

# Reviewing Fire Service Area Levies: A Systematic Approach to Updates

## Summary

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## Summary:

- Fire Service Areas (FSA's) in Montana levy fees for service through the tax system, but unlike Fire Districts, the fee is normally based on criteria relating to presence and kind of structures on a parcel, rather than on tax valuation of that parcel.
- Though fees have established criteria and are relevant to fire-fighting needs, it is sometimes difficult to keep them updated, especially with rapid growth in some Counties, the difficulty in field-associating structures to parcels, changes in personnel, and lack of time in volunteer Departments.
- A remote-sensing/GIS approach was used to systematically and transparently update levy systems in two FSA's in the Gallatin valley, using official County and State data, with recent Federal aerial imagery.
- This resulted in right-sizing the fee system, with an increase in \$20,000 per year for a 50 sq. mi. FSA with 1,300 structures, and an increase in \$15,000 for another FSA having 1,900 structures over 26 sq. mi. Review of a third FSA is in process.
- All changes were transmitted to the tax assessor's office, and the few protests were addressed with documentation and about six field checks. Costs for the analysis were about 35% of the first year's increase.
- This kind of approach can be used in any FSA in Montana. Results will vary depending on number of structures, size of the area, recent development, and access, but can lead to significant fee increases and increased justification for existing fee structures.

## Objectives:

Fire Service Areas (FSA's) funding levels are dependent on an accurate and up-to-date assessment of all structures in its boundaries. Often there is neither the personnel nor data to keep the assessment updated, resulting in funding not reflecting the true Fire Service needs in an Area. Often new construction is not included, especially in rapid growth areas or where

access is limited. A systematic, comprehensive, and rapid analysis of the true situation would be beneficial for both the County and the FSA. This document illustrates how to complete this task.

One of the biggest problems in levying structures is that there is no easy manual way to determine the connection between a structure and a taxable parcel. The owner/occupant of a structure may not be the owner of the land parcel. Parcels may have multiple definitions. Even field reviews are difficult, since property boundaries are often not easily recognizable on the ground, not all new construction is obvious from the road. Documentation is difficult, thereby increasing protests and reducing accuracy. Volunteer personnel are often not oriented to this kind of review, and do not have the time to field check and update tax records with the County.

However, using existing official county, state, and federal data, and GIS/remote sensing analysis these problems can be solved.

Spatial analysis using GIS makes the process systematic, realistic, and documented. Justifying changes is made possible by this spatial documentation, a combination of County parcel data, Federal aerial imagery, and County structure data.

This kind of analysis has been completed on two FSA's in the Gallatin Valley. For the Fort Ellis FSA, out of 1,280 structures, we added about \$21,000 yearly, a significant amount! The first year's update netted about \$15,000 and an update a year later added another \$6,000. We had about 11 queries on our new levies, and all were resolved satisfactorily, based on a review of our analysis and field checks. Another FSA analysis with 1,900 structures resulted in a \$15,000 yearly increase.

The goal of this fee levy analysis is to complete an updated inventory for Levy assessment purposes. It consists of a detailed inventory of all significant structures in the FSA, based on defensible data, gathered in a systematic, reproducible way. Each structure is linked to either a parcel or to an individual. Un-linked or unknown parcels are flagged for further analysis. Methods include a detailed, aerial survey using Geographic Information Systems at a detailed scale (1:3,000), canvassing the entire Area.

One of the most important parts of the analysis is knowing the criteria on which the present levies are based. Part of the analysis process is to review those criteria with the FSA and update or clarify where necessary. The clarified criteria are then systematically applied to all parcels.

Advantages of this method:

- Field review is minimized.
- Changes are documented and justified.
- It is timely and rapid, and can be updated every year if desired.
- Parcel data accuracy is cross checked with aerial imagery and maps.
- Official data are used throughout.
- The review is systematic and all-inclusive, regardless of weather, access problems, and obscuring features.

- Based on two examples, it results in a significant increase in FSA funding every year.

Disadvantages:

- It is remote-sensing based, so accuracy and precision rely on both the ability of the analyst, the quality of official data, and limited but important ground truth by local officials.
- Though all the official data are public, there is a cost associated with synthesizing the data and doing the analysis. However, this has averaged less than 35% of the first year's additional funding.

