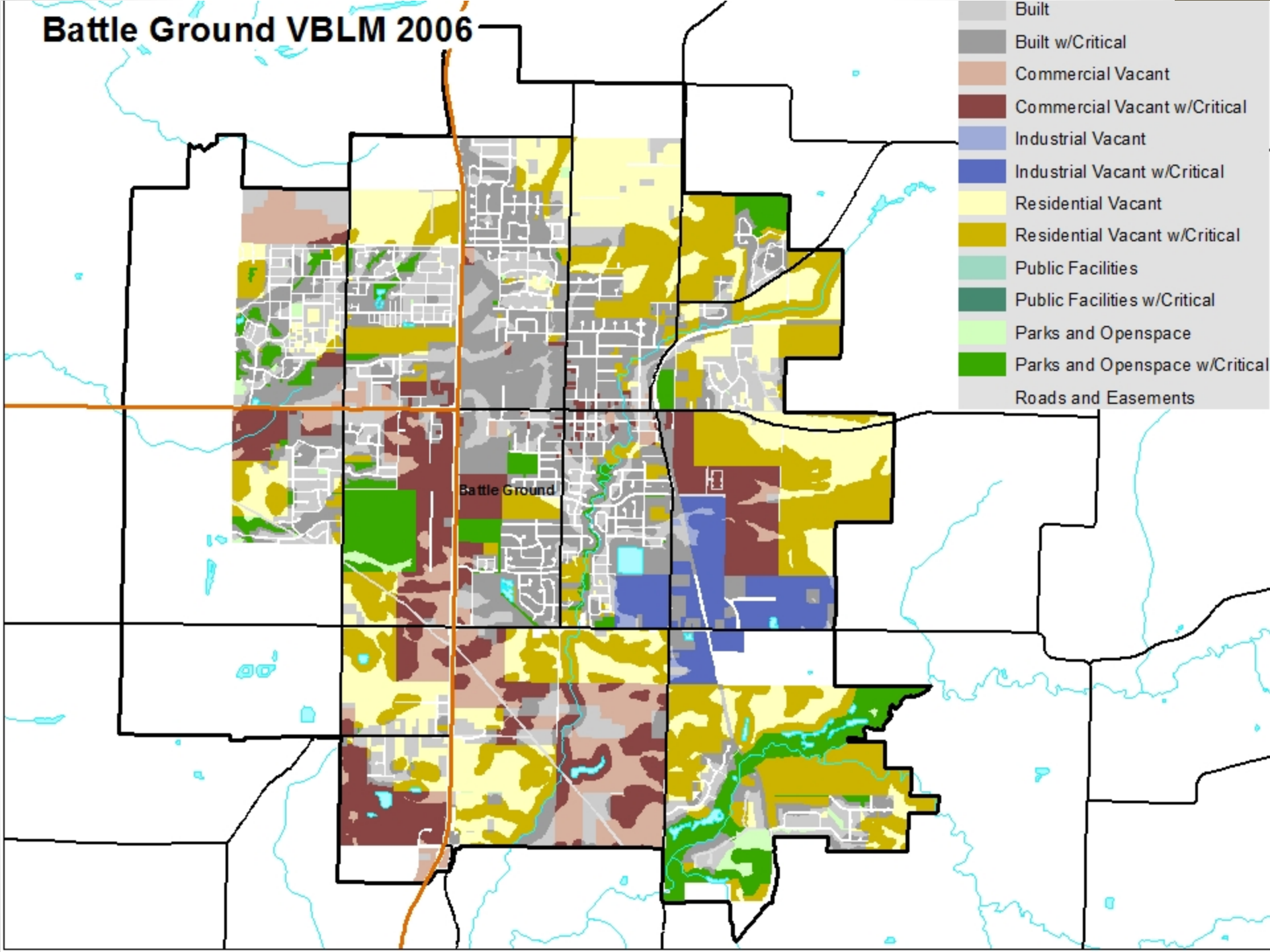
Battle Ground VBLM 2004



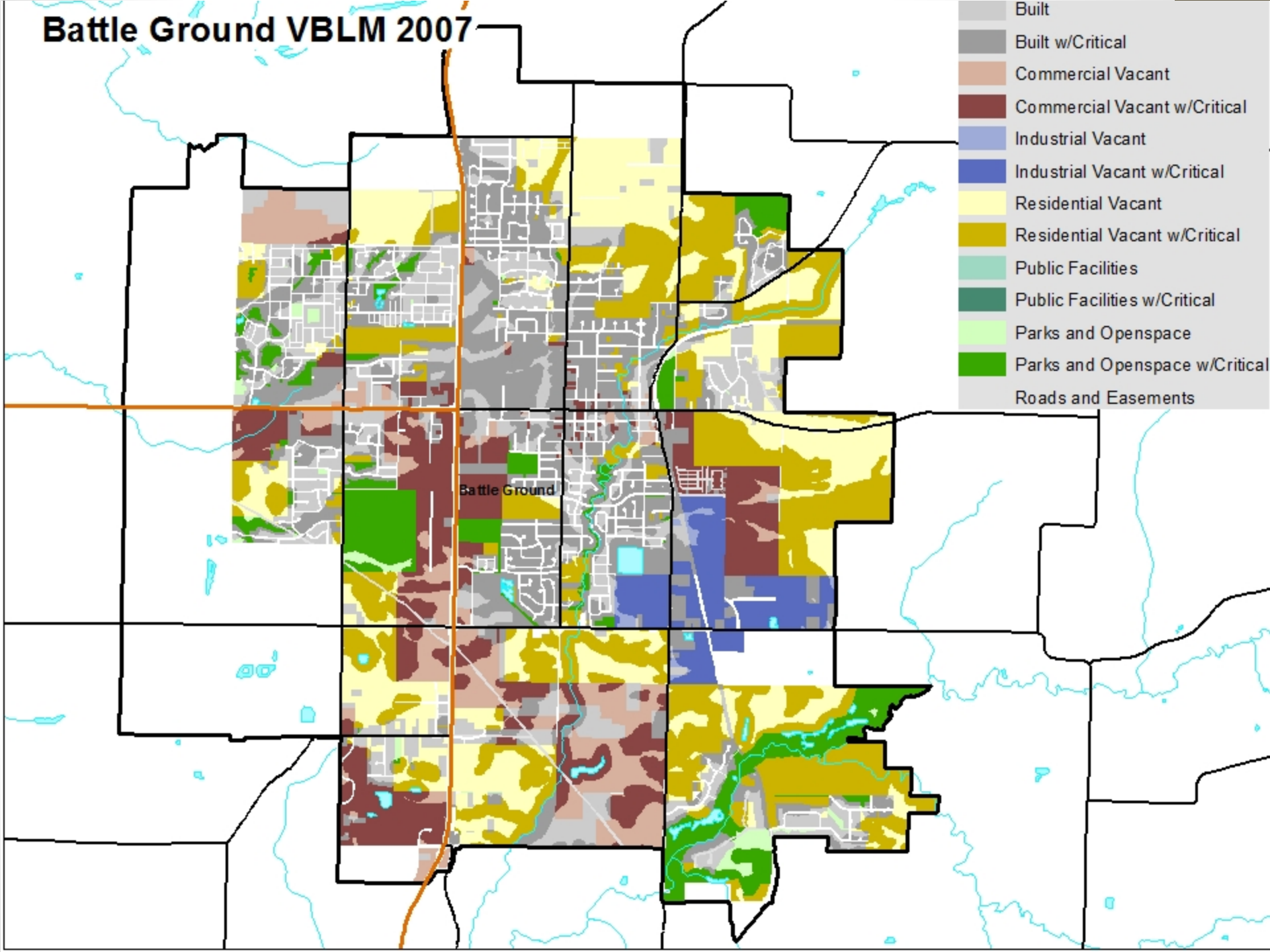
Battle Ground VBLM 2005



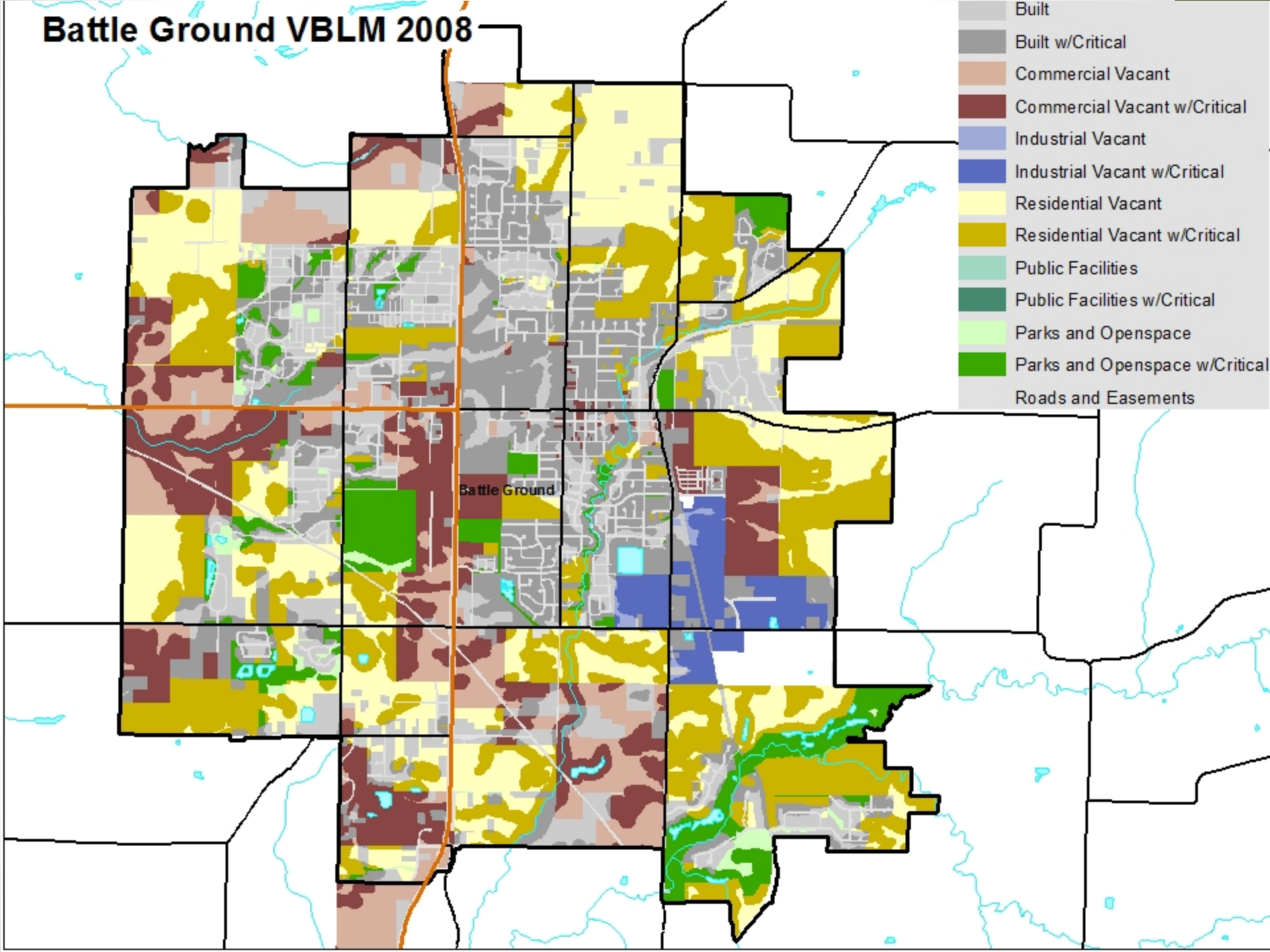
Battle Ground VBLM 2006

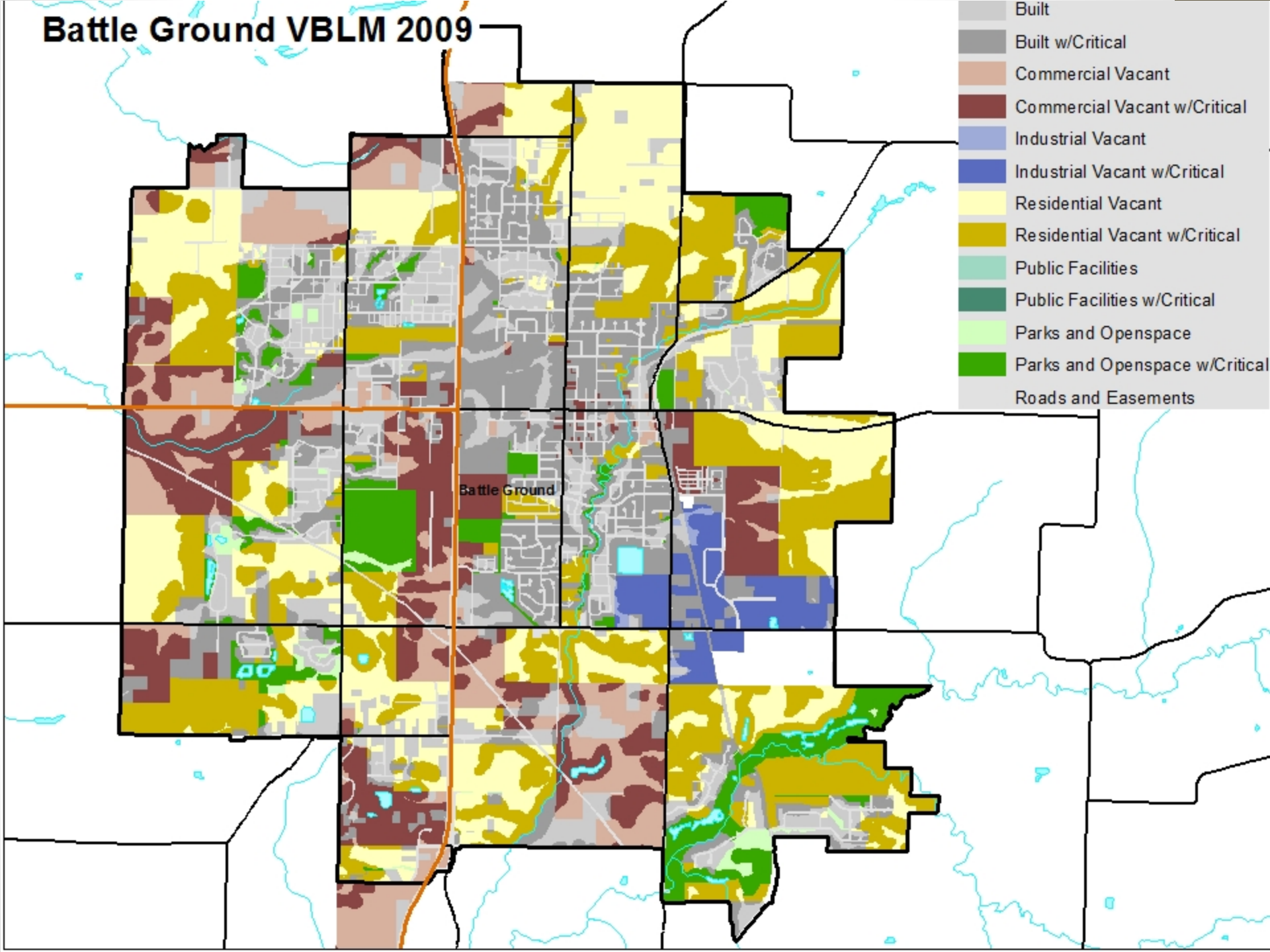


Battle Ground VBLM 2007

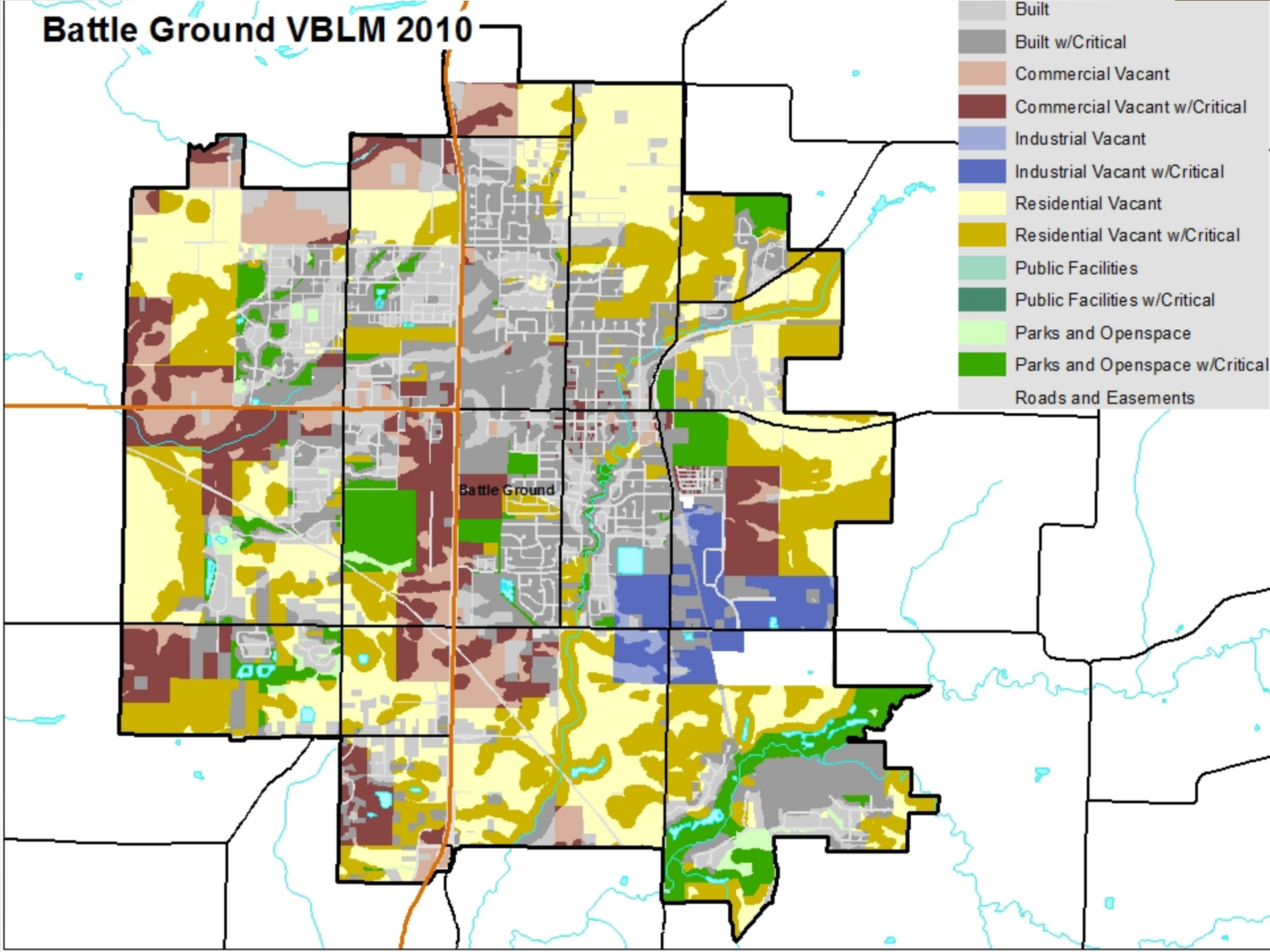


Battle Ground VBLM 2008

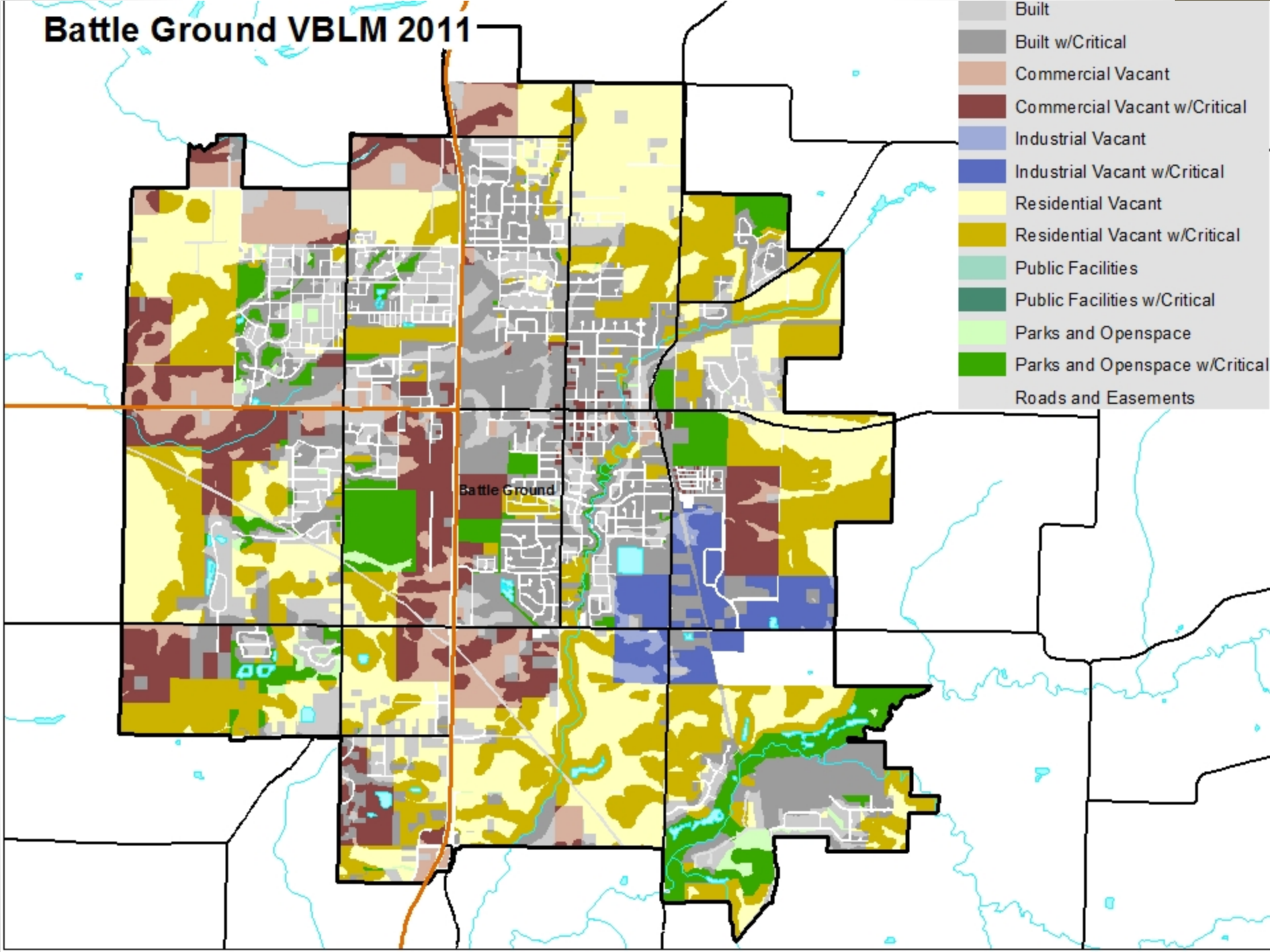



Battle Ground VBLM 2009
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Battle Ground

