



December 28, 2022

Flathead County Planning Board  
800 South Main Street  
Kalispell, MT

RE: Montarise Zoning Amendment Transportation Impacts

Greenlight Engineering has been asked by the Friends for Responsible Rural Growth to evaluate the transportation related impacts of the proposed Montarise Village zoning amendment in Flathead County just outside Kalispell, Montana. We have reviewed the November 2022 Montarise Village Traffic Impact Study Update (hereafter referred to as the "TIS") prepared by Abelin Traffic Services.

There are several significant errors and omissions in the TIS that makes the traffic analysis unreliable and not compliant with Flathead County, Montana Department of Transportation ("MDT") and/or industry standards.

The TIS makes it clear that the proposed zoning amendment does not "Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements" or consider the effects of the zoning amendment on "non-motorized transportation systems" as required by Flathead County Zoning Regulations Section 2.08.040. Therefore, the county cannot approve the application.

#### **Executive Summary**

- The TIS establishes that the development will cause intersection failures at the intersections of US 93/KM Ranch Road and US 93/Bowdish Road. The TIS proposes separate turn lanes at these intersections, but provides no analysis of the impact of those improvements and certainly does not establish that the transportation system is adequate. For this reason alone, there is no reason to further consider this application for approval.
- The TIS illustrates intersection failures in the peak summer period, but failures may occur at more times than just the summer peak period.
- The TIS fails to appropriately account for traffic growth.
- The TIS states that the development won't be constructed for up to five years, yet only analyzes a 2025 buildout year.
- The trip generation presented contains numerous errors and under counts the traffic generated by the development. The trip generation estimates of the TIS are based on out of date data.
- The TIS possibly fails to include the impacts of several large developments approved yet not constructed in the vicinity of the development, thereby under representing the future traffic volumes in the area.
- There are unexplained errors and omissions in the traffic counts.

**The TIS Illustrates Intersection Failures**

The TIS states that "...a LOS [level of service] of C or better is considered acceptable for peak-hour conditions."

Table 6 of the TIS establishes that the intersection of US 93/Bowdish Road will operate at LOS E and the intersection of US Highway 93/KM Ranch Road will operate at LOS D with the approval of the development. The TIS fails to offer mitigation that would bring the intersections into compliance. Based on these multiple, acknowledged intersection failures alone, the application must be denied and no further review is necessary.

The TIS states:

"To minimize the traffic impacts from the proposed development, both the Bowdish Road approach and the KM Ranch Road approach should be widened to include separated right and left/thru lanes. Including separated approach lanes on the Bowdish Road and KM Ranch Road approaches would allow the intersections to function similar to the existing roadway operation conditions."

"It is likely that higher levels of congestion will occur at the approaches during peak summer traffic conditions. The additional vehicle delay should be mitigated by developing separate turn lanes at the approaches."

The TIS provides no evidence illustrating how these intersections will operate with these improvements in place. There are no tables or level of service reports provided in the TIS that include any analysis with these improvements in place. The TIS certainly provides no evidence to establish that the separated approach lanes would "allow the intersections to function similar to the existing roadway operation conditions" or that the "...additional vehicle delay..." is "...mitigated by developing separate turn lanes..." The applicant should be required to provide evidence that supports these statements.

The TIS also concludes that "The traffic impact analysis prepared for the Montarise development suggests that the project will not have a major impact on the operations of the US Highway 93 and KM Ranch intersection if separated turning lanes are developed on KM Ranch Road." The TIS clearly illustrates that the development causes both the US 93/KM Ranch Road and US 93/Bowdish Road intersections to fail, so it is difficult to understand how the TIS concludes that the development doesn't have a major impact on the KM Ranch intersection. As noted above, the TIS offers no analysis illustrating the benefits of separate turning lanes at either intersection, so again, there is no evidence that the development doesn't create a major impact. Based on the evidence, it is quite clear that the development does create a major impact on both intersections.

The TIS further states:

"Due to current heavy traffic volumes on US Highway 93, the only way to improve the overall traffic operations at the KM Ranch Road and Bowdish Road intersection would be with the installation of a higher form of traffic control such as a traffic signal, roundabout or interchange. These traffic control features would allow the intersection to operate at an acceptable LOS peak summer traffic conditions for the forceable (sic) future."

