



ASSOCIATION OF
Montana
FLOODPLAIN
MANAGERS

Subdivisions & Floodplains: In Concert, Not in Conflict

Introduction

1. Who we are
2. Why we're doing a session
3. What we're going to talk about
 - I. Economic Development
 - II. Floodplain & Subdivision
 - III. Tour of Subdivision Regulations re:
Floodplain
 - IV. Subdivision Design Examples
 - V. Discussion & Questions
4. How long it's going to take

I. Economic Development

Two Popular Approaches:

1. Lure one large employer



2. Build Industrial Park



I. Economic Development

Different Approach:

Create Great Places:



I. Economic Development

Different Approach:

Lure people:



I. Economic Development

Different Approach:

Great places are valuable:

- +Private investment
- +Property values
- +Tax revenues
- +Tourism

Great places are resilient:

- +Economic
- +Environmental
- +Social
- +Infrastructure

Floodplains can be great places. But how?

II. Floodplain & Subdivision

Floodplain Permitting:

Residential Structures

Excavation

Fill

Rip Rap

Stream Crossings

Commercial & Residential Structures

Channelization

Buried Transmission Lines

Wells

Agricultural Structures

Campgrounds

Storage of Equipment

Public and Private Rec. Uses

Dams

Levees and Floodwalls

Diversions

II. Floodplain & Subdivision

Subdivision of Land:

- Design opportunity
- Public and private partnerships
- Maximizing return with scarce resources
- Protection of riparian areas
- Resilience planning (benefits both public/private)
- Floodplains and Subdivisions, in concert, not in conflict.



II. Floodplain & Subdivision

Subdivision Review:

Federal rules:

- All subdivisions - 44 CFR 60.3(a)(4)
- Subdivision in A zones – 44 CFR 60.3(b)(3)

State rules:

- 76.5.106 M.C.A (25 square miles)
- MS&PA – 76-3-504(1)(f) M.C.A.
- 36.15.204(1) A.R.M.

Local Rules

- Model Floodplain Regulations Section 1.16
- Model Subdivision Regulations Section VI-D

III. Subdivision Regs re: Floodplain

Jurisdictions Reviewed

1) Gallatin
County

2) Lewis &
Clark
County

3) Lincoln
County

4) Miles
City

5) Missoula
County

III. Subdivision Regs re: Floodplain

What Do They Say?

Jurisdiction “A”

- “Watercourse Mitigation: A watercourse mitigation plan shall include...flooding history...written explanation of the impact, if any, that the protective measures are expected to have on flood and erosion risks experienced by the subject property and upstream and downstream properties...”
- “Subdivision of Land within the 100-year Floodplain: Any proposed Lot that includes land within the 100-year Floodplain must contain a designated building site outside of the 100-year Floodplain, within which all new development activity...shall take place...demonstrate that safe access to the designated building site must be possible during the 100-year Flood...”
- “Flood Study Required: If any infrastructure (roads, bridges, utilities, etc.) or developable portion of a lot within a proposed Subdivision is within 2,000 horizontal feet and < 20 vertical feet above the OHWM of a Watercourse draining an area of 20 sq. mi. or more, or within 1,000 horizontal feet < 10 vertical feet above the OHWM of a Watercourse draining an area between 10-20 sq. mi. or more...or when a Base Flood elevation is contested...”

III. Subdivision Regs re: Floodplain

What Do They Say?

Jurisdiction “B”

- “Hazard Areas Defined: The floodplain also includes land determined by the governing body to be subject to flooding.”
- “One Mile from Zone A: ...subdivider shall analyze land division history...dating back to Aug 15, 1983...If a Zone A flood hazard had been located on the parent parcel at any time since Aug. 15 , 1983, and the parcel was subsequently divided, a flood analysis to determine the base flood elevation shall be required.”
- “No Floodplain Delineation: If any portion of a proposed subdivision is within 2,000 horizontal feet and 20 vertical feet of a stream draining an area of 5 or more square miles, and no official floodplain delineation of the stream has been made...”

III. Subdivision Regs re: Floodplain

What Do They Say?

Jurisdiction “C”

- “Floodplain Provisions: If any portion of a proposed subdivision is within 2,000 horizontal feet and less than 20 vertical feet of an intermittent or perennial stream draining an area of 15 square miles or more, and no official floodplain or floodway delineation (study) of the stream has been made...”
- “Floodplain Provisions: The governing body shall require mitigation measures, including but not limited to: minimum ground floor elevations for main floors of residences and prohibition against construction of basements in residences constructed in the 500-year floodplain.”

III. Subdivision Regs re: Floodplain

What Do They Say?

Jurisdiction “D”

- “Floodplain Provisions: ...If any portion of a proposed subdivision is within 1,000 horizontal feet and 20 vertical feet of a live stream draining an area of 25 square miles or more, and no official floodway delineation or floodway studies of the stream have been made...”

Jurisdiction “E”

- “Floodplain Provisions: ...If any portion of a proposed subdivision is within 2,000 horizontal feet and 20 vertical feet of a live stream draining an area of 25 square miles or more, and no official floodway delineation or floodway studies of the stream have been made...”

III. Subdivision Regs re: Floodplain

Guessing Game – Which Jurisdiction?

Jurisdiction	Subdivision Regulation Excerpts
A	<ul style="list-style-type: none">• Watercourse Mitigation Plan• Lots Must Have Building Site Outside 100-Yr Floodplain w/Access• 2,000 Horizontal Feet + 20 Vertical Feet + 20 Sq. Mi. Drainage• 1,000 Horizontal Feet + 10 Vertical Feet + 10-20 Sq. Mi. Drainage• Contested Base Flood Elevation
B	<ul style="list-style-type: none">• Hazard Area Defined by Governing Body as Subject to Flooding• 1983 Parent Parcel Rule• 2,000 Horizontal Feet + 20 Vertical Feet + 5 Sq. Mi. Drainage
C	<ul style="list-style-type: none">• 2,000 Horizontal Feet + 20 Vertical Feet + 15 Sq. Mi. Drainage• No Basements for Residences in 500-Yr Floodplain
D	<ul style="list-style-type: none">• 1,000 Horizontal Feet + 20 Vertical Feet + 25 Sq. Mi. Drainage
E	<ul style="list-style-type: none">• 2,000 Horizontal Feet + 20 Vertical Feet + 25 Sq. Mi. Drainage