## Methods:

Here is an example of the process.

I imported RE (residential) and MH (Mobile Home) levy documents from the County to EXCEL, cleaned them up, got updated structure data (from the County), clipped parcels from updated County data, developed and reviewed links from the levies to structures for trailers, and levies to parcels for other data. I cleaned up the data (there are differences in SITUS address formats, a few errors, and some wrong addressing). I have integrated July 2013 detailed aerial color imagery, so I see essentially ALL new construction. I got new 2014 addresses from the County. They are almost all just open lots, but I checked them spatially. Up to 20% of the data required some clean up.

I used an ACCESS database and ARCGIS (GIS) to join and review data to get the results below. I used structured queries to review non-spatial data and remote-sensing to review structures and parcels linked to that non-spatial data. Because of the large number of records, I used queries to systematically evaluate data.

Example Query for finding duplicates:

```
SELECT FSA_MH_ParcelDataLinked.Parcel, FSA_MH_ParcelDataLinked.Name1  
  
FROM FSA_MH_ParcelDataLinked  
  
WHERE (((FSA_MH_ParcelDataLinked.Parcel) In (SELECT [Parcel] FROM  
[FSA_MH_ParcelDataLinked] As Tmp GROUP BY [Parcel] HAVING Count(*)>1 )))  
  
ORDER BY FSA_MH_ParcelDataLinked.Parcel;
```

## Data and Materials:

Partial "RE" Levy from County. This excludes mobile homes and trailers.

Date: 07/22/2013 Time: 12:27:56		GALLATIN COUNTY TA REPORTS - (MISC) RECAP				
SAVE AS: <span style="background-color: #0070C0; color: white; padding: 2px;">[REDACTED]</span>						
<u>RANGES</u>			<u>OPTIONS</u>			
TAX YEAR:	(R) 2013 - 2013		SORT ORDER:		A	
TAX TYPE:	(R) RE - RE		TOTALS PAGE ONLY?:		N	
LEVY DISTRICT:	(A)		REPORT FORMAT:		I	
LEVY SUB DISTRICT:	(A)		READ BILLING DATA?:		N	
MISC CODE:	(R) 0064 - 0064		RECORD STATUS:		A&E	
PARCEL#:	(A)		ENCL RANGES/OPTIONS?:		Y	
Levy Dist	Parcel #	Owner Name	Spec Dist	Quantity/ Taxable	Rate/ Pct/Mill	Amount
0366-41	RFG13441	CRAIG ALAN E & PATRICIA P	0064 R	1.00	234.360000	\$234.36
0366-41	RFG13442	ORVIS JAMES A & MARGARITA C J	0064 R	3.86	234.360000	\$904.63
2368-00	RFG15142	BRADLEY WILLIAM LOUIE & TERRI L	0064 R	1.00	234.360000	\$234.36
2368-41	RFG15247	GAFFKE RANCH LLC	0064 R	1.00	234.360000	\$234.36
2368-41	RFG15559	KAMERMAN RUSS & TERESA	0064 R	1.00	234.360000	\$234.36
2368-56	RFG15643	GLATTS THOMAS R	0064 R	0.00	234.360000	\$0.00
2350-41	RFG22024	VANIMAN DONALD D TRUST 1/2 INT	0064 R	1.00	234.360000	\$234.36
2350-41	RFG24299	CUTTHROAT PARTNERS LLC	0064 R	0.00	234.360000	\$0.00
5350-41	RFG24770	WEAVER GLENDA L	0064 R	1.00	234.360000	\$234.36
2368-41	RFG24771	GAFFKE RANCH LLC	0064 R	0.00	234.360000	\$0.00
2350-41	RFG27139	WESTLAKE STUART L & RENEE E	0064 R	1.00	234.360000	\$234.36

Partial "MH" Levy document from the County. This only includes mobile homes and trailers.

