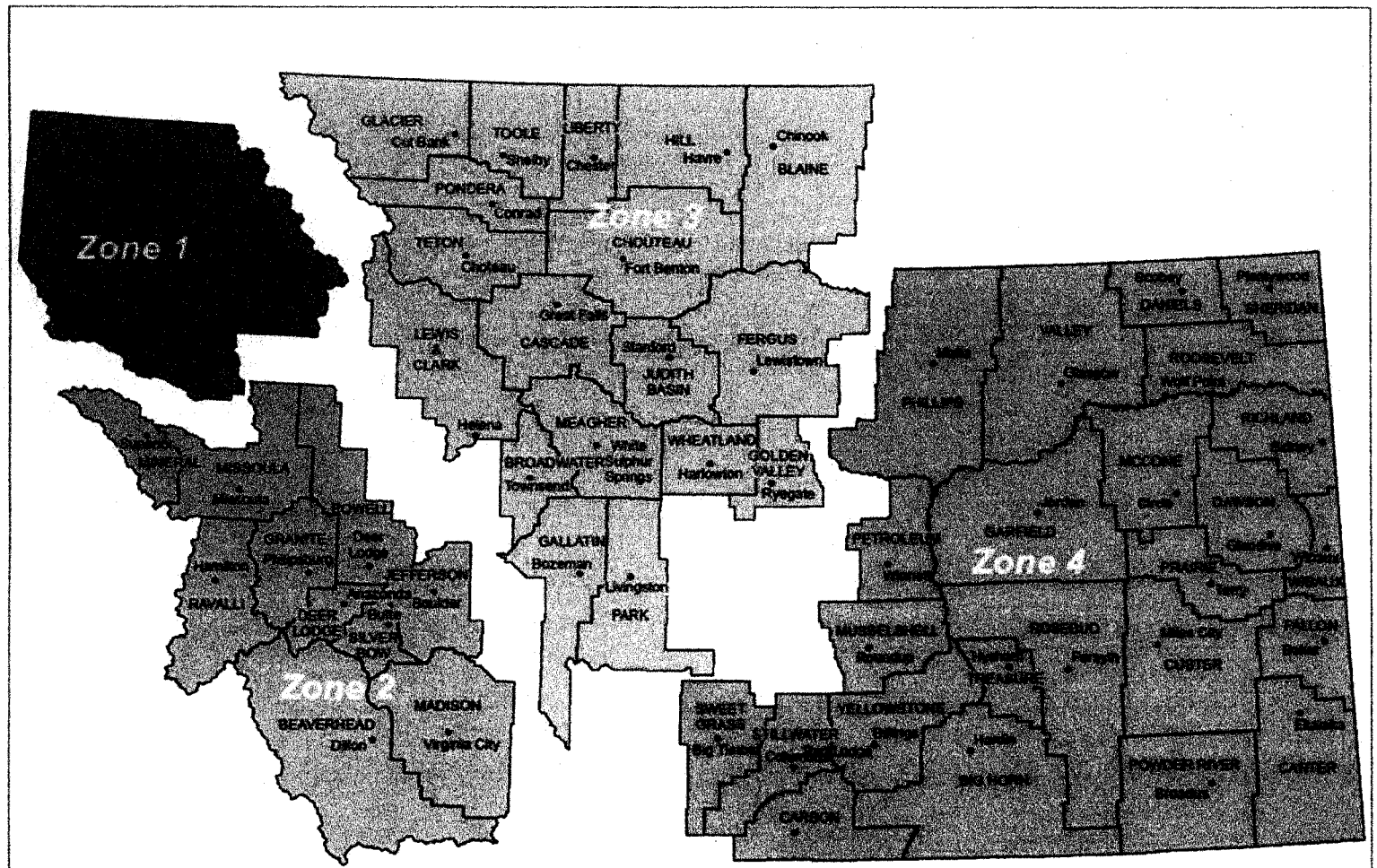
EXHIBIT 2
DATE 4/18/15
SB 154

Montana Department of REVENUE

2015 Forest Valuation Zones



Forest Zones

REVENUE

Forest Advisory Committee

Montana Department of REVENUE

2015 Forest Valuation Zones

- Currently there are 4 Forest zones
- Each Forest zone has its own unique:
  - stumpage value;
  - agricultural income; and
  - timber costs