1) Gallatin
County

2) Lewis &
Clark County

3) Lincoln
County

4) Miles
City

5) Missoula
County

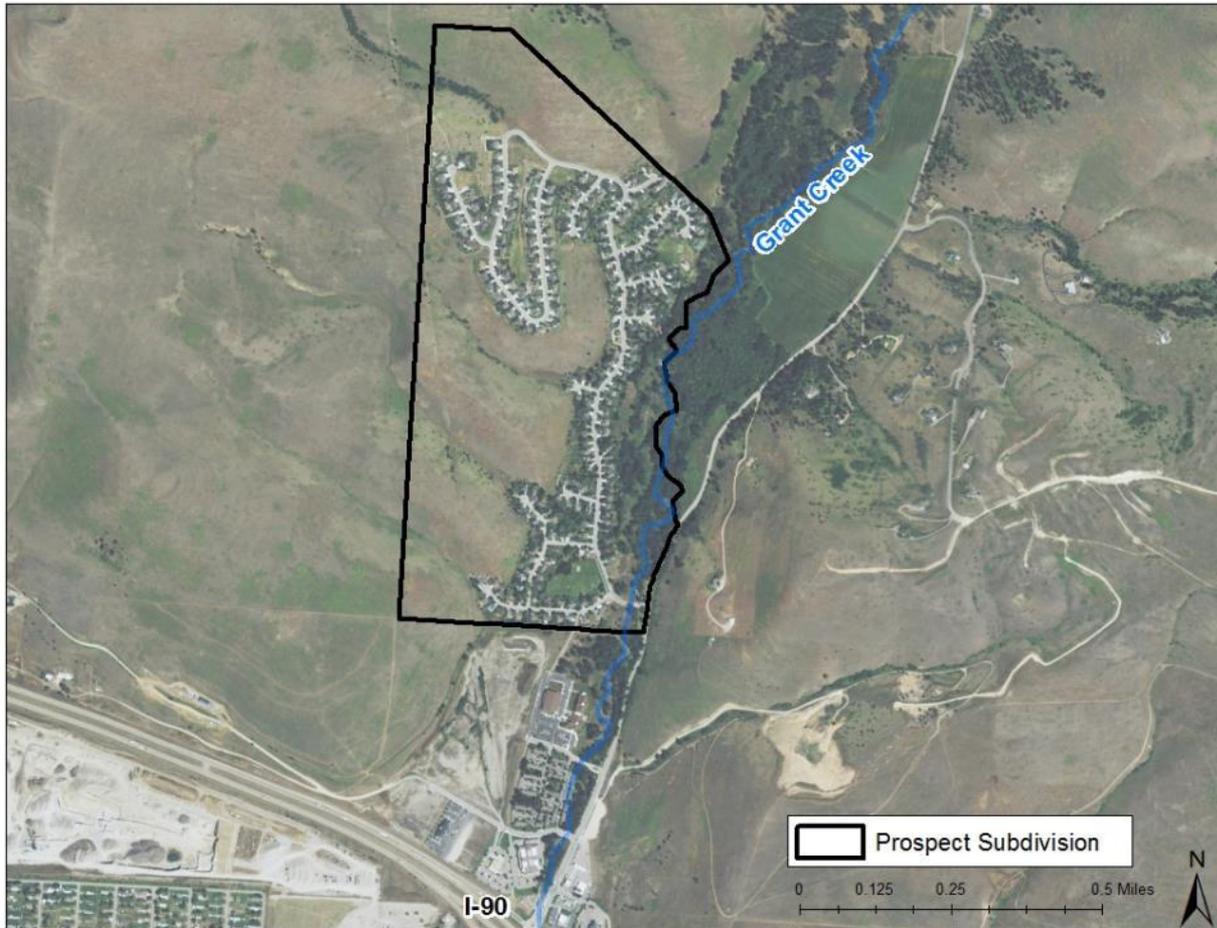
III. Subdivision Regs re: Floodplain

Guessing Game – Which Jurisdiction?

Jurisdiction	Subdivision Regulation Excerpts
A-1 Gallatin County	<ul style="list-style-type: none">• Watercourse Mitigation Plan• Lots Must Have Building Site Outside 100-Yr Floodplain w/Access• 2,000 Horizontal Feet + 20 Vertical Feet + 20 Sq. Mi. Drainage• 1,000 Horizontal Feet + 10 Vertical Feet + 10-20 Sq. Mi. Drainage
B-5 Missoula County	<ul style="list-style-type: none">• Hazard Area Defined by Governing Body as Subject to Flooding• 1983 Parent Parcel Rule• 2,000 Horizontal Feet + 20 Vertical Feet + 5 Sq. Mi. Drainage
C-2 Lewis & Clark County	<ul style="list-style-type: none">• 2,000 Horizontal Feet + 20 Vertical Feet + 15 Sq. Mi. Drainage• No Basements for Residences in 500-Yr Floodplain
D-3 Lincoln County	<ul style="list-style-type: none">• 1,000 Horizontal Feet + 20 Vertical Feet + 25 Sq. Mi. Drainage
E-4 Miles City	<ul style="list-style-type: none">• 2,000 Horizontal Feet + 20 Vertical Feet + 25 Sq. Mi. Drainage