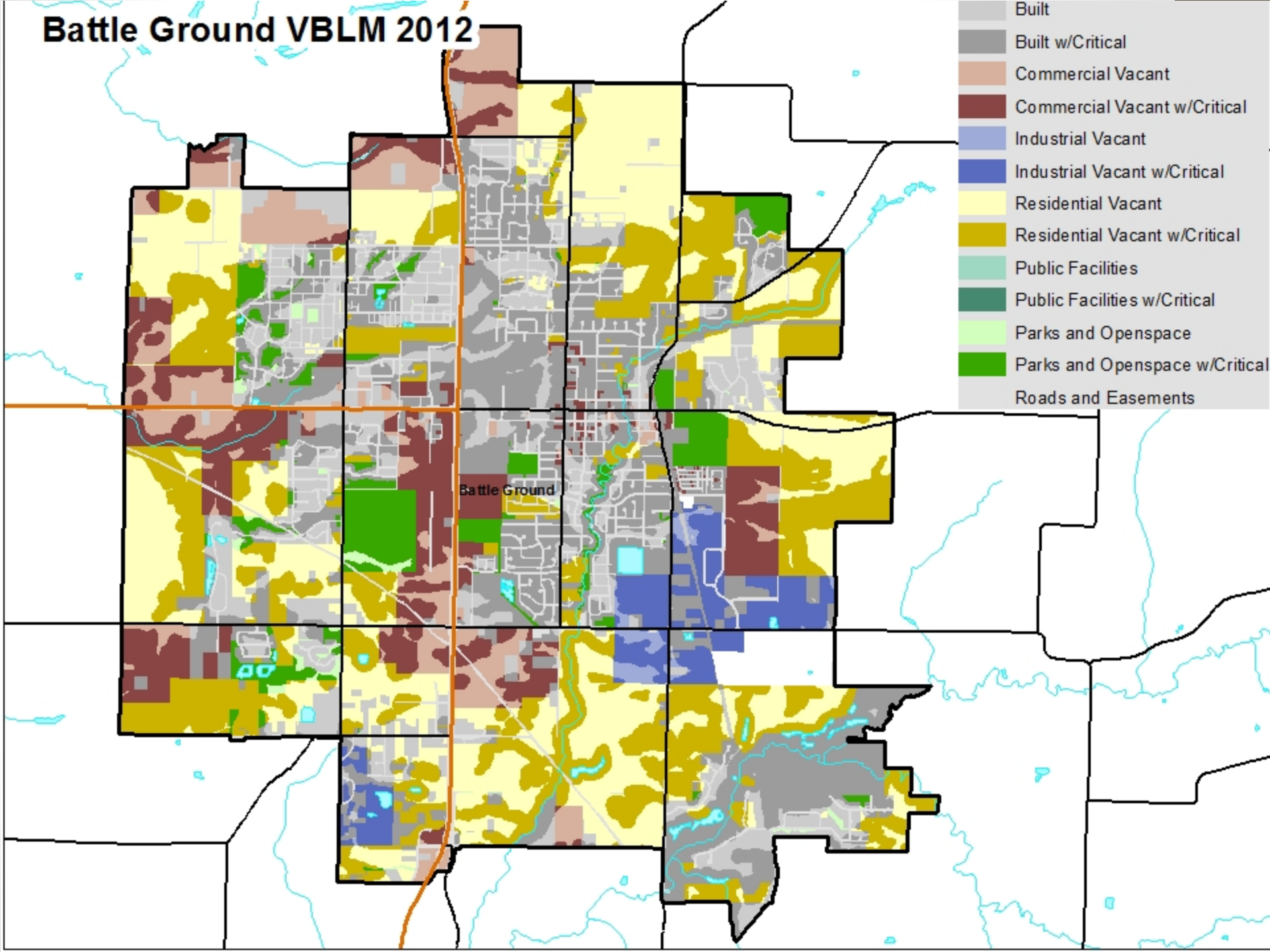
Battle Ground VBLM 2010



Battle Ground VBLM 2011

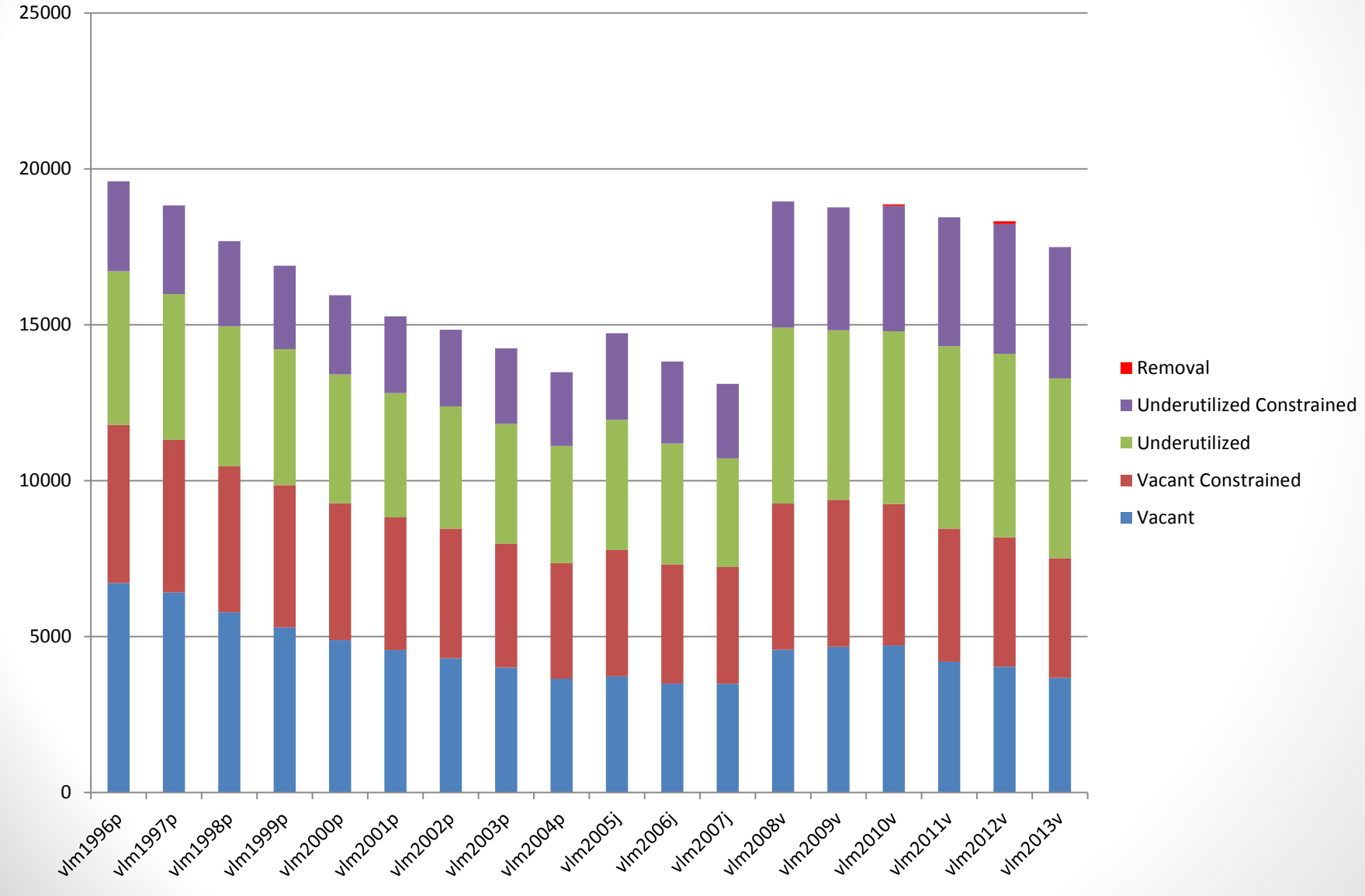


Battle Ground VBLM 2012

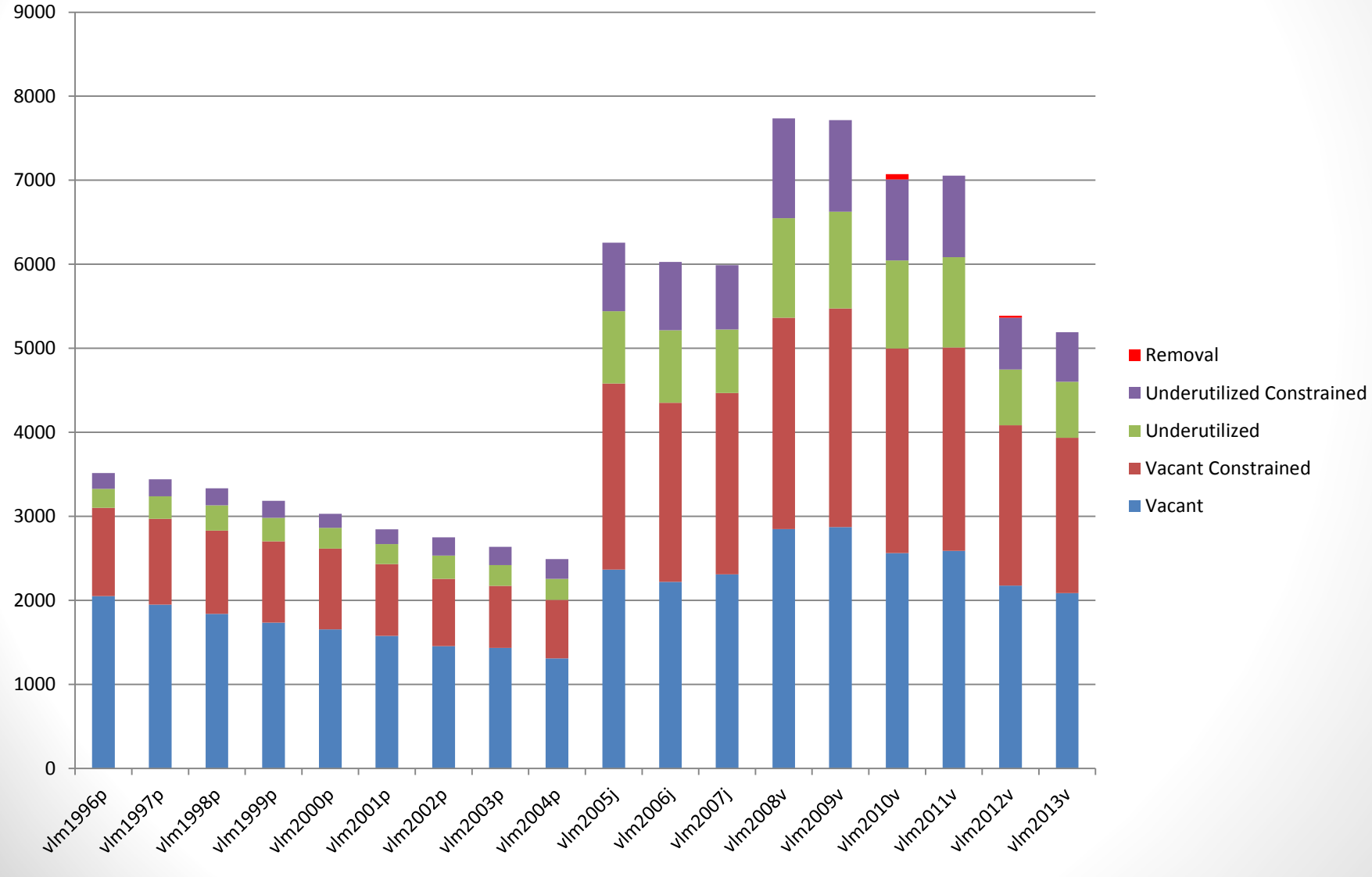


Countywide Time Series

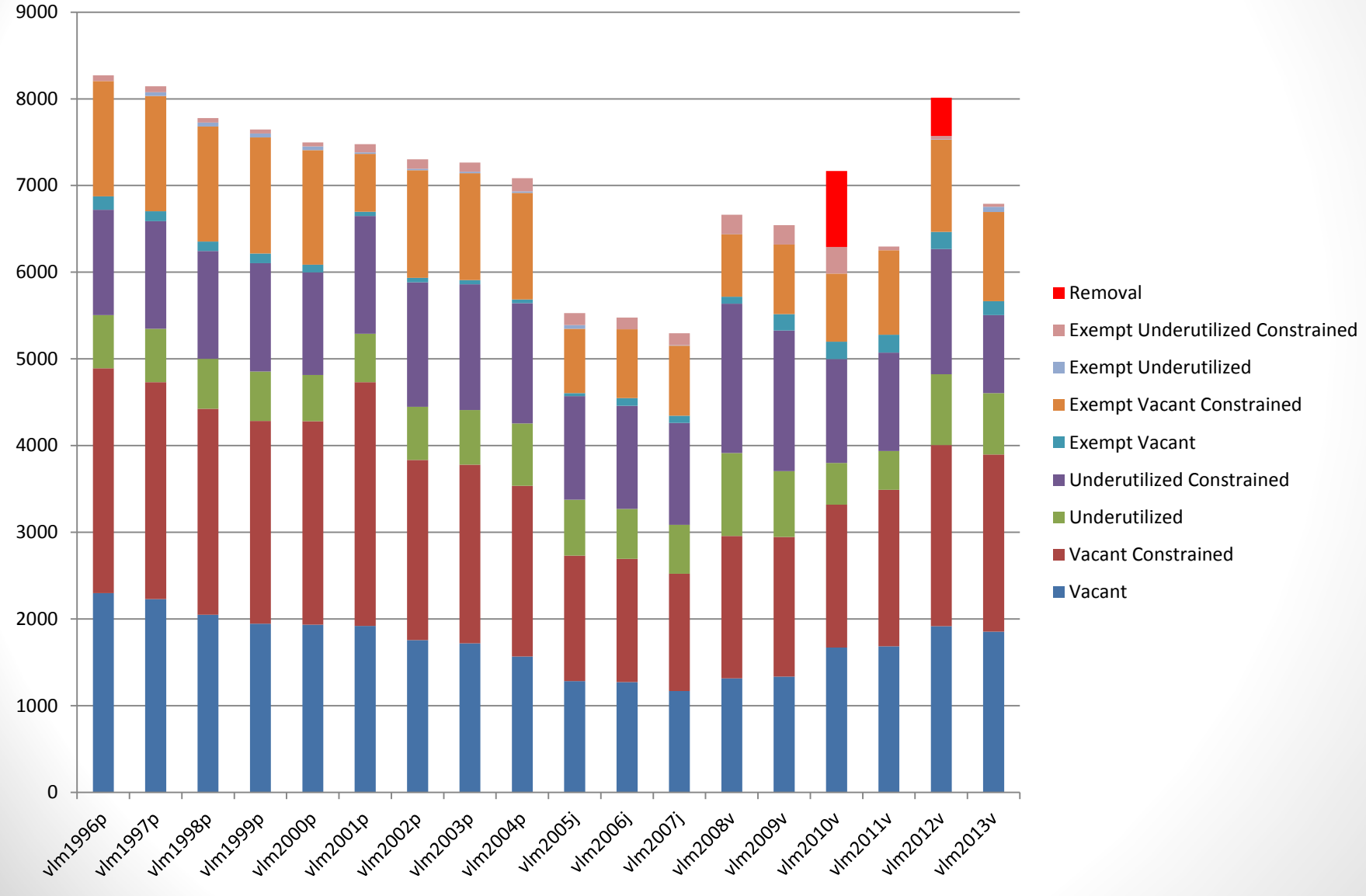
County wide Residential Gross Acres