Date: 07/22/2013 Time: 12:36:34		GALLATIN COUNTY TA REPORTS - (MISC) RECAP				
SAVE AS: <span style="background-color: #0070C0; color: white; padding: 2px;">[REDACTED]</span>						
<u>RANGES</u>			<u>OPTIONS</u>			
TAX YEAR:	(R) 2013 - 2013		SORT ORDER:		A	
TAX TYPE:	(R) MH - MH		TOTALS PAGE ONLY?:		N	
LEVY DISTRICT:	(A)		REPORT FORMAT:		I	
LEVY SUB DISTRICT:	(A)		READ BILLING DATA?:		N	
MISC CODE:	(R) 0064 - 0064		RECORD STATUS:		A&E	
PARCEL#:	(A)		ENCL RANGES/OPTIONS?:		Y	
Levy Dist	Parcel #	Owner Name	Spec Dist	Quantity/ Taxable	Rate/ Pct/Mill	Amount
2350-41	MMM10	BURTON BILL AND SUSIE	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1007	SCHLUCHTER MARK	0064 R	1.00	234.360000	\$234.36
0363-41	MMM1017	STONE JUDY J	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1036	GLOVER WHITNEY CHRISTINE	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1046	ROGERS RUSTY J & PATRICIA R	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1074	BROMBERG WILLIAM E	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1107	HERSEY HOWARD J	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1122	GREEN GERALD	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1135	MCCOY THOMAS GLENN	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1137	HASHAGEN CARL	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1140	KEVIE RICHARD	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1142	HARPE DONALD CRAIG	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1147	MANDEVILLE TRAVIS	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1214	BEERS ROGER DUANE & CAROLYN AN	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1236	PARISI BRENDA	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1243	DARLING ASHLEY C	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1246	PRAY SCOTT	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1248	JOHNSON FRANCIS J	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1290	PRATT MARIE	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1300	WEBER HEATHER R	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1307	UITERDYK JUSTIN	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1309	BLACK GEORGE WAYNE	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1313	CLINE NORMA C	0064 R	1.00	234.360000	\$234.36
2350-41	MMM133	BARTA TRACY & LINDA	0064 R	1.00	234.360000	\$234.36
2350-41	MMM1374	KERN DEBRA	0064 R	1.00	234.360000	\$234.36

Linkages: Structure types and locations were determined using County 911 address data. SITUS is a standardized addressing system used by the County. Addresses in parcel data were reformatted to this standard. This allowed matching of MH and RE data to spatial parcel and structure data. Parcels were linked to RE data by Parcel Number (TAXCODE). MH data were linked to mobile homes by SITUS address, since mobile homes are considered "parcels".

Spatial Data: Structure Data, County Road Data, Parcel Data, Aerial Image 2013 from USDA



## Results:

These results are an example, showing the kinds of data and what I do with it.

### Review of Levy Data joined to physical spatial data (structures and land parcels)

There are 591 Levy records for MH. There are, however 606 trailers on the structure data. So there are 15 trailers having no Levy records. However, there are also 48 Levy Records that do not have matching trailer addresses. So it is not as clear as just finding trailers with no levies. There are some that may have to be hand-matched. Also, many trailers have multiple tax listings, both in MH and RE, and some have no levy record in either.

### RE Levy Records (reports from the county)

I updated these with the 072313 levy data sent me. RE levies include residences on owned land. However, if a mobile home (MH) is on a parcel owned by the owner of the mobile home, it has a separate parcel number. Either one or the other has a levy, and sometimes both do. I review spatially to determine if there is merely a mobile home on the parcel or if there are other structures too. There are only 12 of these so far, so it is not a big deal.

## Land Parcels

There are 1551 Levy records for RE. There are, however, 1,923 parcels in the district. Removing the SUBCLASS "Roads" leaves 1,760 parcels. Sixteen of these have no TAXCODE, and are right of ways and ditches, leaving 1,744 to review for updates on existing levies necessary.

When joined by Parcel to the levy, some of these have no RE levy record associated with them. These are reviewed separately for possible structures.

Also there are 209 levy records that have no corresponding land parcel. It appears many mobile homes actually have a parcel number, but are not called "trailers" in the structure layer. So I joined by SITUS address to these, and reduced the problem to 112 levy records having no parcels. These will need to be manually matched. Those 112 are largely condo's and multifamily that are levied separately from the land on which they lie. I can match most of these, because the non-matches are mostly because of differences in SITUS addressing between the Structures layer and the RE Levy file.

Also, there are a few separate parcel polygons that have the same parcel number. These look like they are assessed separately, but are actually just one.