The TIS provides no evidence that any other traffic control alternatives have been evaluated for these intersections. As described above, the TIS fails to even analyze the addition of separated left/right turn lanes at the US 93/Bowdish and US 93/KM Ranch intersections even though the TIS recommends they be constructed. There are certainly other improvements that could potentially improve these intersections other than a traffic signal, roundabout or interchange. In reviewing the need for a traffic signal, Chapter 12 of the MDT Traffic Engineering Manual recommends that a signal analysis conduct a "Consideration of Other Alternatives. The report should discuss whether or not there are any realistic alternatives for addressing the situation under study short of installing a traffic signal, including the advantages and disadvantages of each." If other alternatives were analyzed, they certainly weren't discussed as part of the TIS, so there is no evidence that the applicant has provided any analysis of other alternatives.

The TIS further states:

"MDT is also in the beginning stage of preparing an access management plan for the Highway 93 corridor...to help establish...what types of...intersection improvements may be needed in the future. This plan is in the very early stages and will not likely be completed for several years."

"...Without clear guidance from MDT regarding the location and type of future intersection traffic controls in this area, it is not likely that major roadway changes will be approved for this project...This traffic study indicates that the existing and projected traffic conditions and excessive congestion will only occur occasionally during peak summer traffic conditions."

The language of the TIS doesn't instill confidence that the transportation issues caused by the development will be analyzed and fixed by MDT in a timely fashion and certainly not addressed before the county is asked to make a decision about the viability of this project. It is certainly not the responsibility of the county or MDT to solve failures caused by the development as illustrated in the TIS.

The TIS provides no analysis and no mitigation that establishes that the intersection failures will be addressed. Instead, the developer appears to rely upon the future MDT access management project to both analyze and apparently provide the necessary mitigation caused by the proposed development. This is highly speculative and puts the cart well before the horse. The development should be required to analyze and proposed feasible solutions for the problems caused by the development and should be required to fund such improvements or ensure that funding exists to fix the problems created.

The TIS notes that the access management plan is likely years from being completed with no time frame even estimated. The TIS provides evidence that their development can't proceed as the TIS illustrates failing intersections caused by the proposed development. The TIS offers no mitigation that is illustrated to address the problems caused by the proposed development but then lastly assumes that the entire development will somehow be fully constructed by 2025 with no known mitigation and no funding. This is faulty logic and is frankly the timeline is impossible without the developer identifying and funding the necessary improvements to solve the issues caused by their development. It is clear that there remains no plan for how the impacts of this development will be mitigated.

The TIS makes it clear that the proposed zoning amendment does not “Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements” as required by Flathead County Zoning Regulations Section 2.08.040. Therefore, the county cannot approve the application.

**Failure May Occur More Than Just During the Peak Summer Period**

The TIS attempts to make the case that the US 93/KM Ranch Road and US 93/Bowdish Road intersections will only fail during the peak summer period. The only time periods studied thus far is the “average” period and the summer peak period. The applicant has not provided evidence that the intersections don't fail beyond this average period and there may be failures beyond the summer peak period. The weekday PM peak hour failure at these intersections could possibly occur for months of the year or whenever traffic volumes exceed that of the “average” period. The MDT Traffic Engineering Manual references conducting analysis utilizing seasonal traffic variations. Previous analysis for this project did not consider an average condition, but only the peak conditions. It is typical for traffic analysis to be conducted for the peak period.

**Traffic Growth Not Accounted For**

The TIS states that “The traffic data history shows that traffic volumes on Highway 93 have increased at a rate of 2% annually over the last ten years.”

It is industry standard to include regional traffic growth to develop future year traffic volumes within a traffic impact study. Assuming a 2% growth rate is accurate, it would be typical to apply a 2% growth rate per year to traffic volumes between the year of the traffic counts to the year of completion of the development. Traffic count data was collected in 2022 and the TIS analyzes a 2025 scenario. Three years of traffic growth should be considered in analyzing a 2025 scenario. However, given the transportation failures reported in the TIS with no plan for resolution, a buildout of 2025 is not likely to be achieved.