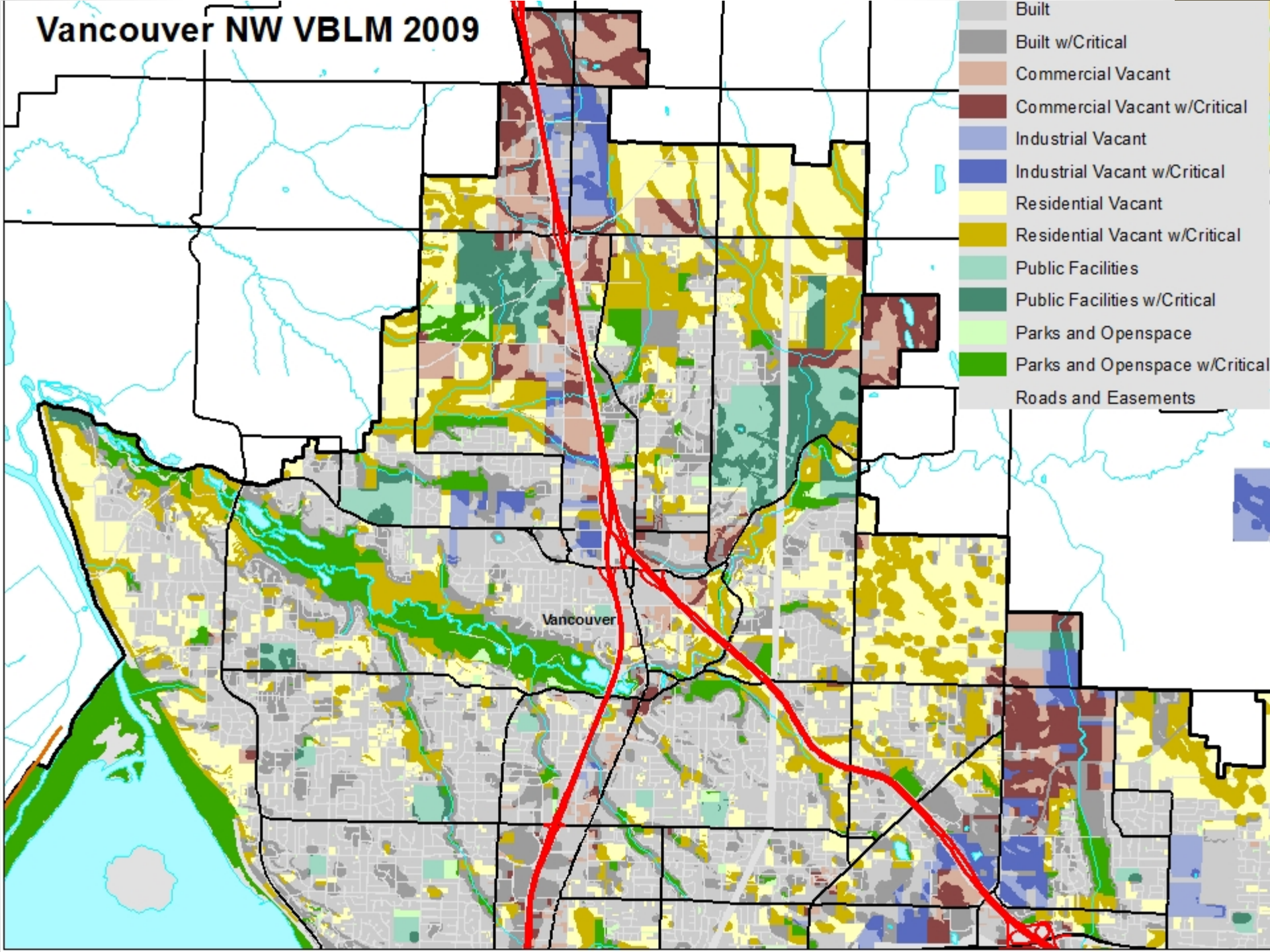


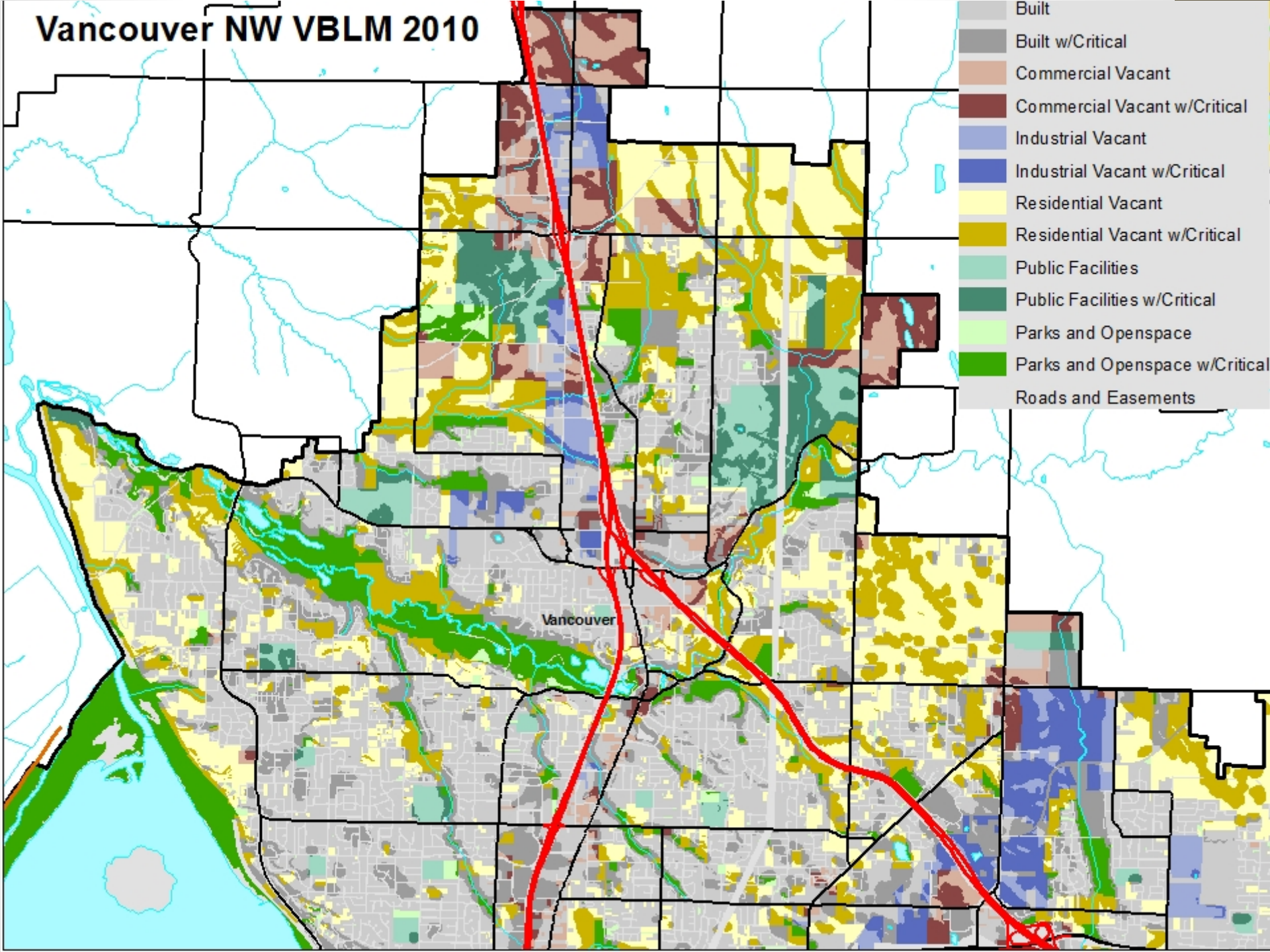
County wide Commercial Gross Acres



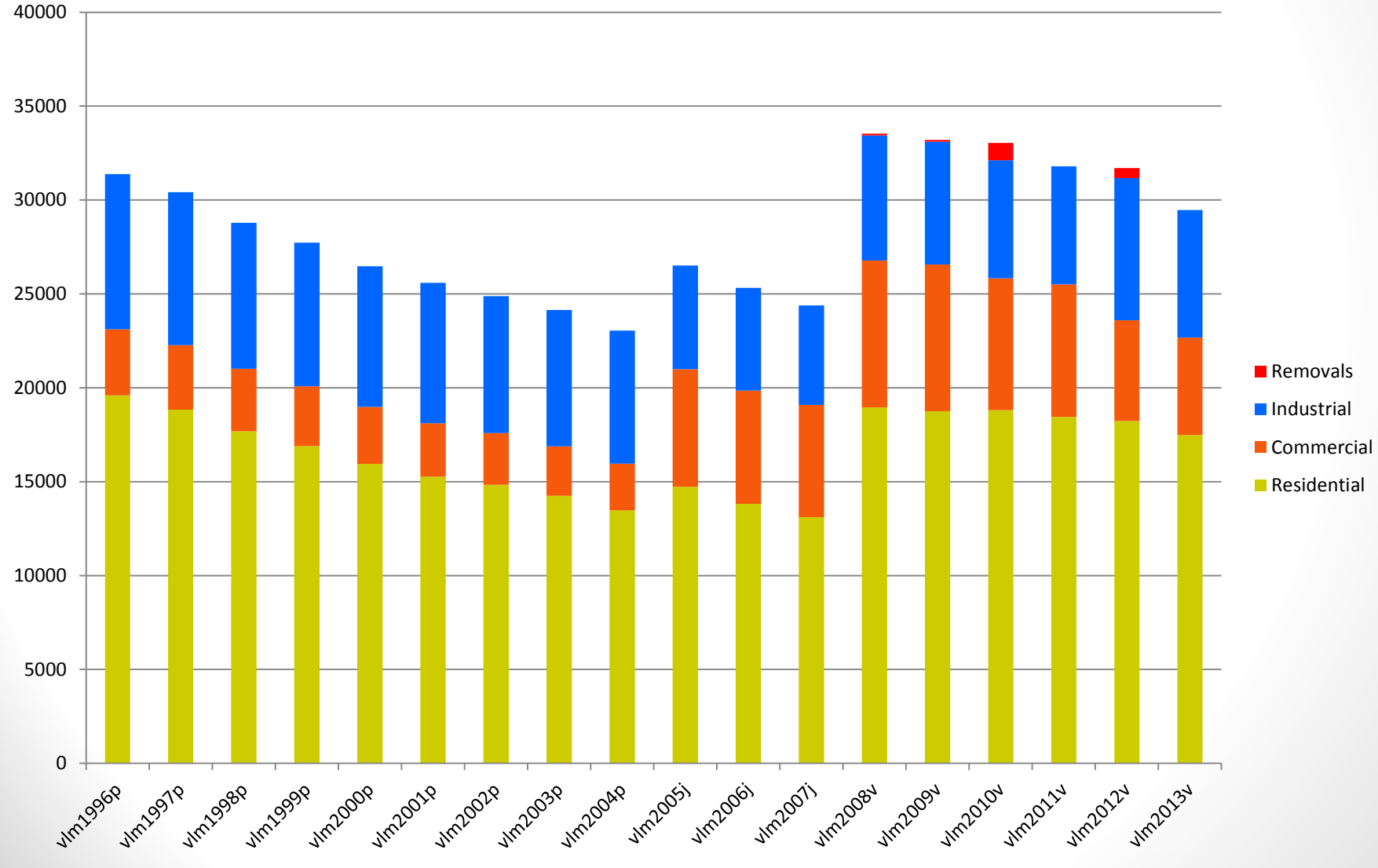
County wide Industrial Gross Acres




Vancouver NW VBLM 2009
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Vancouver