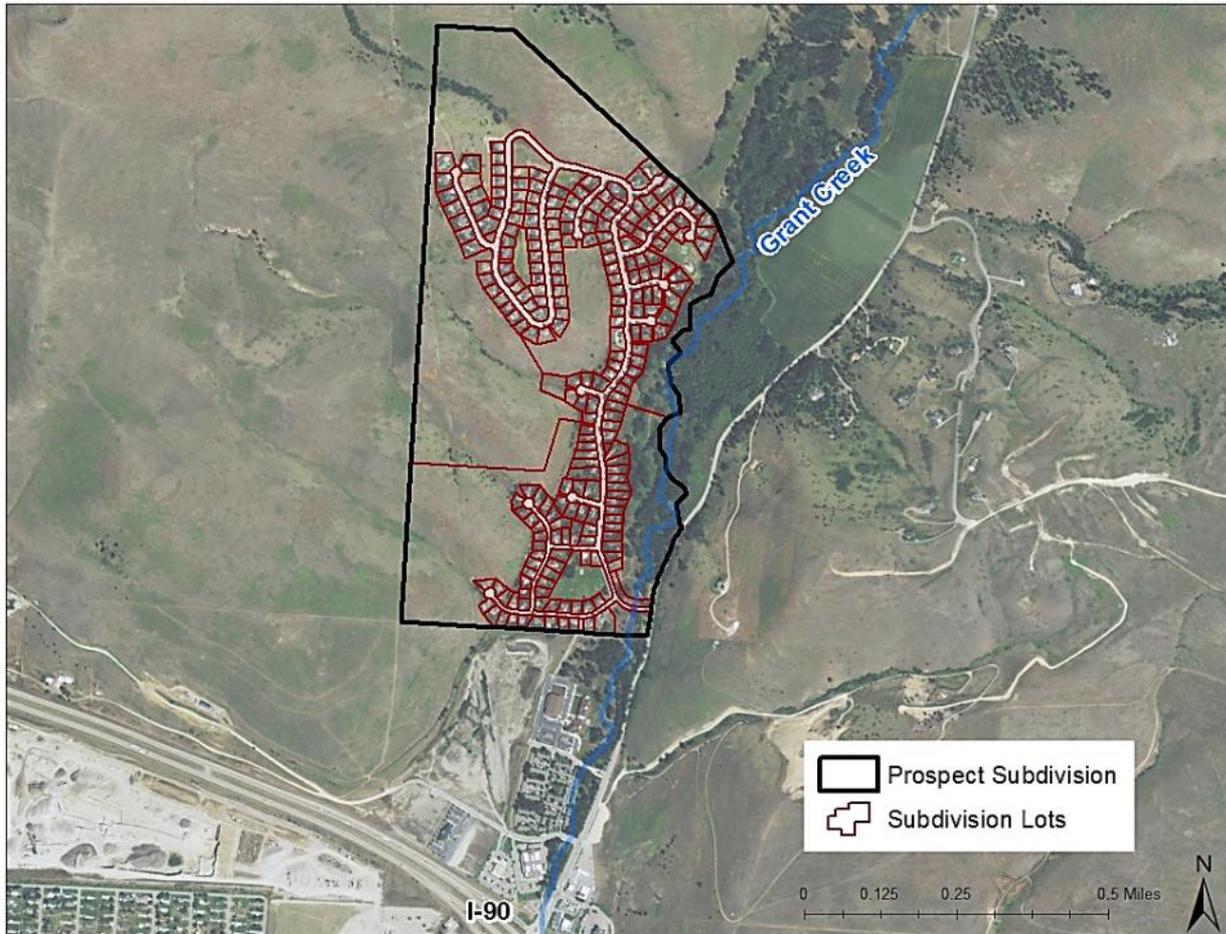
IV. Subdivision Design Example # 1

Prospect Residential Subdivision – General Location



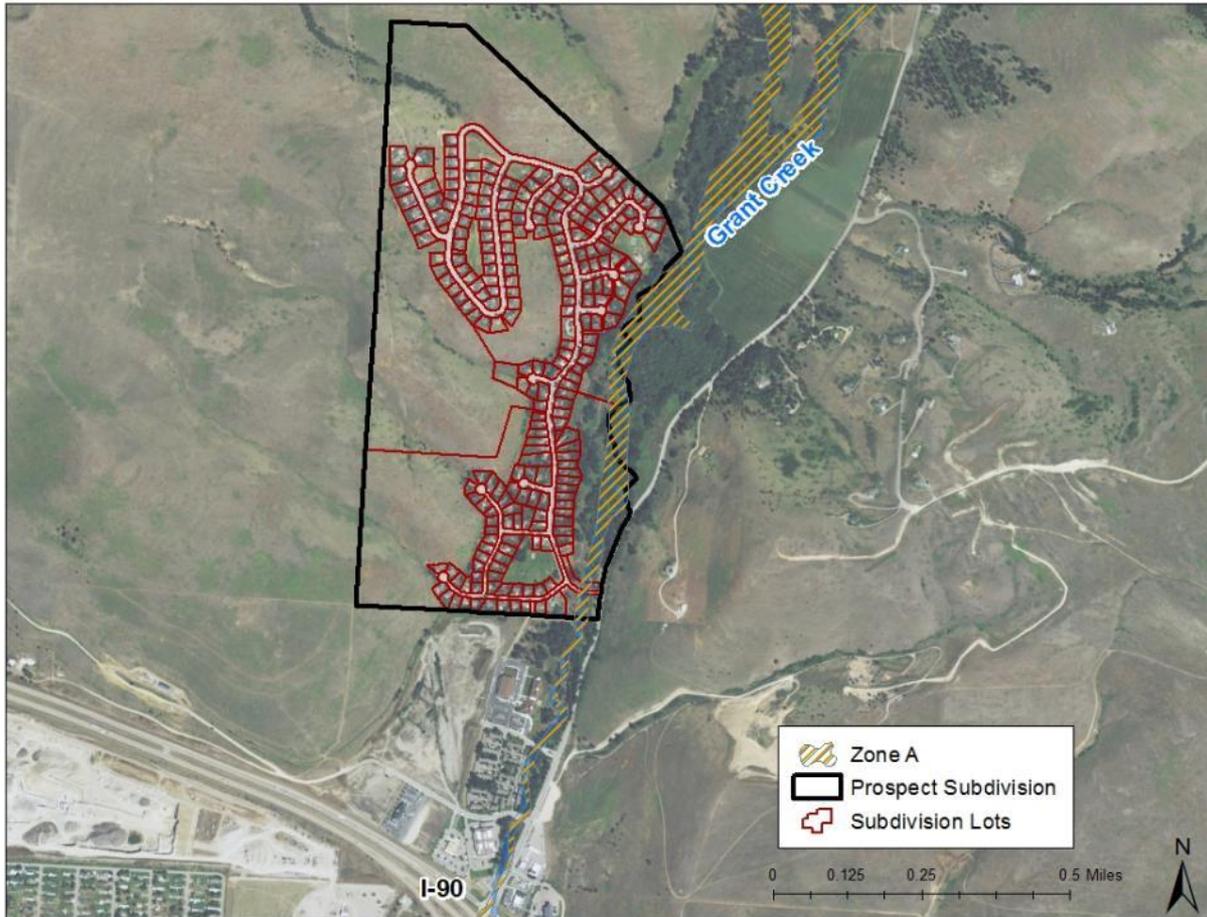
IV. Subdivision Design Example # 1

Prospect Residential Subdivision – Lot Layout



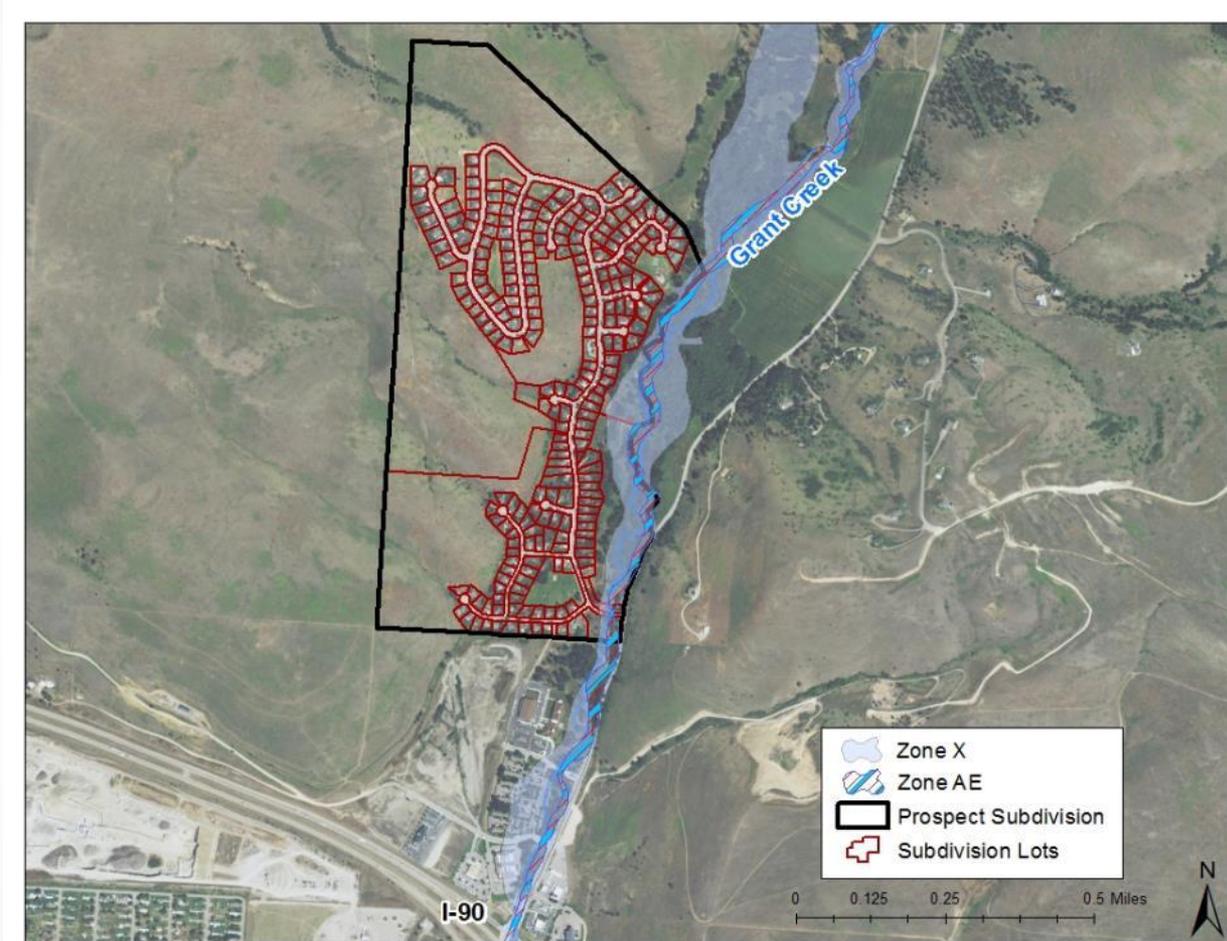
IV. Subdivision Design Example # 1

Prospect Residential Subdivision – 1983 Flood Map



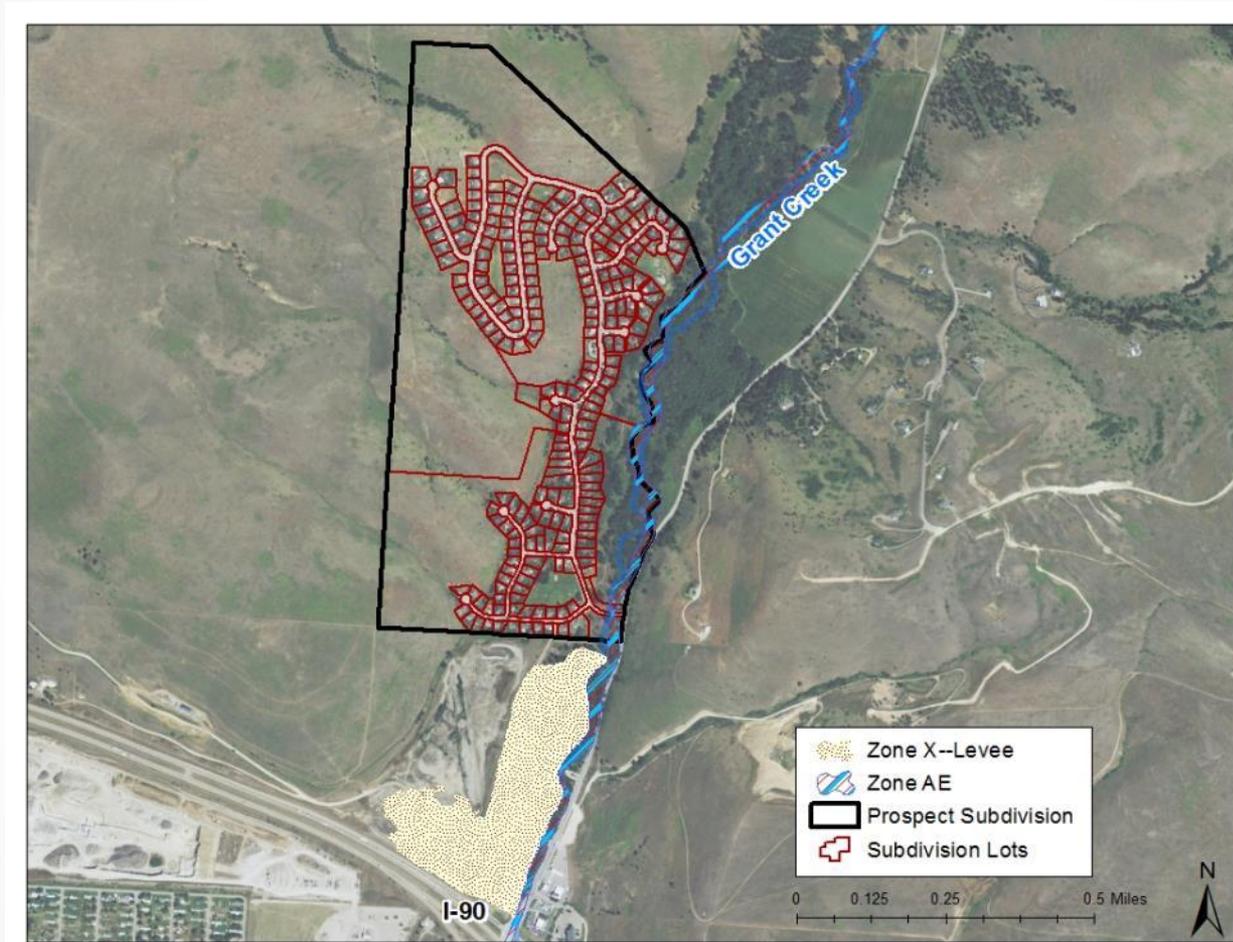
IV. Subdivision Design Example # 1

Prospect Residential Subdivision – 1988 Flood Map



IV. Subdivision Design Example # 1

Prospect Residential Subdivision – 2015 Flood Map



IV. Subdivision Design Example # 1

Prospect Residential Subdivision

- Developed Under FIRM Panel 300048 1195B as Zone A Floodplain for Grant Creek
- Detailed Study Performed for Road Bridge Design
- Design Won Conservation District Managers' Award for Best Management Practices
- Floodplain-Riparian Interaction is Key