## Structures

There are 1,937 structures. A few have no SITUS addresses, and a few have addresses that appear wrong or incomplete.

Condos and Multi-family and commercial condos:

There are at least four Condo's having no structure addresses and no obvious (exc. 20, 22, and 24 Haley Road have four condo's each, but only 20 and 22 have structure points). However, they are all levied.

Matching problems: Some Addresses are inconsistent between the 911 structure data and the levy data. For example, unit A in the Levy and Unit 1 on the Structures. Some parcels are poorly-registered to the landscape. These were adjusted using topography, fencelines, ownership, and adjacent parcels.

## Levy Process Review Criteria.

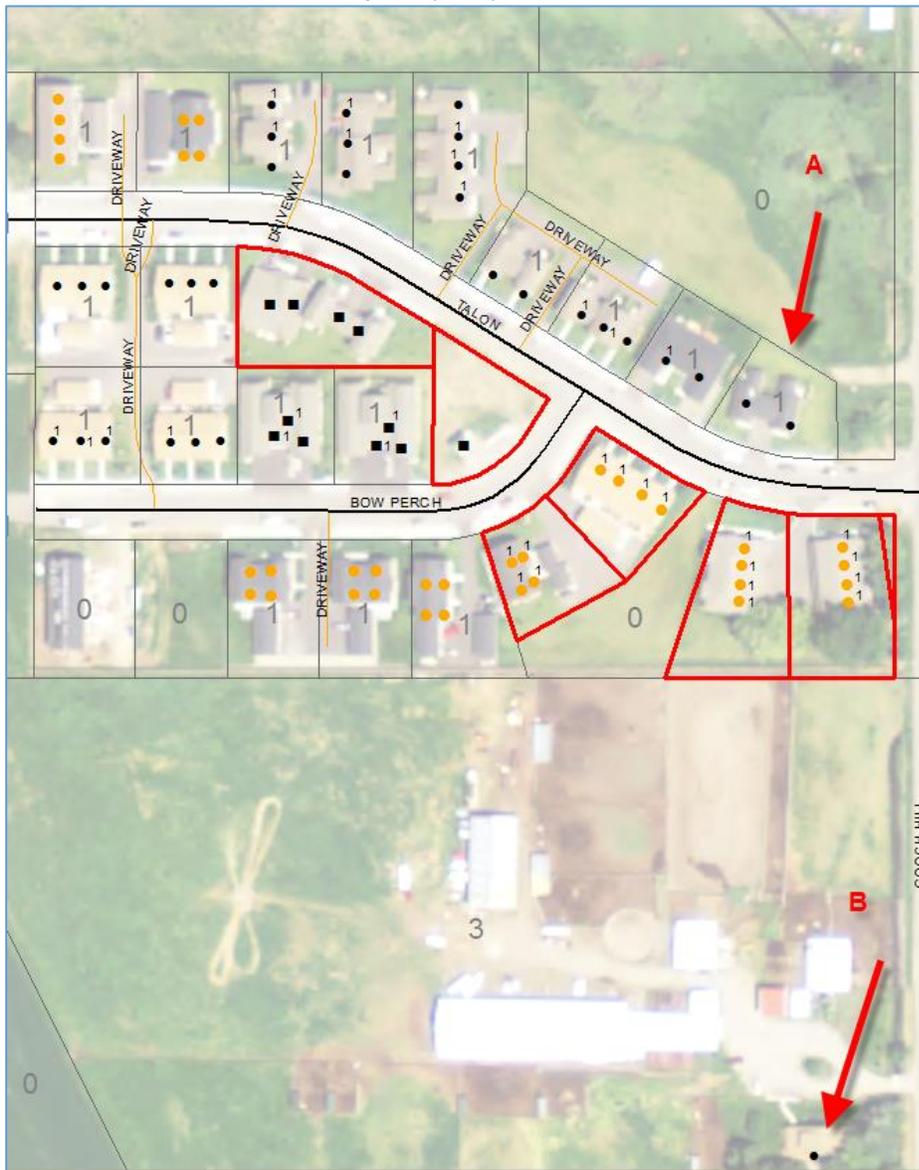
In this example, criteria were reviewed and approved by the FSA after spatial review by the analyst to determine the actual historical application of criteria on the ground.