Vancouver NW VBLM 2010
Built
Built w/Critical
Commercial Vacant
Commercial Vacant w/Critical
Industrial Vacant
Industrial Vacant w/Critical
Residential Vacant
Residential Vacant w/Critical
Public Facilities
Public Facilities w/Critical
Parks and Openspace
Parks and Openspace w/Critical
Roads and Easements
Vancouver

County wide
All Vacant Buildable Land



Gross acres to Net acres

1. Never to convert (residual)

   0% - 50% depending on VBLM class

2. Environmental Constraints

   0% - 50% depending on VBLM class

3. Infrastructure (right of way, storm water facilities)

   25% - 27.7% depending on VBLM class

4. Mixed Use split

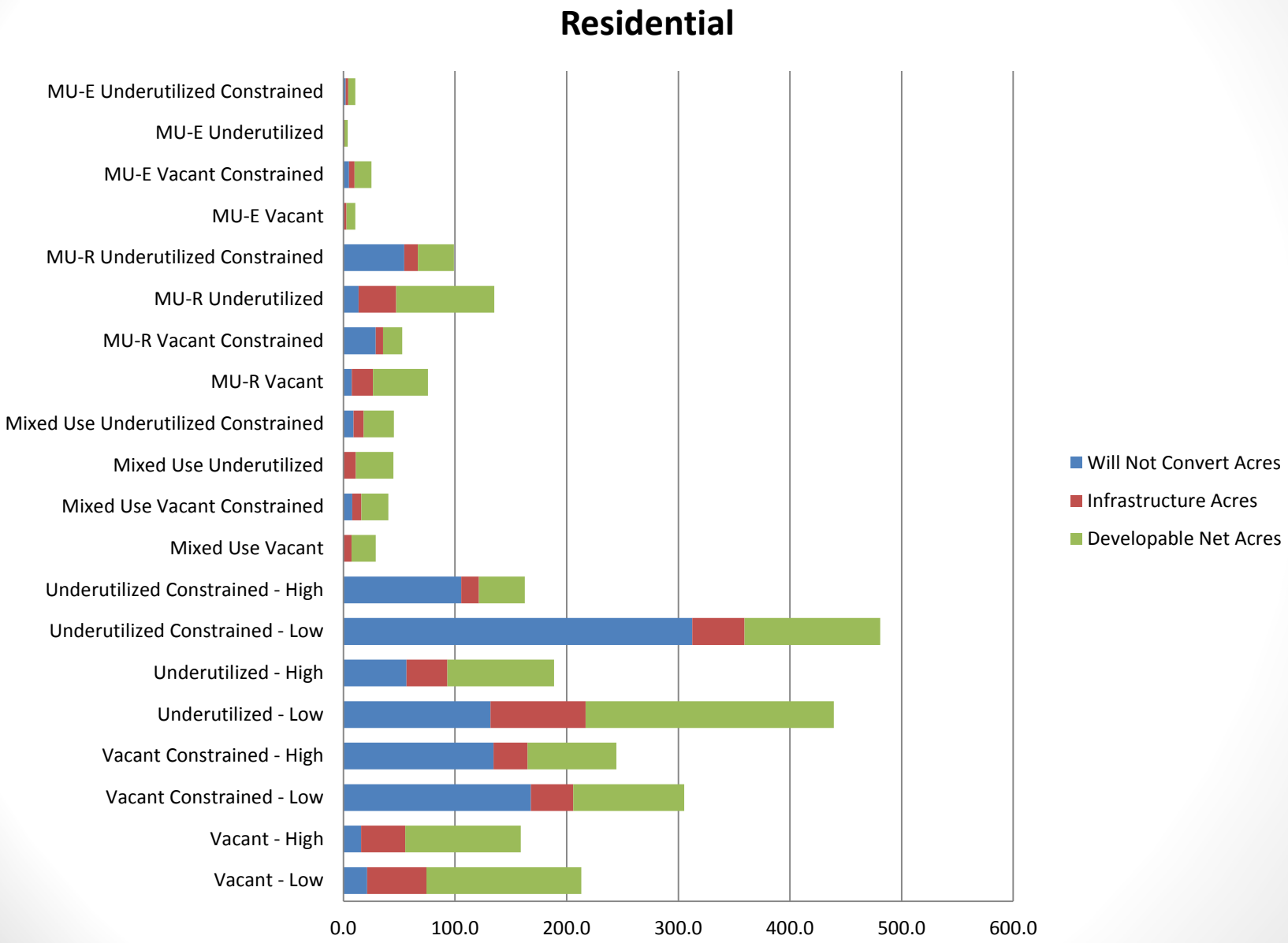
   - Gross acres split into commercial and residential
   - Depending on Comprehensive Plan designation

     Mixed Use: 60% Residential - 40% Commercial

     MU – Residential: 85% Residential - 15% Commercial

     MU – Employment: 25% Residential - 75% Commercial

Gross Acres to Net Acres



Yield Report

Gross to Net GIS Acres Report for Vancouver
Model Name: Annual Update
Model Year: 2013
Model Plan: v

*** Residential ***

	VBLM Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Housing Units
Vacant		(0% + 10%)	(27.7%)		
Low (5 units)	1398.3	139.8	348.6	909.9	4549.5
High (16 units)	471.4	47.1	117.5	306.7	4907.3
Vacant Constrained		(50% + 10%)	(27.7%)		
Low (5 units)	1329.2	731.1	165.7	432.5	2162.3
High (16 units)	381.7	210.0	47.6	124.2	1987.2
Underutilized		(0% + 30%)	(27.7%)		
Low (5 units)	2733.4	820.0	530.0	1383.4	6916.8
High (16 units)	261.2	78.4	50.6	132.2	2114.9
Underutilized Constrained		(50% + 30%)	(27.7%)		
Low (5 units)	1756.7	1141.8	170.3	444.5	2222.6
High (16 units)	115.3	75.0	11.2	29.2	466.9
Mixed Use Vacant		(0% + 0%)	(25%)		
60% (18 units)	135.4	0	33.9	101.6	1828.0
Mixed Use Constrained		(20% + 0%)	(25%)		
60% (18 units)	94.4	18.9	18.9	56.6	1019.2
Mixed Use Underutilized		(0% + 0%)	(25%)		
60% (18 units)	92.1	0	23.0	69.1	1243.0
Mixed Use Constrained		(20% + 0%)	(25%)		
60% (18 units)	54.0	10.8	10.8	32.4	583.0

Yield Report

Gross to Net GIS Acres Report for Vancouver
Model Name: Annual Update
Model Year: 2013
Mod

***

	VBLM Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Housing Units
Vacant		(0% + 10%)	(27.7%)		
Low (5 units		139.8	348.6	909.9	4549.5
High (16 unit		47.1	117.5	306.7	4907.3
Vacant Constrained		(50% + 10%)	(27.7%)		
Low (5 units		731.1	165.7	432.5	2162.3
High (16 units)	381.7	210.0	47.6	124.2	1987.2
Underutilized		(0% + 30%)	(27.7%)		
Low (5 units)	2733.4	820.0	530.0	1383.4	6916.8
High (16 units)	261.2	78.4	50.6	132.2	2114.9
Underutilized Constrained		(50% + 30%)	(27.7%)		
Low (5 units)	1756.7	1141.8	170.3	444.5	2222.6
High (16 units)	115.3	75.0	11.2	29.2	466.9
Mixed Use Vacant		(0% + 0%)	(25%)		
60% (18 units)	135.4	0	33.9	101.6	1828.0
Mixed Use Constrained		(20% + 0%)	(25%)		
60% (18 units)	94.4	18.9	18.9	56.6	1019.2
Mixed Use Underutilized		(0% + 0%)	(25%)		
60% (18 units)	92.1	0	23.0	69.1	1243.0
Mixed Use Constrained		(20% + 0%)	(25%)		
60% (18 units)	54.0	10.8	10.8	32.4	583.0

Housing units per acre

Residual 10%

Critical 50%

Commercial (40%) - Residential Split (60%)

Origins

1992-1994

- County GIS 2 years old
- Translate VBLM concept into GIS model
- Discover best available computer databases
- No Aerial Photos for QA/QC
- A single model result consumed 20% of GIS diskspace. Each model overwrote the last
- Model run time 3 days

1995-1999

- Annual Model Run
- Gradual improvement of Assessor data for VBLM purpose
- Aerial photo flights 1994,1996,1998
- 1996 GIS data archive on CDROM begins.
- 1998 Google is founded

2000

- Plan Monitoring Technical Advisory Committee (TAC) evaluates model
  - Responsible Growth Forum
  - Friends of Clark County

2000 Plan Monitoring TAC Model Review

- Model results field checked
- Model revised
  - Mobile Home Parks classified as built
  - Building Values Increased for Inflation
  - Common Areas and Courtyards added to easements category
- Residential Underutilized criteria revised.

2002

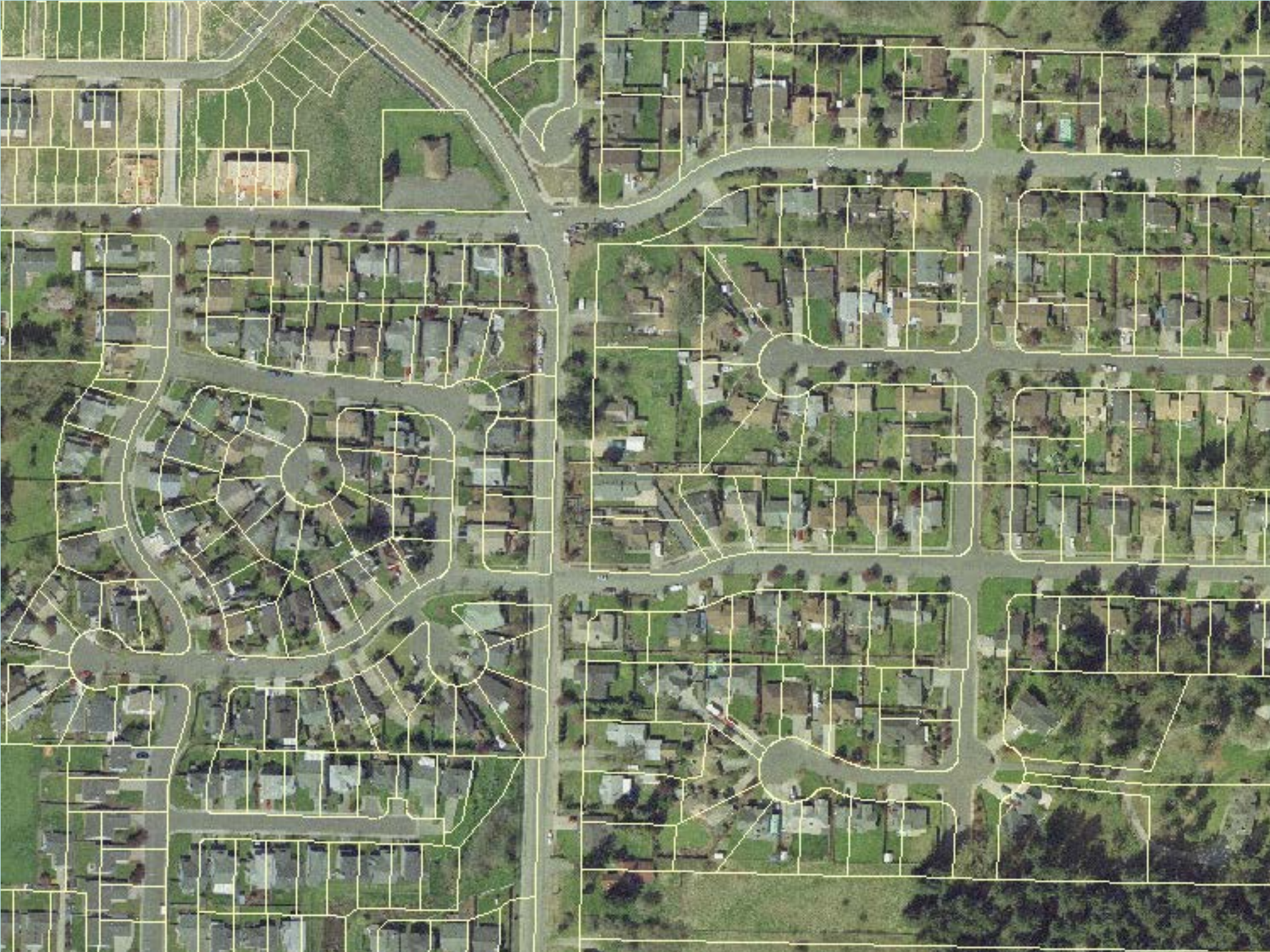
- Historical Models Added (compare apples to apples)
- Scenarios are added (CREDC, Home Builders, Cities)
- Model takes 8 hours to run