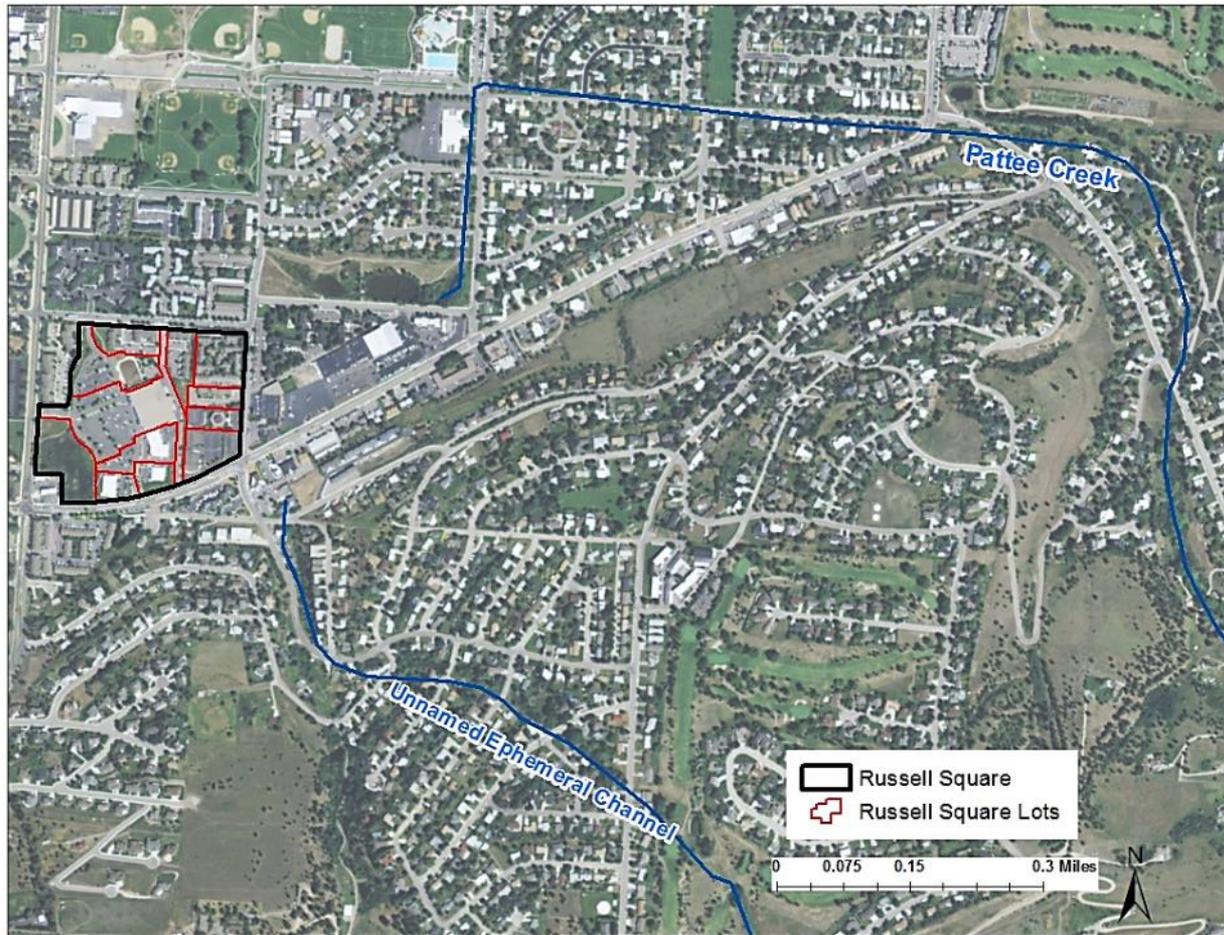
IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision – General Location



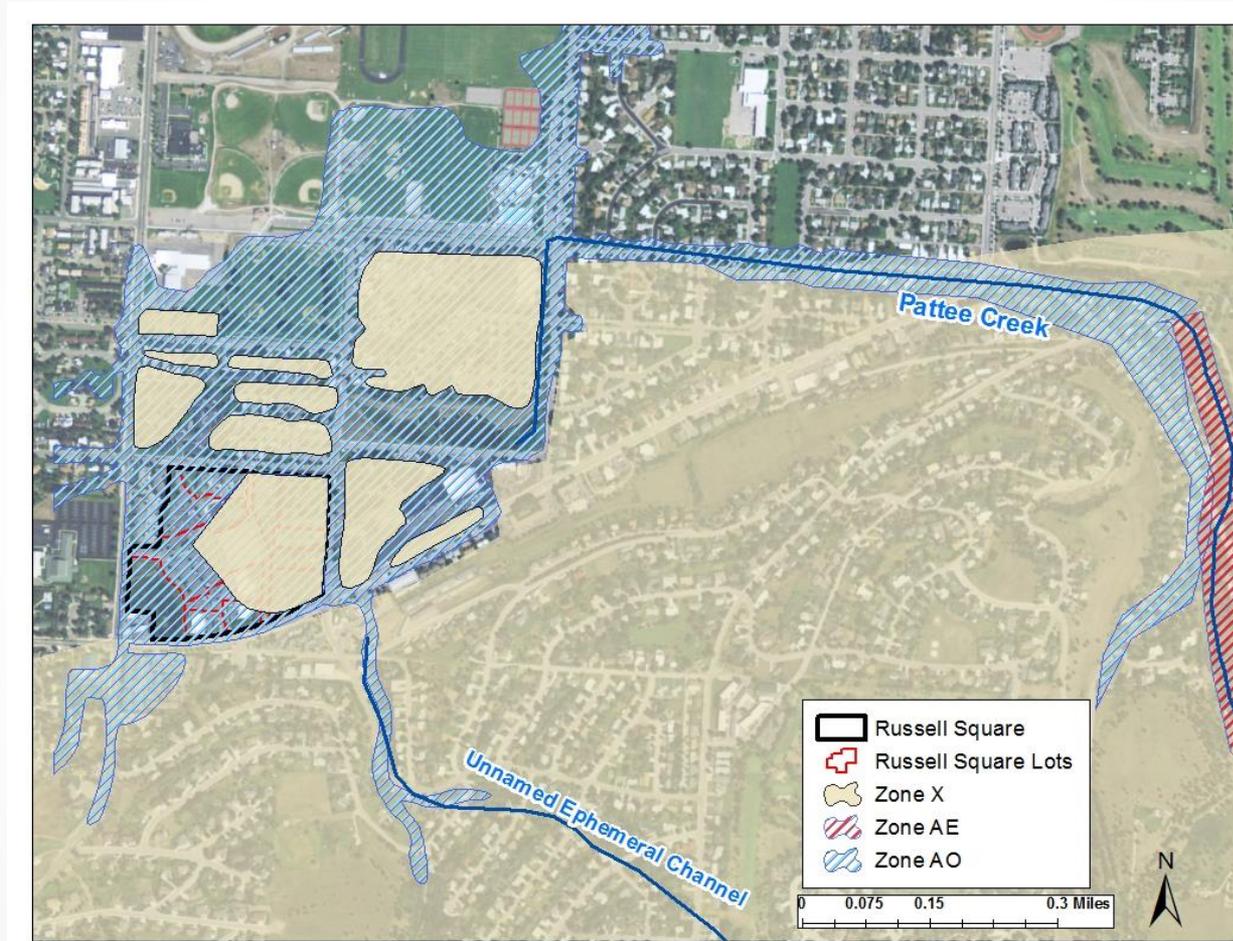
IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision – Lot Layout