Land parcels with residences are levied by structure. Single-family residences, some mobile homes, cabins with power, guest homes, and rentals are levied separately. Garages and outbuildings are not levied. Condos, Apts, Multi-Family are separately levied to the owner, either by structure or by land parcel. In this case, the land parcel is generally not levied unless there are other structures on the land.

Trailers and residences that are mobile homes are levied separately and have a parcel number. If no separate parcel number exists, they are levied on the land parcel.

Commercial structures have generally higher levies than residential structures, and are all levied on the land parcel. Farmsteads are levied by complexity and use. Commercial condos are levied separately.

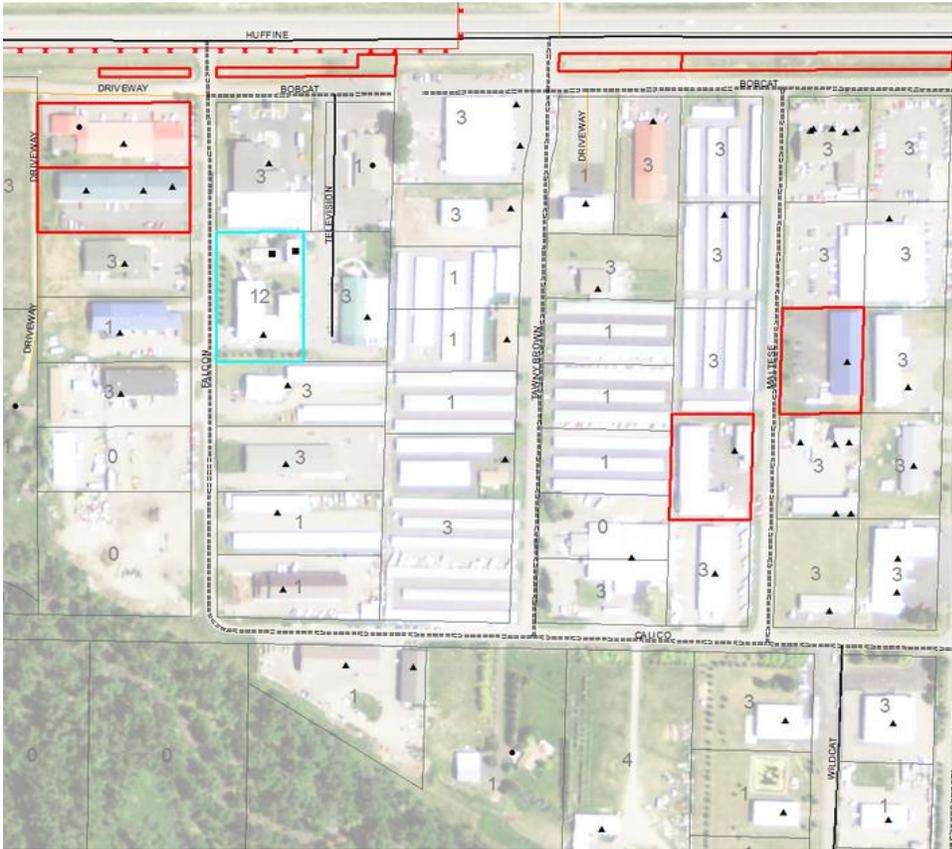
On the graphic below, gray lines are land parcels. Red outlines parcels with no attached levy. The gray numbers are the levies on the land parcels. A parcel levy which not match the number or type of structures on the property would be reviewed and a proposed change would be added. This kind of analysis will help determine or justify levy amounts.





Commercial

Fort Ellis, because of the increased effort required in commercial structure fires, levies 1.5 per structure. Below is an example of a commercial building area in another FSA. Gray lines are land parcels. Red outlines parcels with no attached levy. The gray numbers are the levies on the land parcels. The triangles are commercial structures. Squares are residences. This kind of analysis can help establish or justify levy amounts on different kinds of structures.



## SUMMARY

Results include spreadsheets listing parcels and the proposed change in levy (if any), with comments indicating the justification for those changes. These documents are given to the County Assessor directly for inclusion in tax documents, and can be used for client queries or protests. Additional documents could include “problem” areas for more detailed review by Fire Dept. personnel, and formal criteria used in the project. Also, individual parcels can be reviewed at any time, since I preserve and archive all data and analysis.