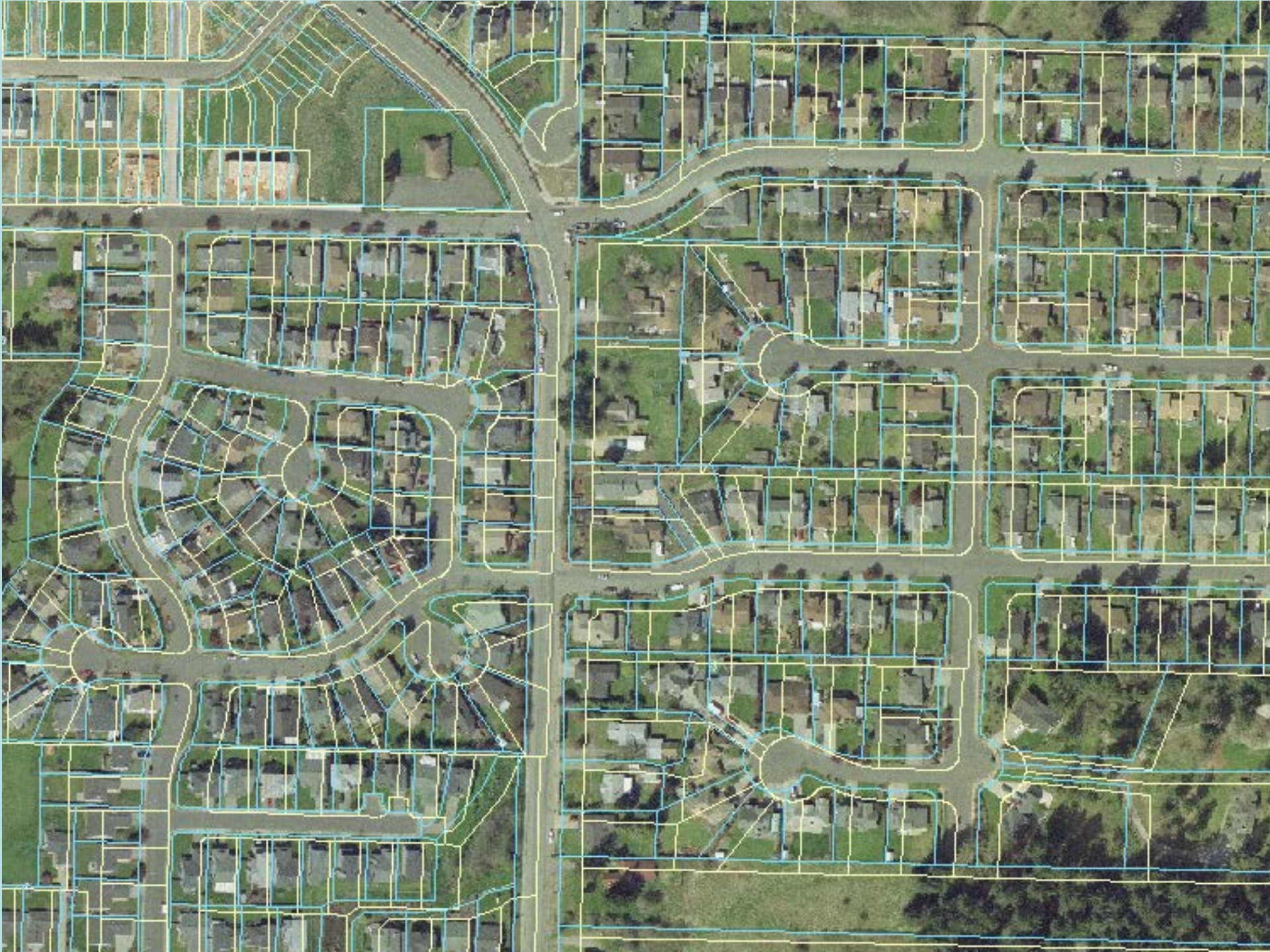
2003-2005

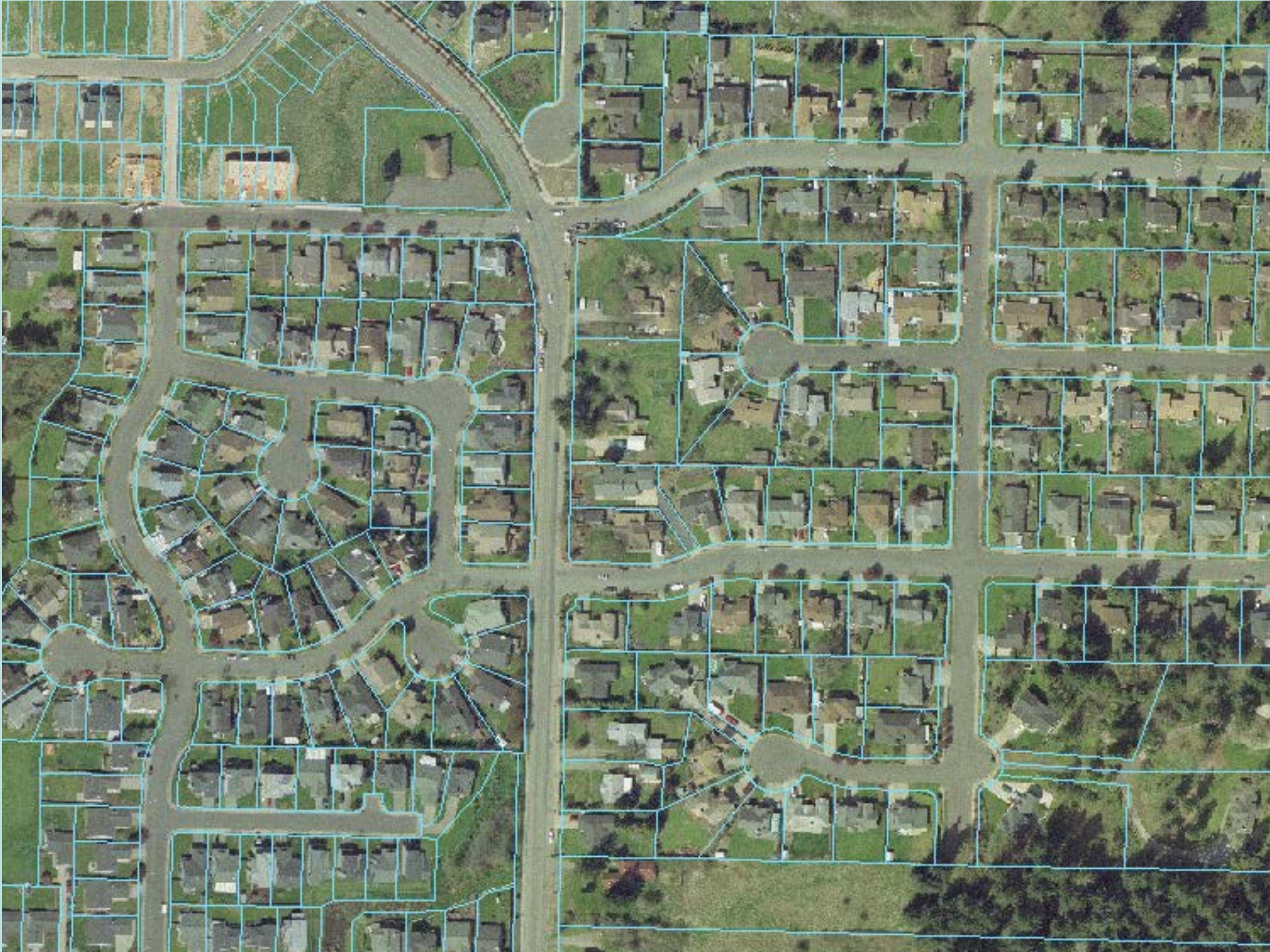
- 2003 Parcel Layer Accuracy improved
- 2004 New County wetlands inventory

- 2004 First UGA expansion
  - New Comprehensive Plan

Parcels Layer Adjustment



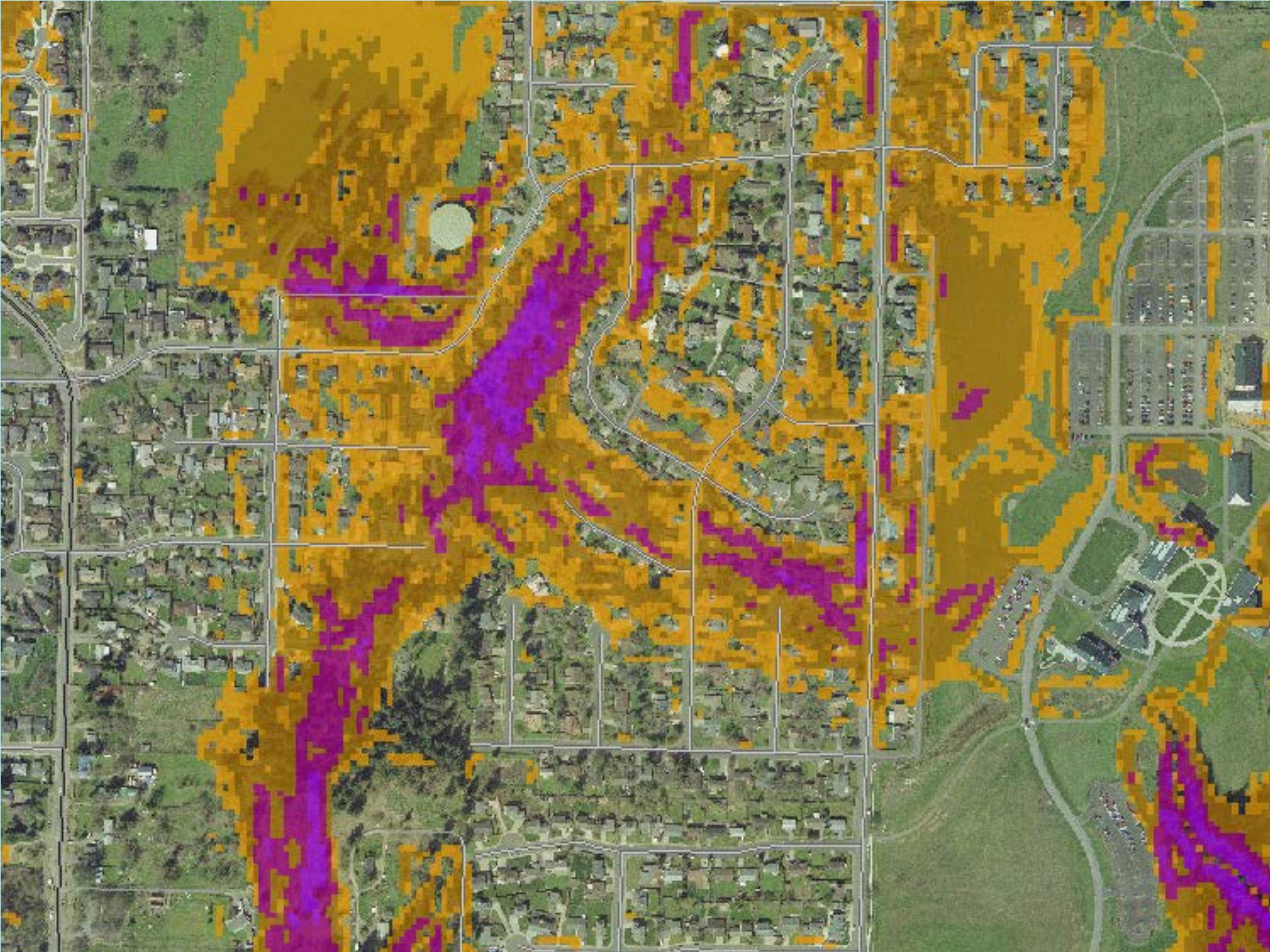


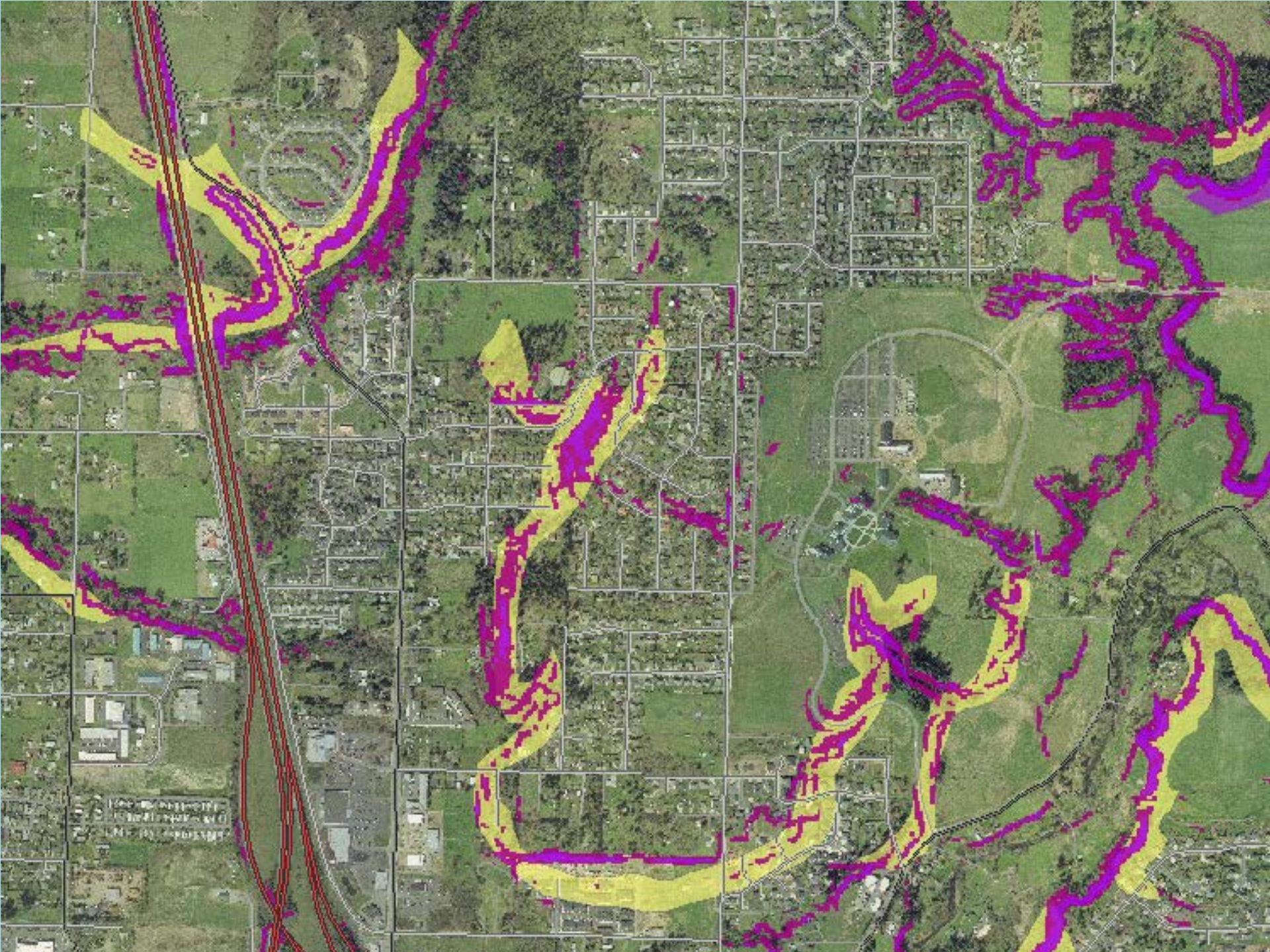


New Slope Layer

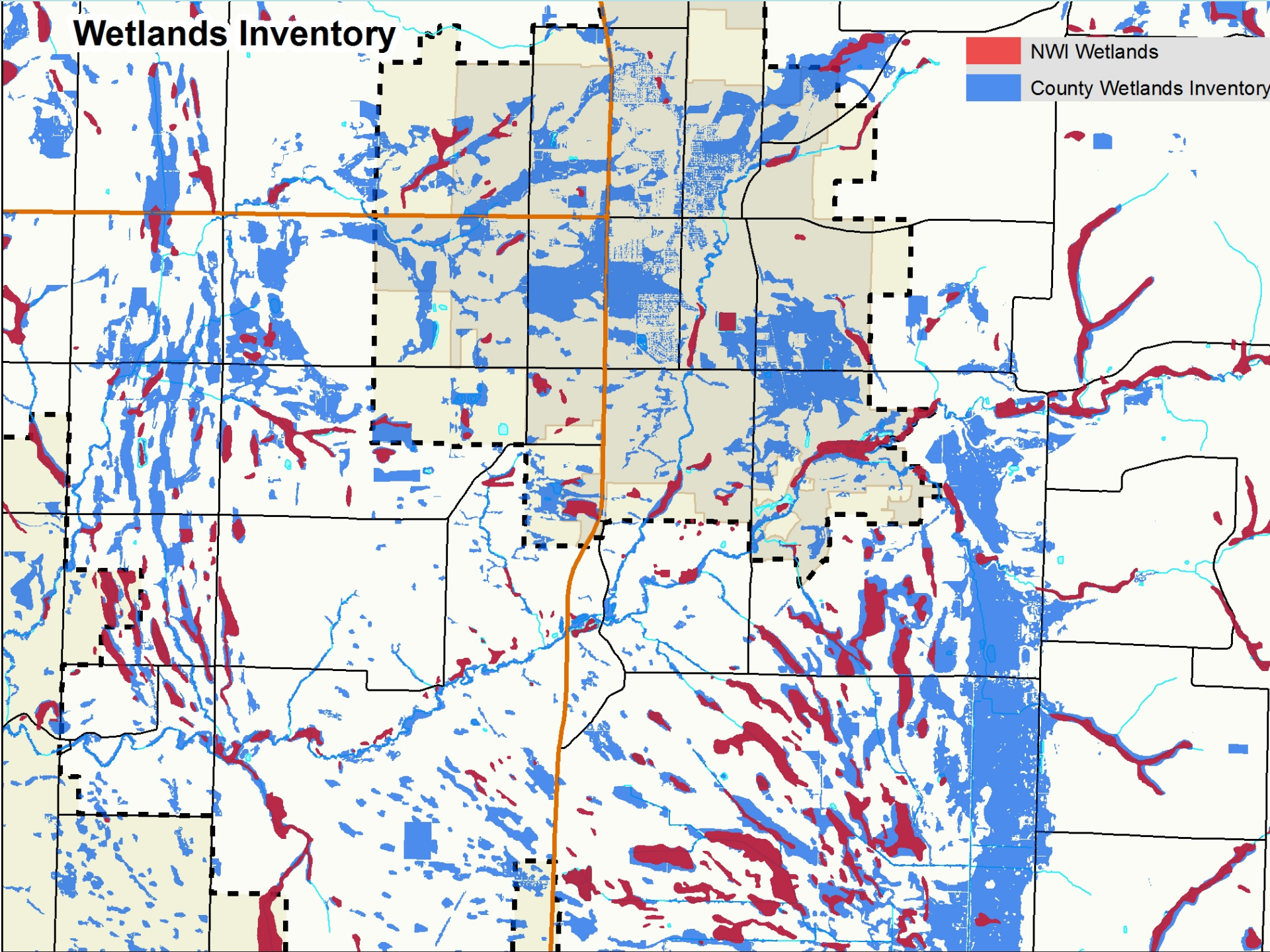
- 2002 Lidar Flight
  - 2 foot contours county wide
  - New slope layer based on contours
  - Old Slope layer based on soil types