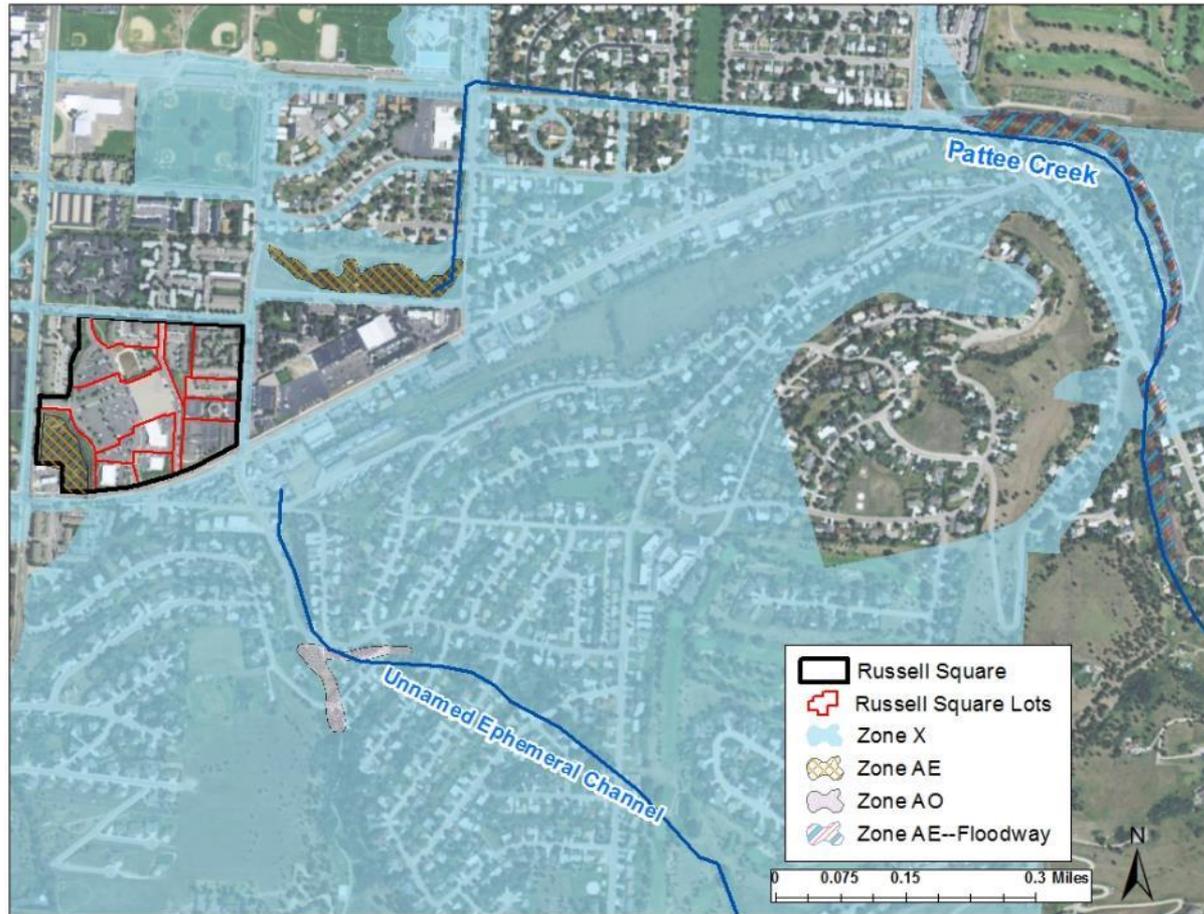
IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision – 1988 Flood Map



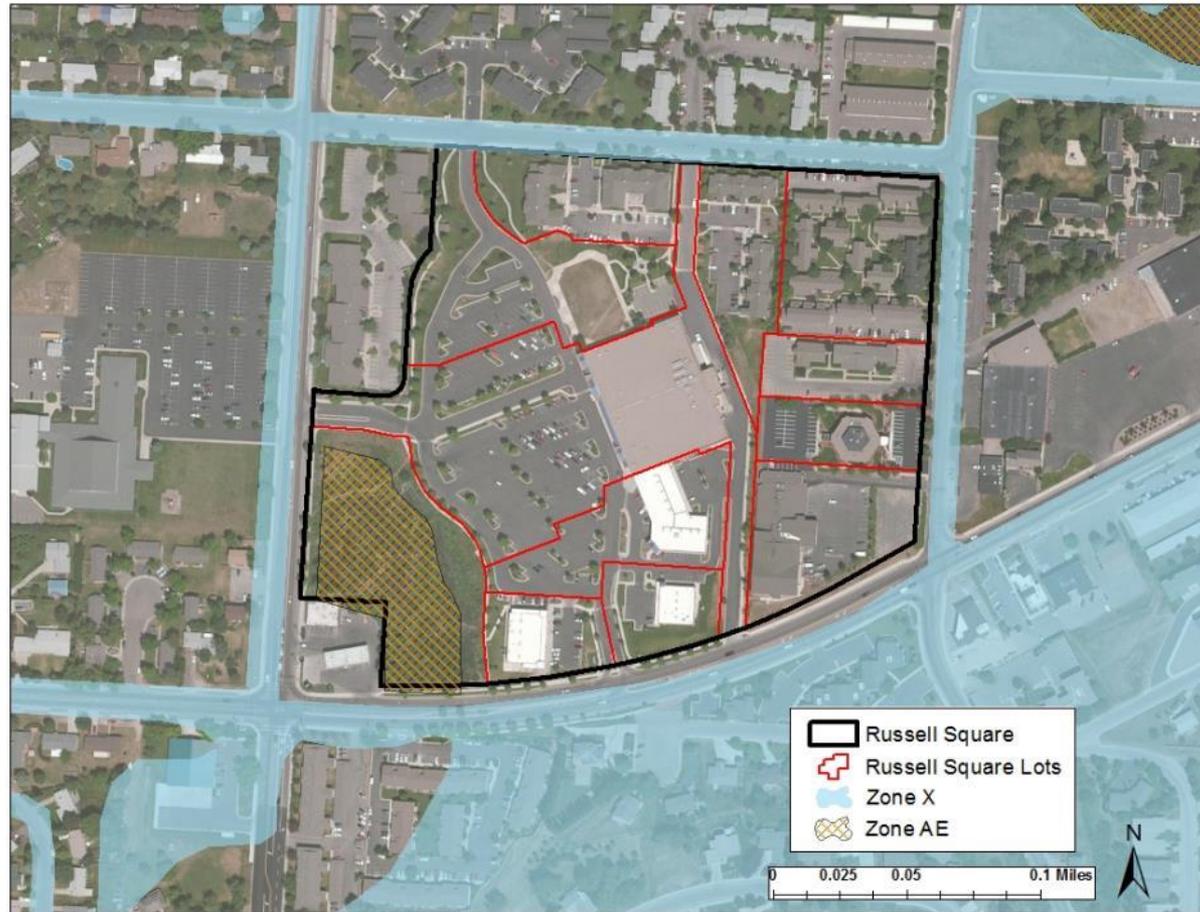
IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision – 2015 Flood Map



IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision – 2015 Flood Map (Zoom)



IV. Subdivision Design Example #2

Russell Square Mixed Use Subdivision

- Developed Under FIRM Panel 30063C 1460D as Zone AO (Depth 1') & Shaded Zone X Floodplain for Pattee Creek
- Existing Cattail Wetland Expanded in Coordination with City of Missoula
- Later Connected to Large Project – LOMR for Pattee Creek – South Missoula Storm Drainage Project to Mitigate Flooding



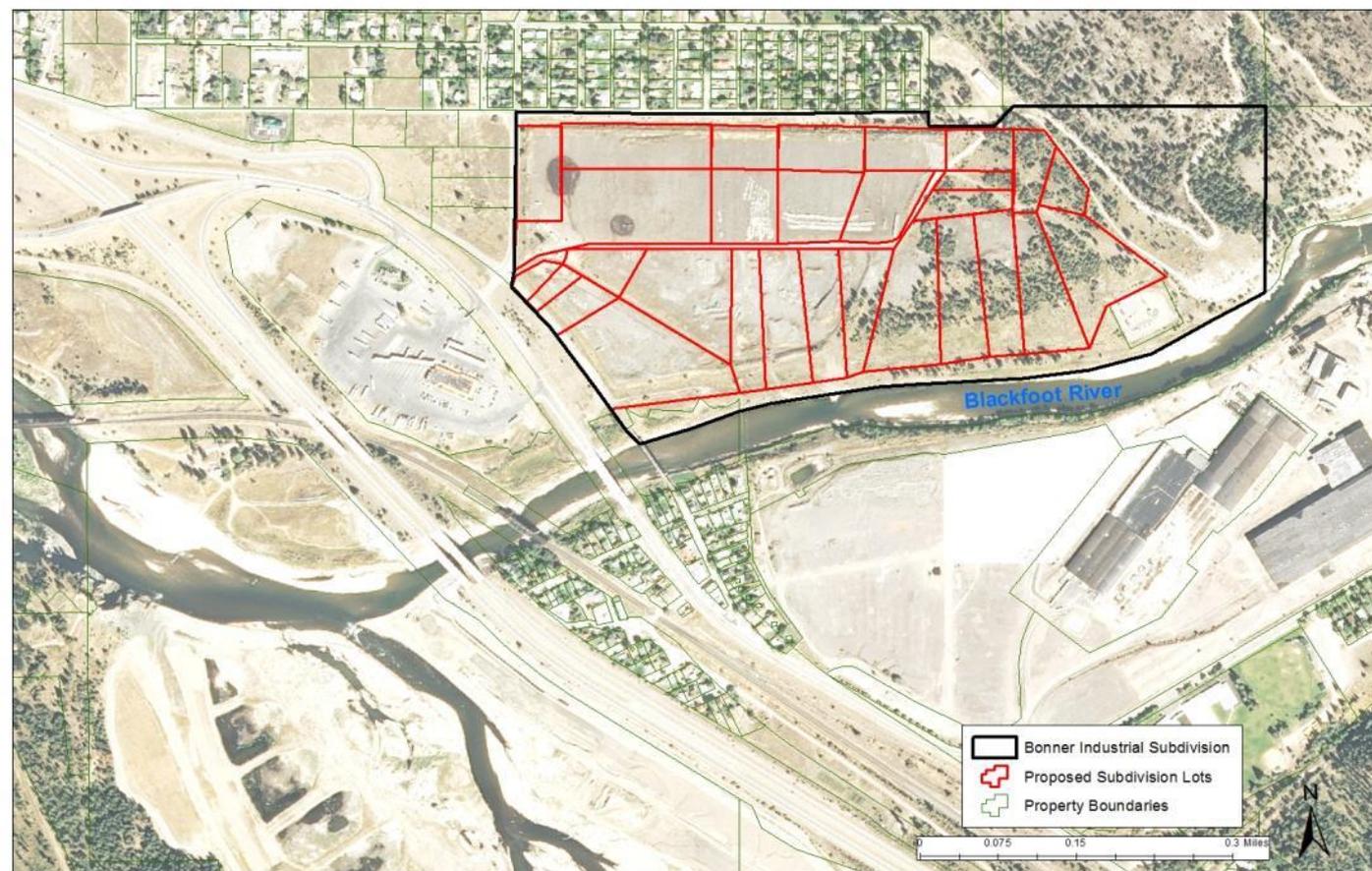
IV. Subdivision Design Example #3

Bonner Industrial Subdivision – General Location



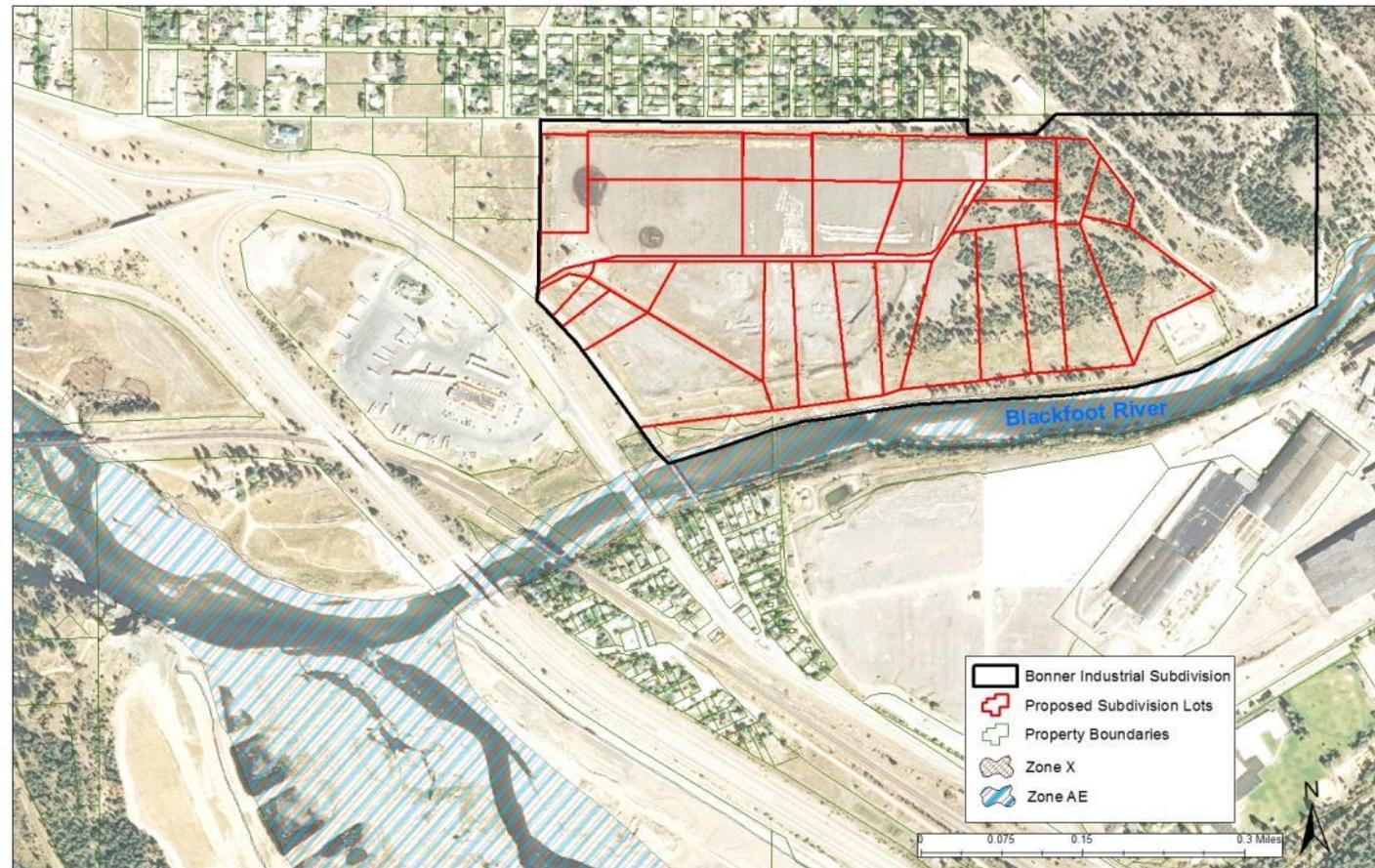
IV. Subdivision Design Example #3