Forest land Valuation

- Statutory formula (MCA 15-44-103)
- **V = I/R**
  - V=value
  - I=net income
  - R=capitalization rate

Forest land Valuation

Montana Department of REVENUE

- The forest valuation formula can be further defined as:

$$V = \frac{(M \times SV) + AI - C)}{R}$$

Whereas:

- M = mean annual net wood production
- SV = stumpage value
- AI = per acre agricultural-related income
- C = per unit cost of the forest product and the agricultural product
- R = The capitalization rate

M = mean annual net wood production

Montana Department of REVENUE

- The department contracts with the University of Montana College of Forestry for determination of productivity based on board feet/acre/year at the culmination of mean annual increment (CMAI)
- CMAI is the annual growth that a stand of trees is capable of achieving at its ideal harvest age
- Valuation is based on the land's potential productivity
- Potential productivity is constant, regardless of the standing inventory growing on the land or how often it is harvested

SV = Stumpage Value

Montana Department of REVENUE

- **Stumpage Value** represents arms-length transactions meaning the price a willing buyer would purchase stumpage (standing timber) from a willing seller

- The University of Montana College of Forestry determined forest valuation zones and stumpage values for each zone using multiple regression models

- Arms length sales were gathered from state sales, U.S. Forest Service, and Bureau of Indian Affairs

AI = per acre agricultural-related income

- **Agriculture Income-** Livestock grazing is the primary agricultural activity occurring beneath forest canopy
- Average grazing fees are applied to average carrying capacities from each forest zone, less a 25% operating expense
- Carrying capacities rarely change and grazing fees are readily available from Ag Statistics

C = per unit cost of the forest product and the agricultural product

- **<u>Forest Costs</u>** are derived from the Department of Natural Resource & Conservation (DNRC) and includes actual forest cost expenditures

- DNRC updates costs annually
  - *Fire assessment fees*
  - *Severance tax*
  - *Slash disposal*
  - *Forest management practices and administration*

R = The capitalization rate

- **The Capitalization rate** is the expected potential return on investment

- Valuation is determined by converting income to a value by using the capitalization rate

$$\frac{\text{Income}}{\text{Rate}} = \text{Value}$$

- Income = Value X Rate
- Rate = Risk and opportunity

R = The capitalization rate

- As the cap rate ↑ the value ↓
- As the cap rate ↓ the value ↑

Example:

- $10,000 income/6% cap rate = $166,667
- $10,000 income/8% cap rate = $125,000

Cap rate

Montana Department of REVENUE

- ***Prior*** **to 2009**
- Cap rate was determined by using the annual average interest rate on ag loans as reported by the Northwest Farm Credit Services + an effective tax rate
- ***Since*** **2009 - present**
- The cap rate must be calculated for each year of the base period
- Cap rate is determined after consultation with the forest advisory committee, plus an effective tax rate
  - The cap rate adopted by rule
  - Cap rate for tax years 2009 - 2014 may not be less than 8%

Interest rates on farm loans

Montana Department of REVENUE

Average effective interest rates on new loans under Farm Credit Services

Year	Interest Rate
2009	6.17%
2010	6.41%
2011	6.12%
2012	5.61%
2013	5.55%
5 year Average	**5.97%**

Interest Rate	5.97%
Effective Tax Rate	+ 0.14%
Capitalization Rate	= 6.11%

Retrieved from Internal Revenue Service Bulletins 2009-21, 2011-17, 2012-39 at

www.irs.gov/irb and www.e-farmcredit.com

2 year reappraisal of forestland
Department workload (Summary)

Montana Department of REVENUE

- Minimal updates required every 2 years
  - Update stumpage values, forest costs, and agricultural income by dropping the 2 earliest years and adding the 2 new years to calculate the 10 year average
- Forest productivity model is developed and readily available with no updates required