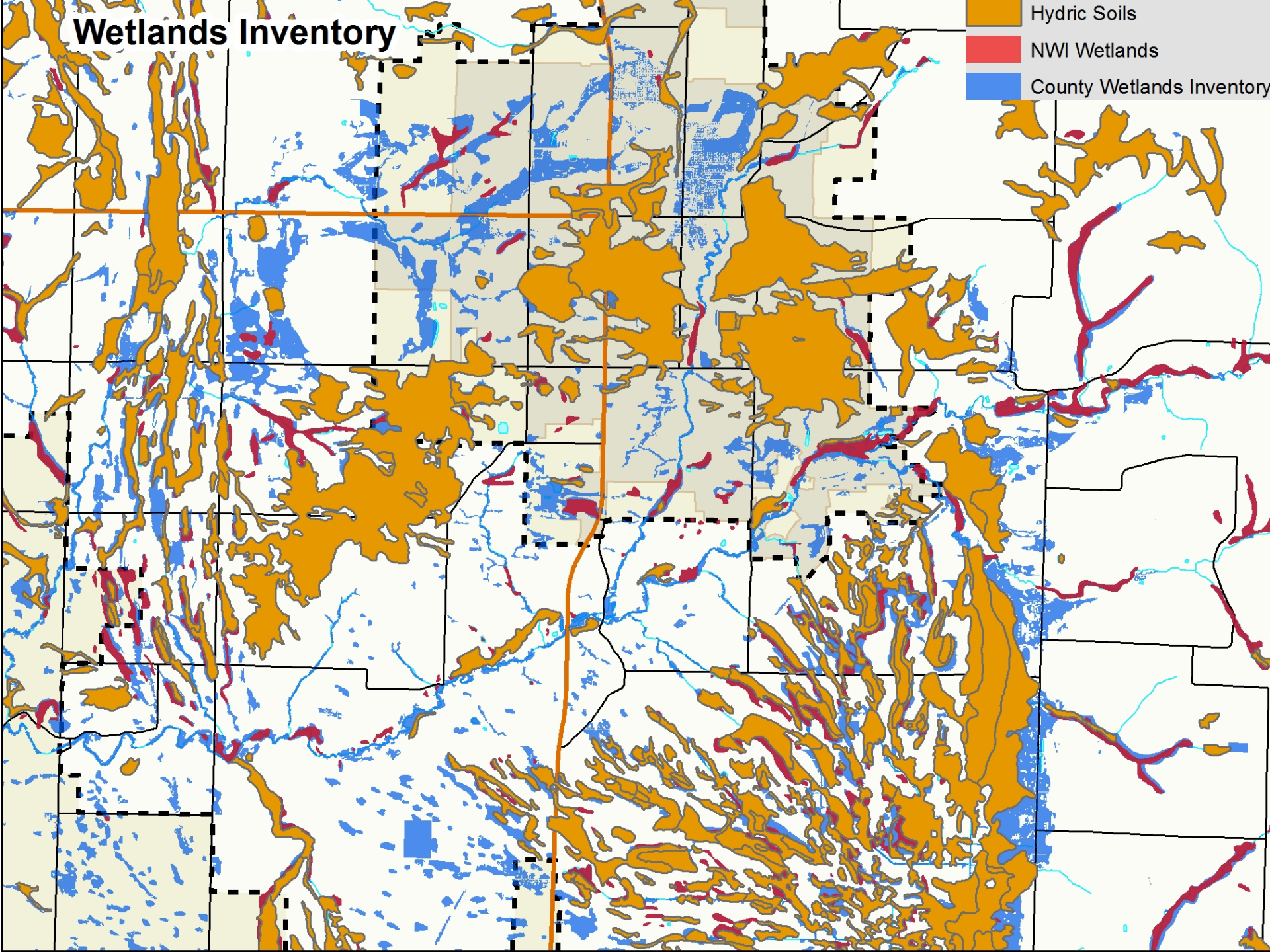
  FEMA uses contours information to update floodplain maps
  Contours also used to improve wetlands





Clark County Wetlands Inventory


Wetlands Inventory
NWI Wetlands
County Wetlands Inventory


Wetlands Inventory
Hydric Soils
NWI Wetlands
County Wetlands Inventory

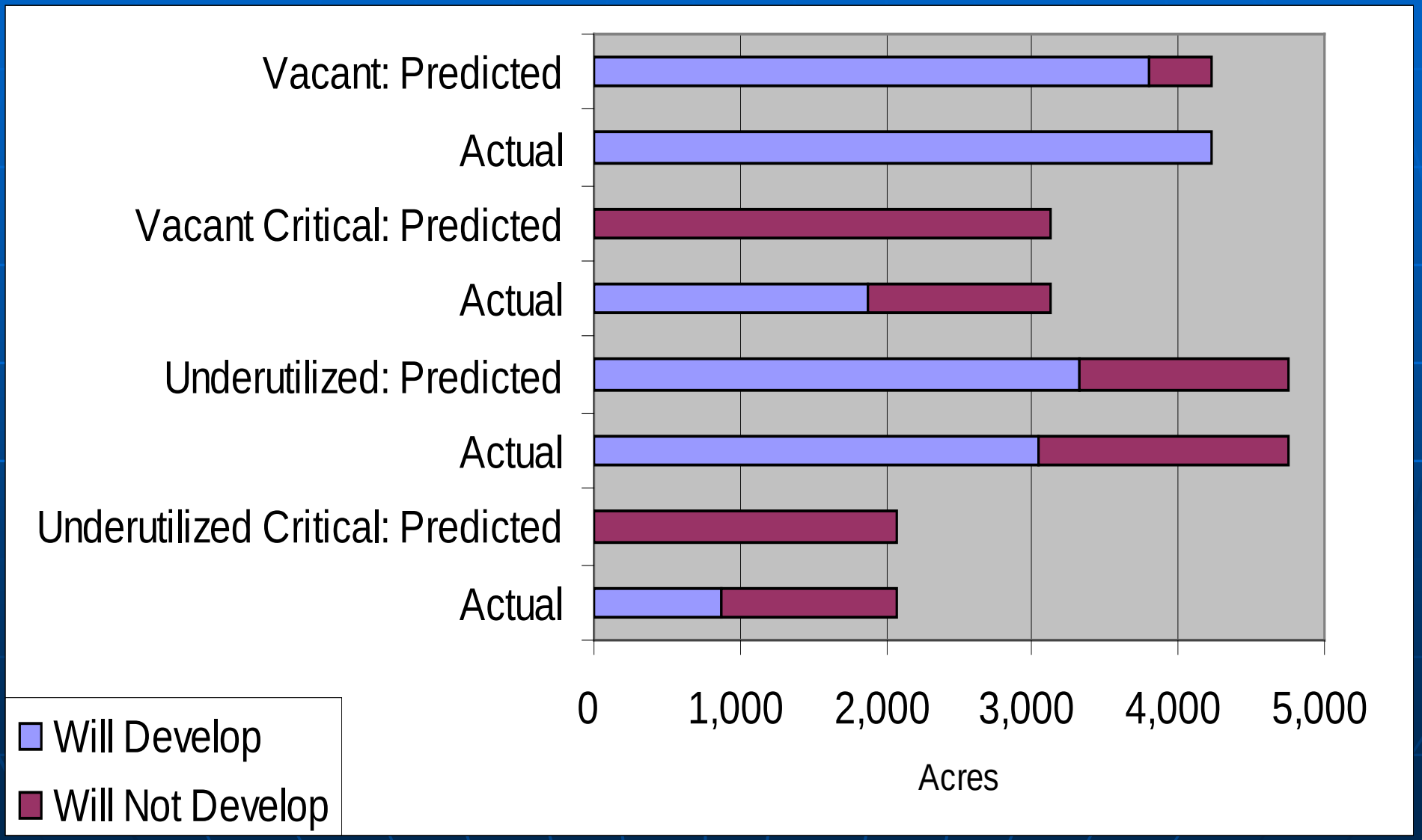
2005

- 2005 Model Review
  - Evaluation of model over time
    - Actual development patterns vs. 1994 predictions
  - Model revisions
    - Residential
      - Underutilized value criteria switched to Building Value per Acre (BVA)
    - Commercial and Industrial models combined
      - Underutilized changed to Building Value per Acre
    - Environmental Constraints independent of parcel configuration