Bonner Industrial Subdivision – Lot Layout



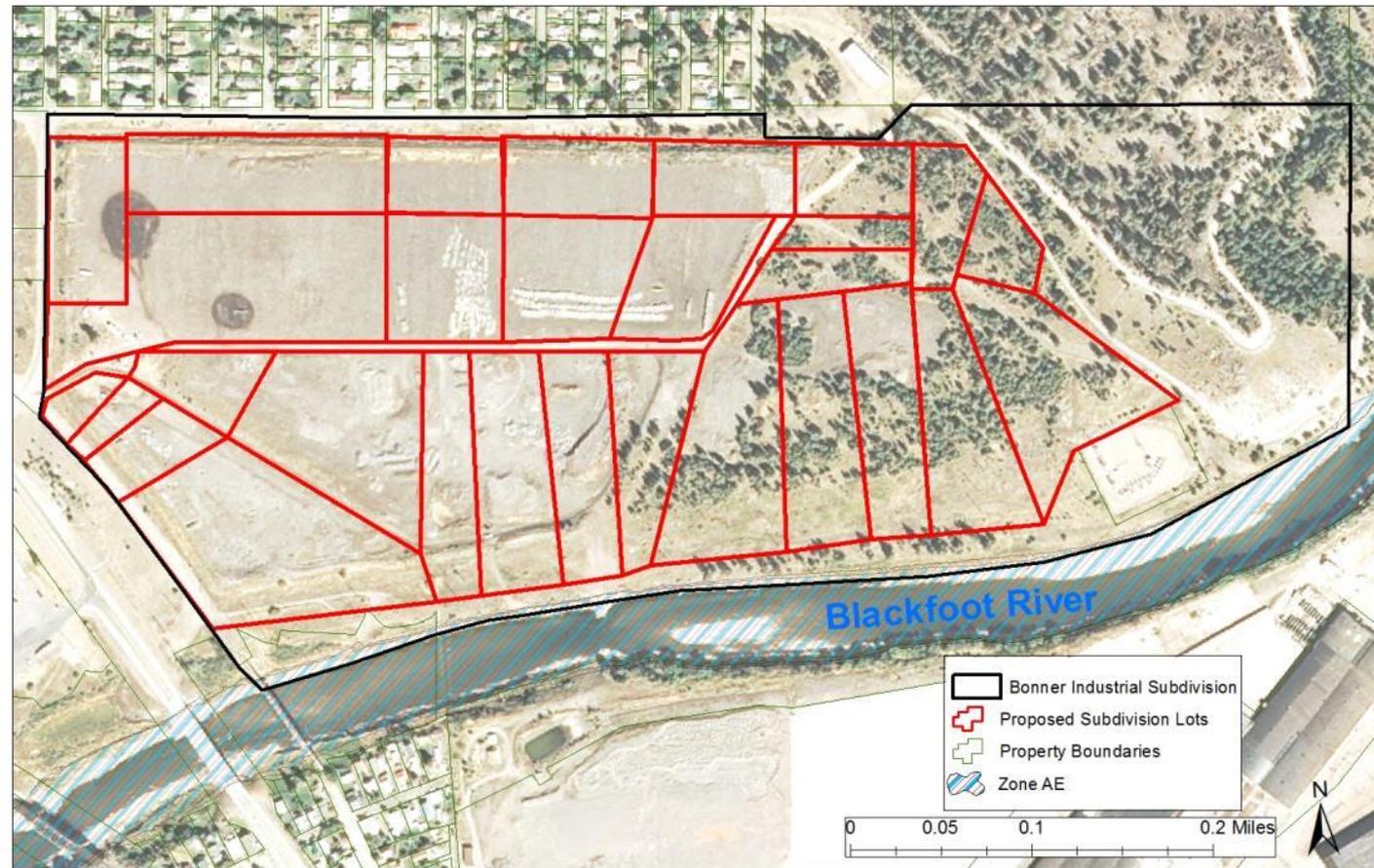
IV. Subdivision Design Example #3

Bonner Industrial Subdivision – 2015 Flood Map



IV. Subdivision Design Example #3

Bonner Industrial Subdivision – 2015 Flood Map (Zoom)



IV. Subdivision Design Example #3

Bonner Industrial Subdivision

- Conceptualized Under FIRM Panel 30063C 1485E and 1505E as Zone AE Floodplain for the Blackfoot River
- Adjacent to USFS & MTFWP Public Lands
- Seek to Facilitate Public Trail Corridor AND Security for Industrial Development
- Design Facilitates Job Creation & Community Connections



V. Questions

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