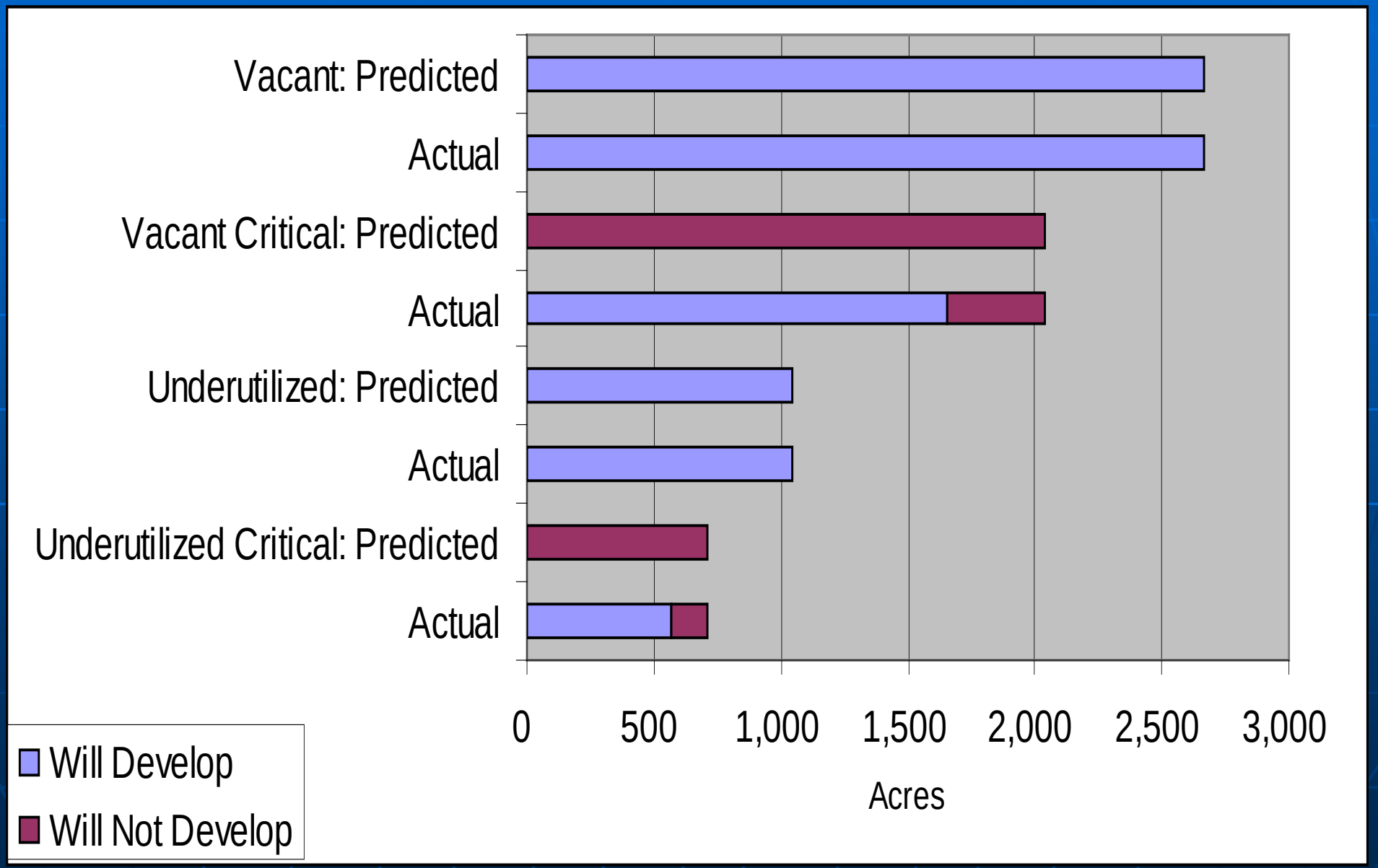
Environmental Constraints

Parcels with Environment Constraints do develop

Residential Percent Developed



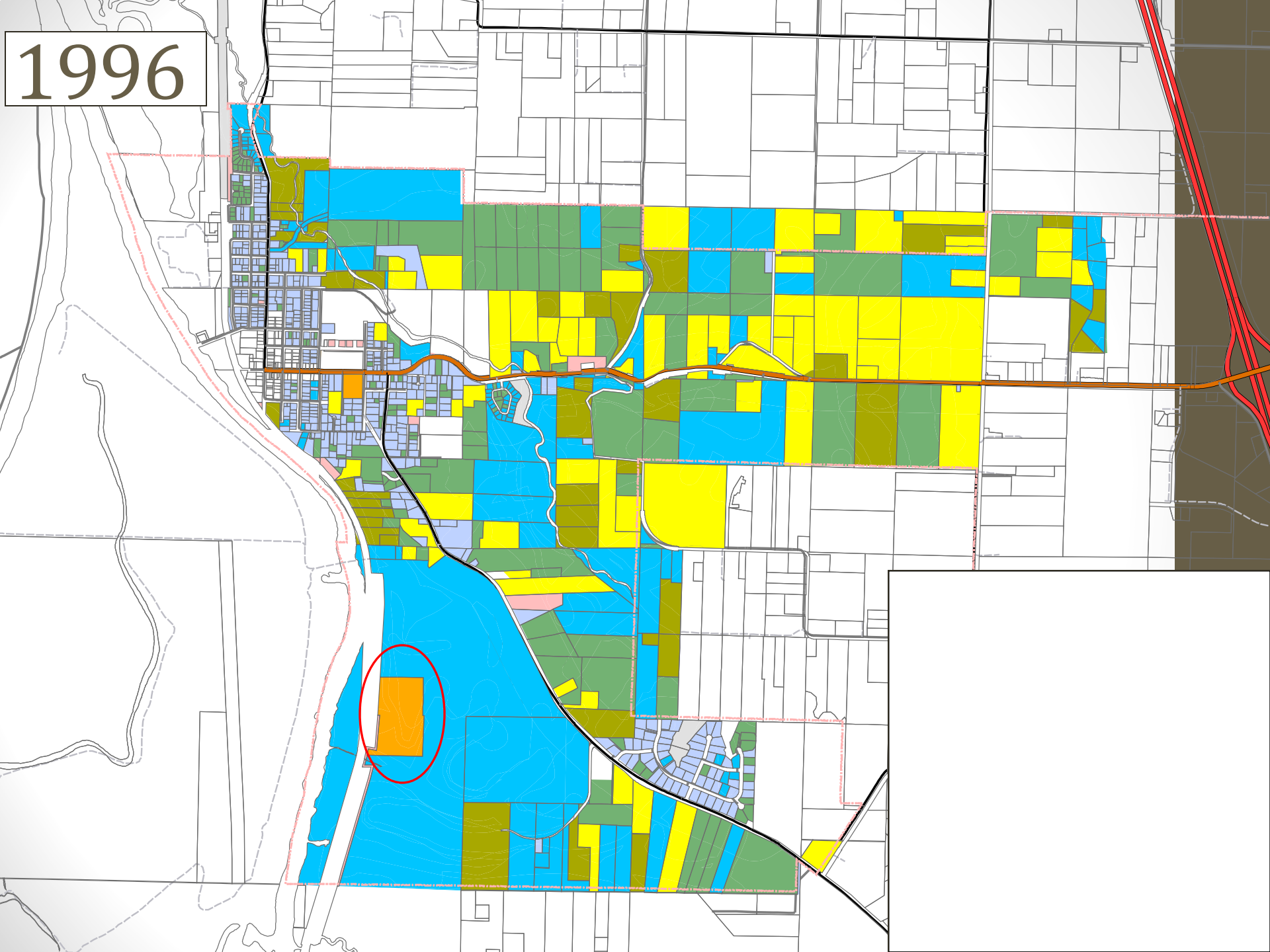
Commercial Percent Developed

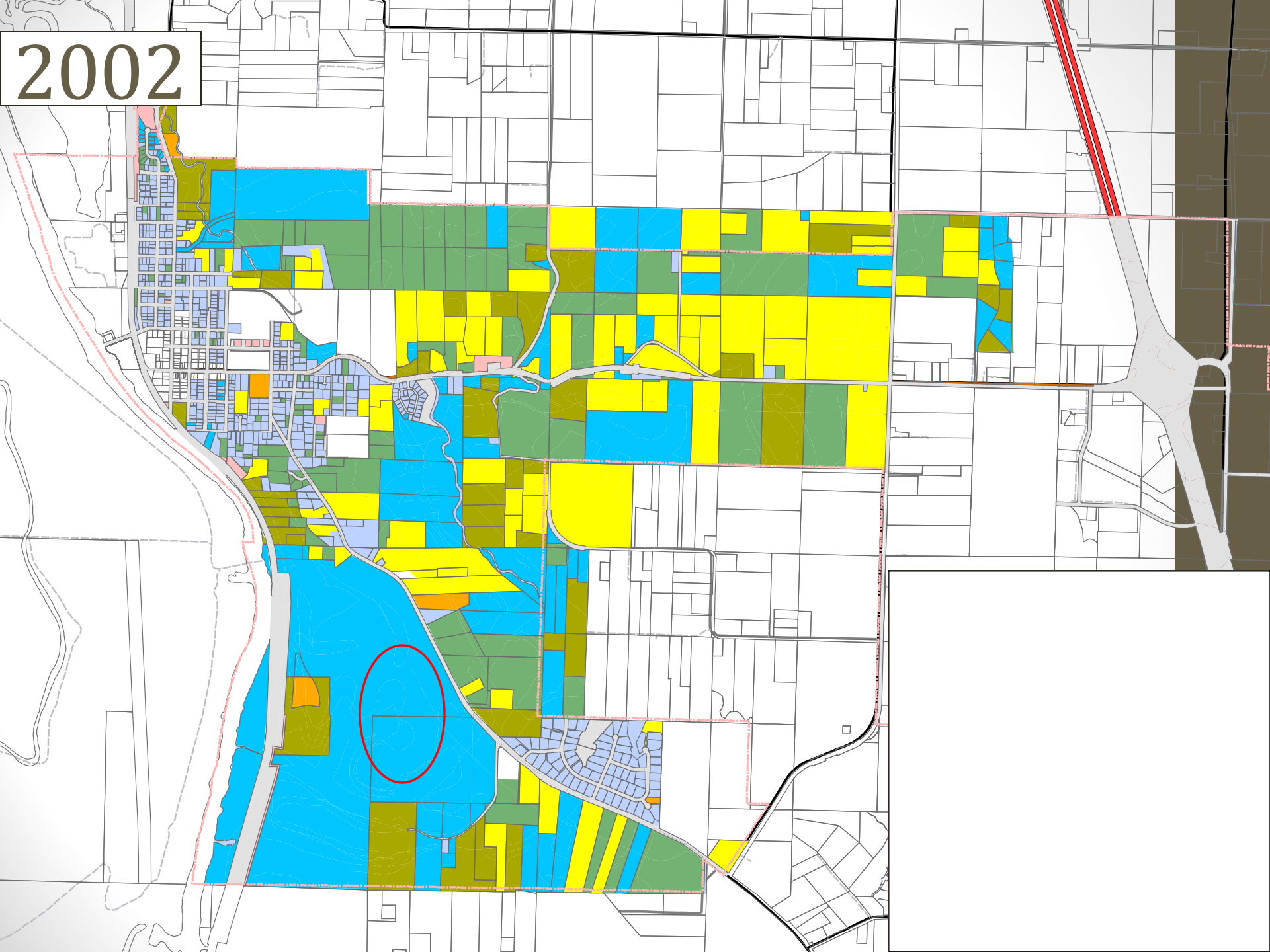


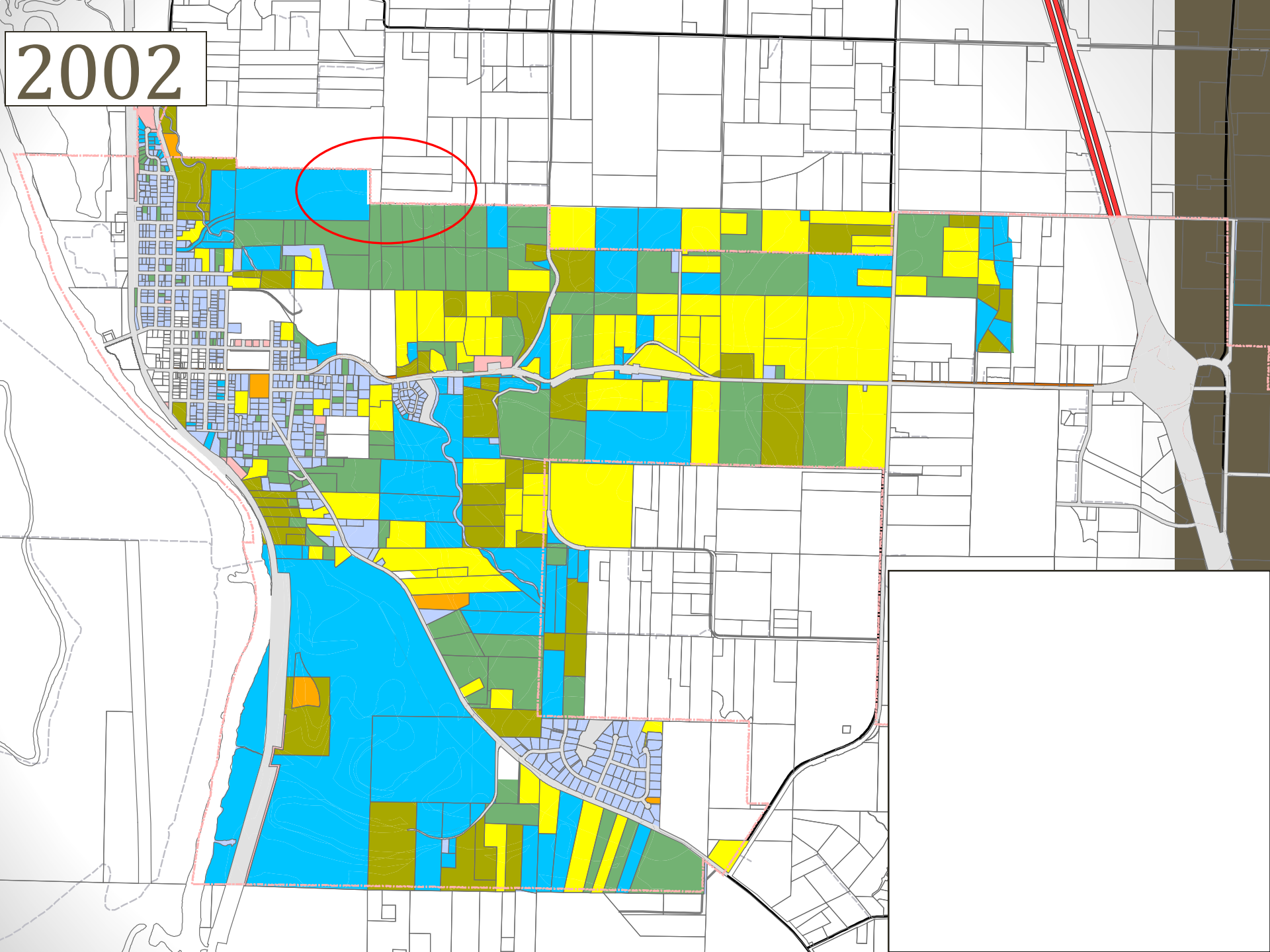
Environmental Constraints should be independent from the parcel configuration

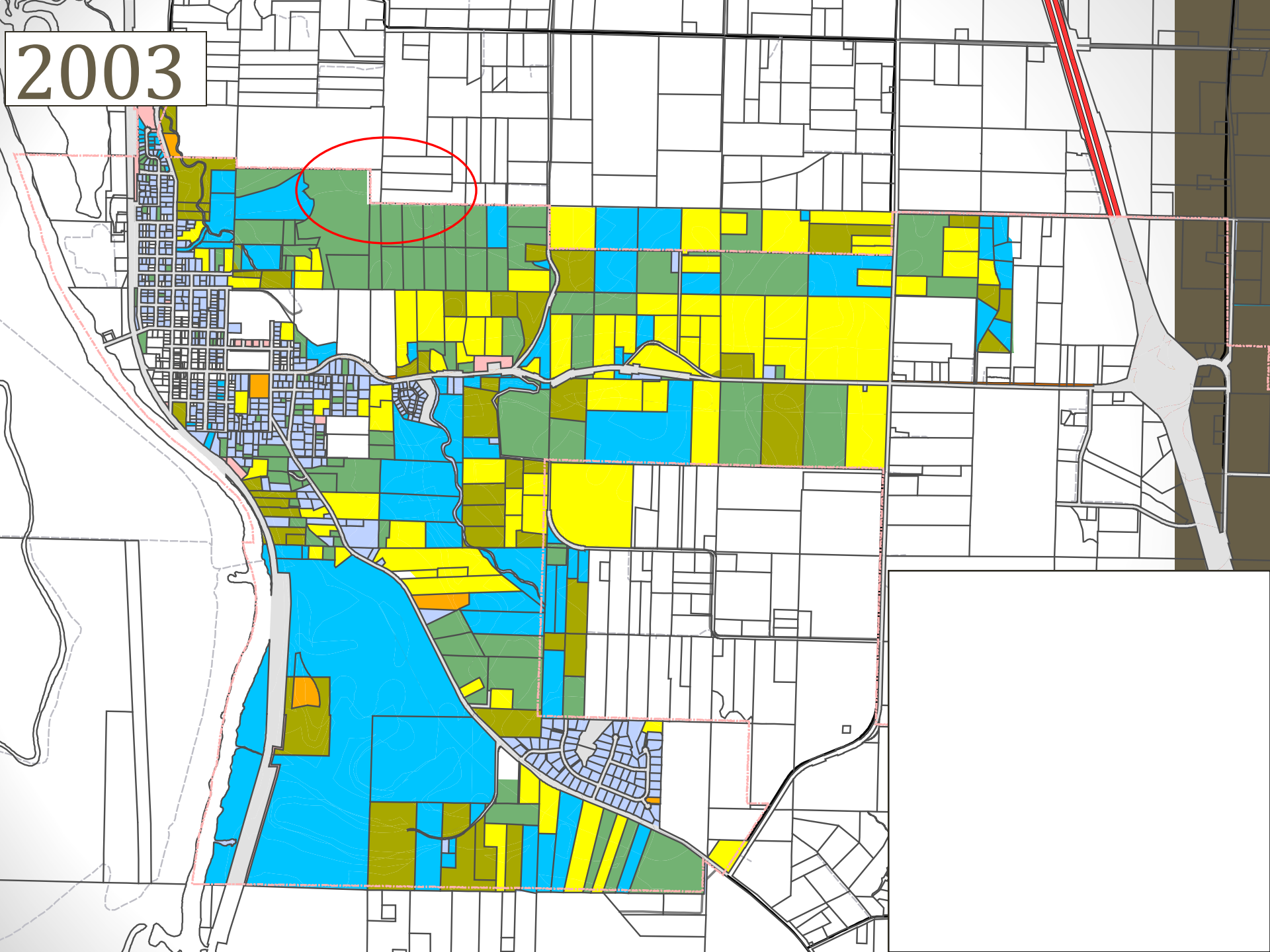
Ridgefield

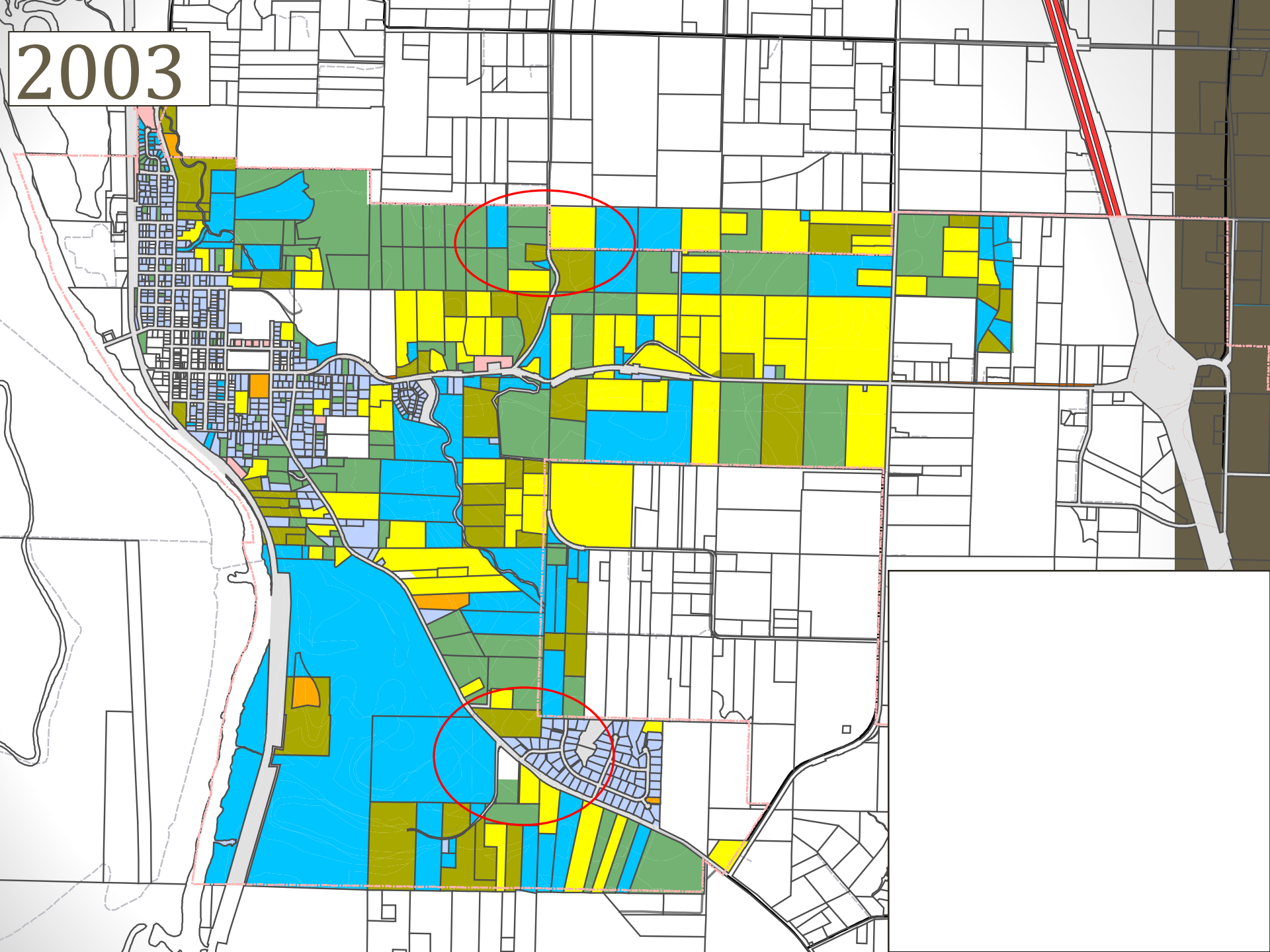
Annotated

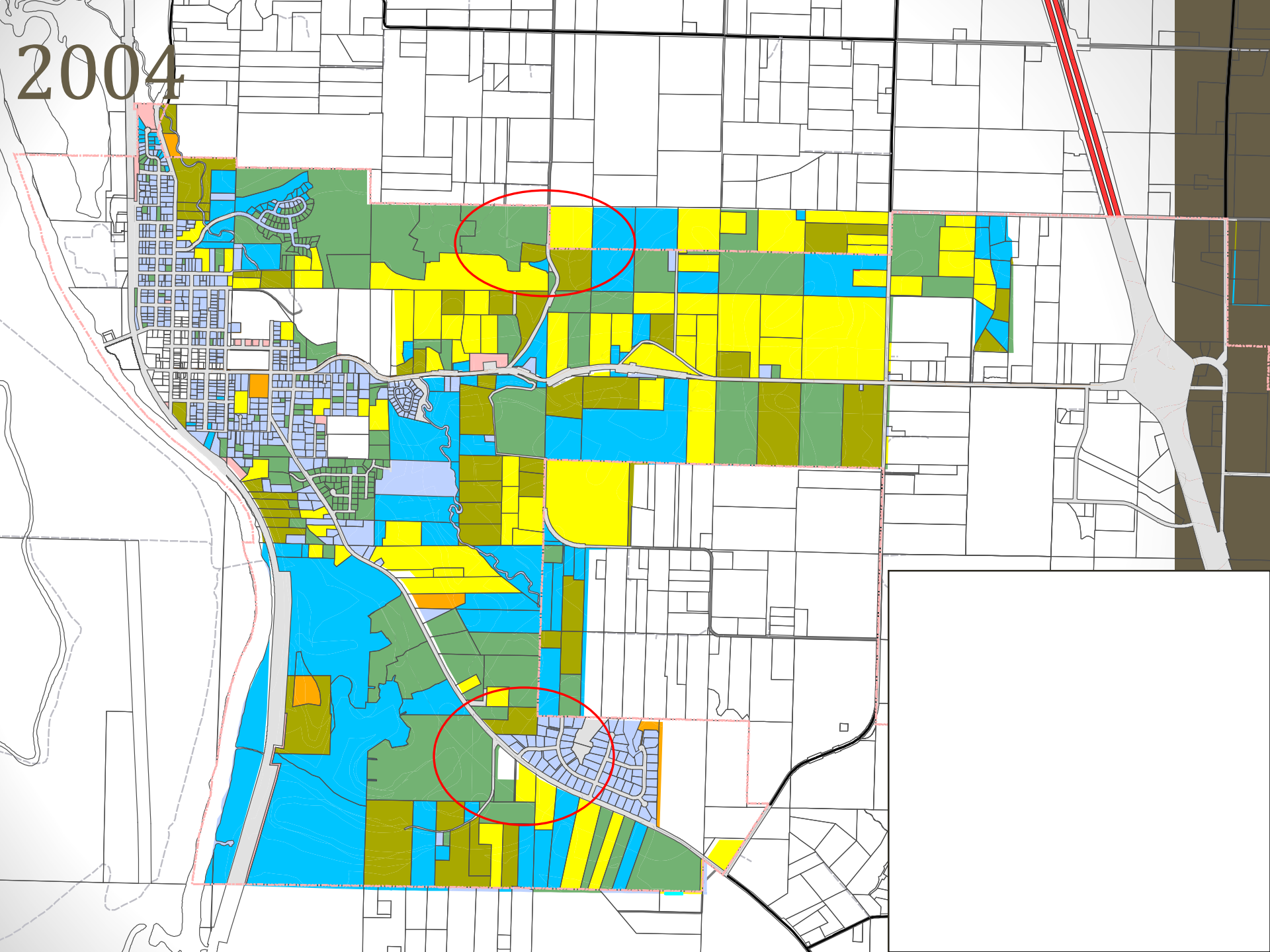

1996

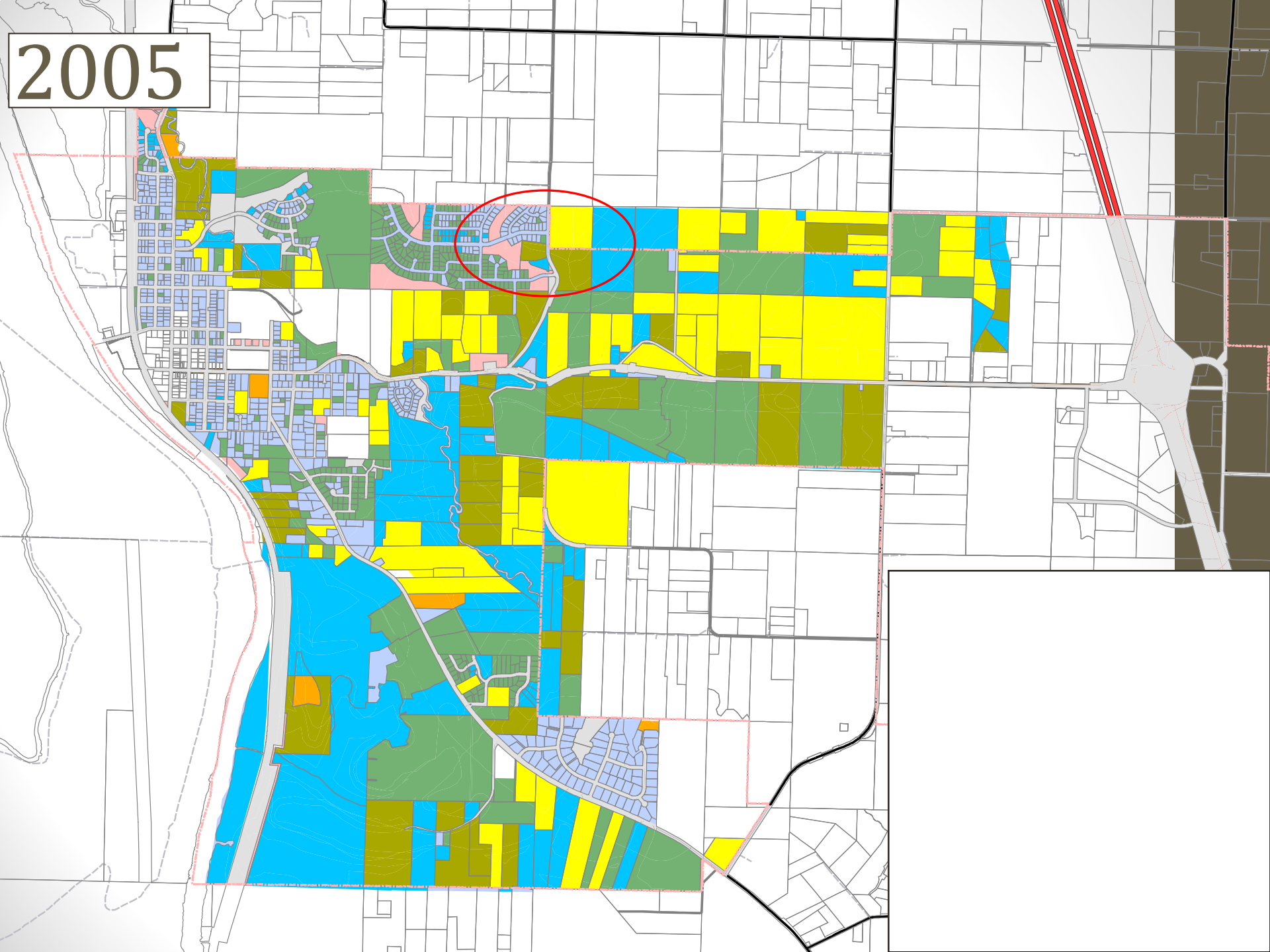

2002

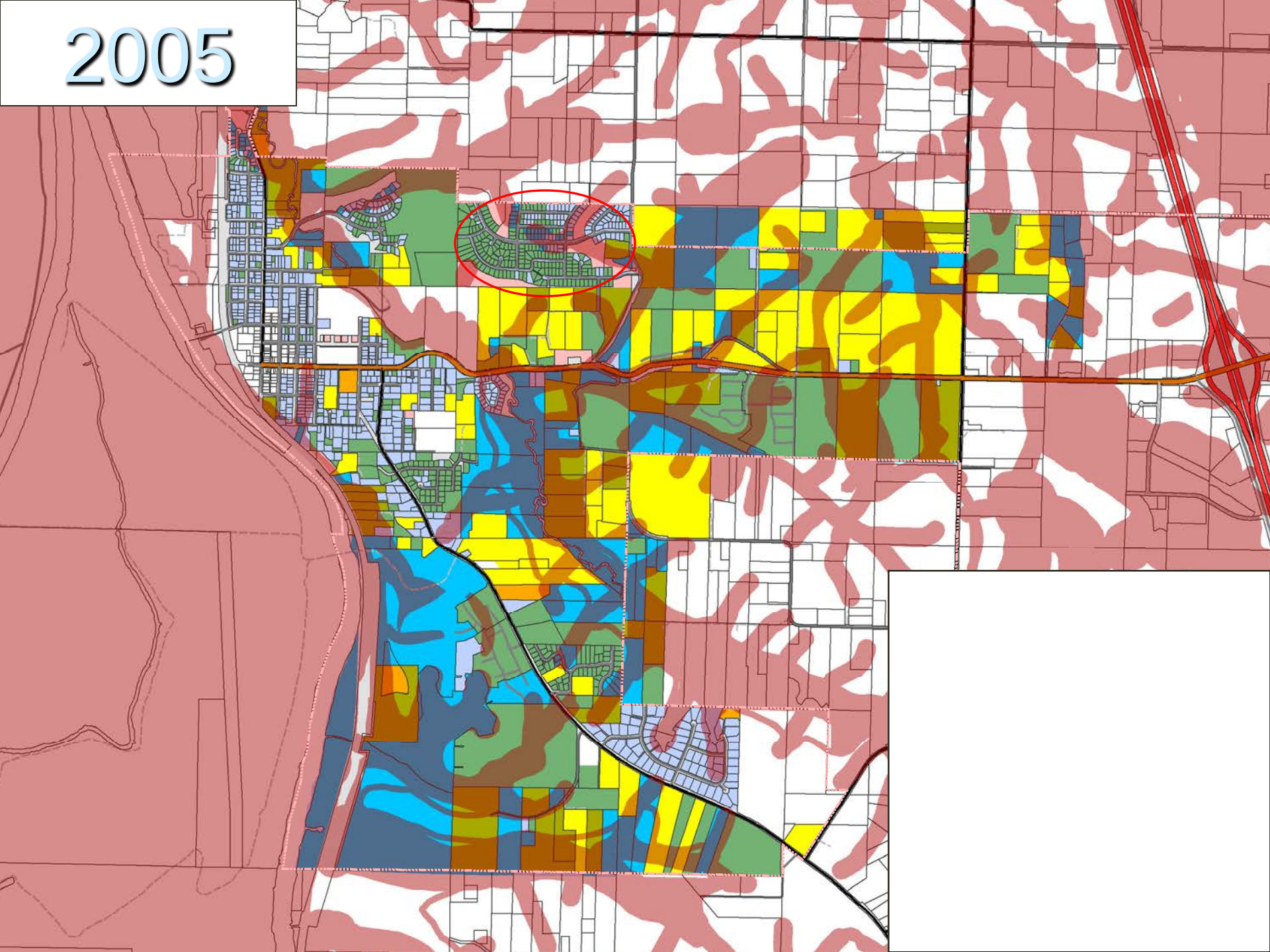

2002


2003


2003

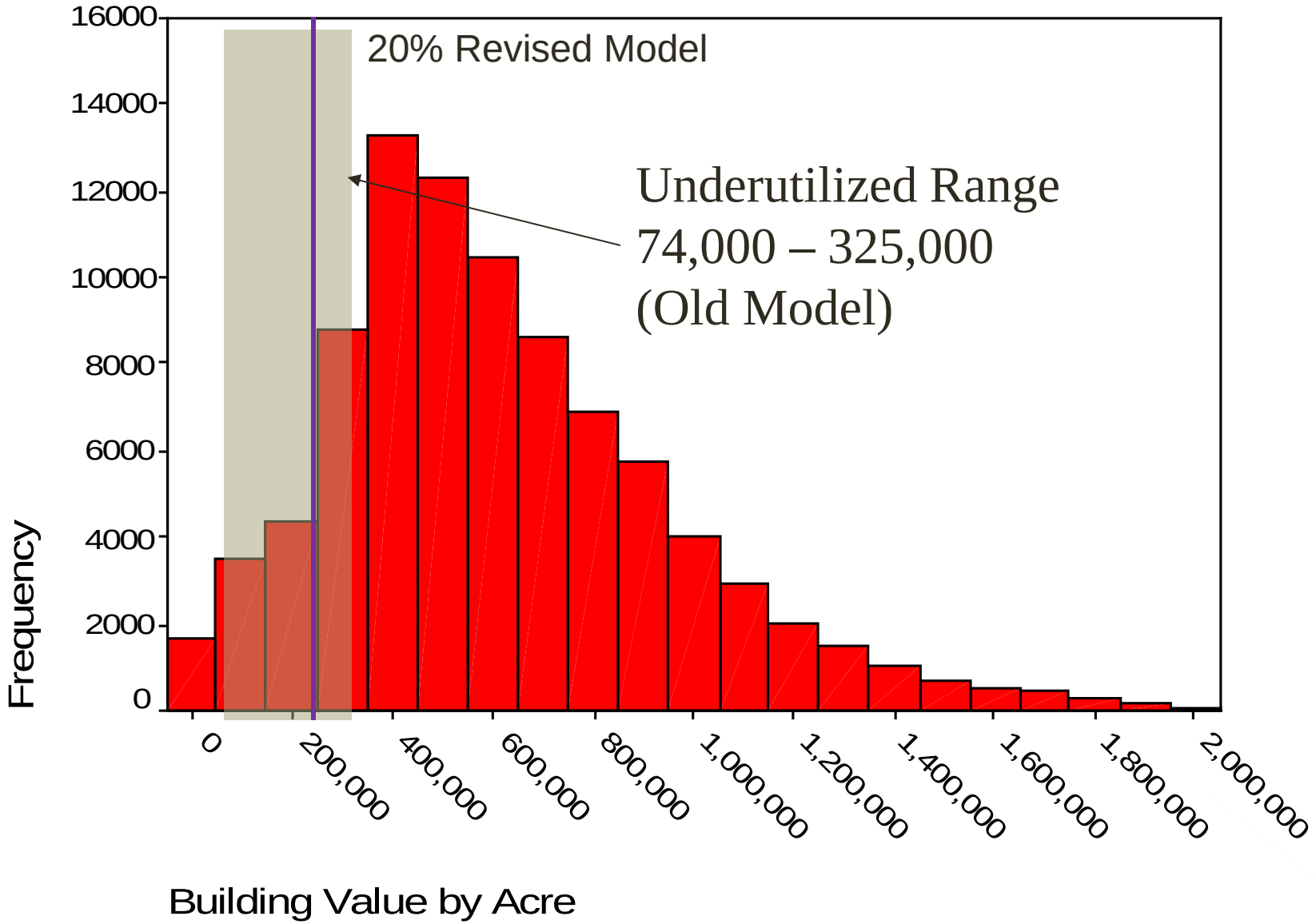

2004


2005


2005

Building Value by Acre

All Residential Property (inside UGA)



Results of VBLM Study

Underutilized

- Simplified (single building value per acre)
- Allows for inflation adjustment
- Compensates for platted acreage subdivisions
- Added to industrial underutilized
- Works in expansion areas. (Farms with houses or barns)

Easements and infrastructure

- Based on development patterns on vacant land
- Considers existing infrastructure

Environmental Constraints

- Compensates for mapping limitations
- Based on development patterns

2007

- New UGA Boundary and Comprehensive Plan Adopted

2013

- Remaining Issues?
  - Fixed values
    - Residential Vacant Building Value < $13,000
    - Commercial Vacant Building Value < $67,500
    - Commercial Underutilized BVA Value < $50,000 dollars per acre.

2013

- Comprehensive Plan Web Site
  - Better/faster access to information
- Model runs in under an hour
  - Reran all 17 historic models for this presentation