In reviewing Appendix B of the TIS, there is evidence that the 2% per year growth rate was not applied correctly. For example, at the US 93/Bowdish intersection, the existing northbound traffic flow under peak summer traffic is 1040 vehicles per hour (vph) and southbound through movement is 888 vph. Per the TIS, the total projected traffic (including site generated traffic) for those movements is 1088 vph and 926 vph respectively. If a 2% growth rate was applied to these movements from 2022 to 2025, the northbound movement would be at least 1103 vph plus site generated traffic and the southbound movement would be 942 vph plus site generated traffic. A similar undercounting occurs for the US 93/Bowdish Road intersection for the existing peak summer and projected traffic. It appears the TIS underestimates traffic growth projections. There may be additional examples of this error.

**Appropriate Build-out Year Not Analyzed**

The TIS states that “The project would be constructed over the next three to five years based on market demand with full buildout of the project expected in 2025 or later.” The TIS indicates that the project may not be completed for five years, or by 2028. Appendix C of the TIS illustrates that traffic analysis was completed for a buildout year of 2025 only, a time much sooner than 2028. By not providing an appropriate analysis year, the TIS neglects to consider regional traffic

growth that will occur between 2025 and 2028 and additional regional growth that will occur from 2025 to 2028. The applicant should be required to provide an analysis that addresses this longer buildout period, especially considering the failures at the study intersections. This longer buildout period could possibly have an impact on their traffic signal warrant analysis as well as additional traffic will be present in 2028. It is also certainly possibly that regional growth alone could bring these intersections into failure even under “average” conditions.

**Traffic Count Data Not Provided**

The TIS states:

“The raw data collected for this project was adjusted for seasonal variation in accordance with the data collected from MDT’s annual count station located on US Highway 2 west of Kalispell (Station A-24). This count station data indicated that data collected in January 2022 is approximately 81% of the Average Annual Daily Traffic (AADT) in this area. The raw traffic data from August 2022 is approximately 115% of the Average Annual Daily Traffic (AADT) in this area. For this traffic analysis, ATS utilized the higher August traffic count data to perform the traffic operations analysis.”

The TIS provides no evidence to support these statements. There is no data in the TIS that supports these 81% and 115% conclusions.

Even it were provided, it is unclear what relevance January 2022 traffic data would have on this application. The March 2022 TIS relied upon March 2022 traffic counts, not January traffic counts. The August 2022 TIS relied upon March 2022 and August 2022 traffic counts. The applicant has not presented any January 2022 traffic count data.

The November 2022 TIS states that “In February 2022 Abelin Traffic Services and APEC Engineering collected traffic data at area intersections to evaluate current operations characteristics. These counts included peak-hour turning movement counts at nearby intersections.” Neither the March 2022 nor the November 2022 TIS presented any traffic count data from February 2022.

Neither the March 2022 TIS nor the November 2022 TIS provide any raw traffic count data for the US 93/Bowdish Road intersection, so any counts that may have occurred there cannot be verified.

**The Trip Generation Presented in the TIS Contains Numerous and Substantial Errors**

There are numerous errors associated with the trip generation analysis presented in the TIS.

The TIS states that the trip generation of the site is based upon the 10<sup>th</sup> edition of the *Trip Generation Manual* and that these “rates are the national standard and are based on the most current information available to planners.” The March 2022 TIS and the November 2022 TIS erroneously rely on the 10th edition of the ITE *Trip Generation Manual*. The 11th edition of the *Trip Generation Manual* was released in September 2021 and there is no reason for the TIS to be based upon the out of date 10th edition trip generation data.

The TIS and application offer scant details about what is actually proposed in terms of land uses. The TIS lists “Adult Bungalows” as a land use and relies on ITE land use code #252 in estimating trips for this use. The 10<sup>th</sup> edition of the ITE *Trip Generation Manual* lists land use code #252 as “Senior Adult Housing—Attached.” The site plan and application don’t provide any information that would allow one to confirm whether what is proposed meets the description of “Senior Adult Housing-Attached.” In the 11<sup>th</sup> edition of the ITE *Trip Generation Manual*, “Senior Adult Housing-Attached” no longer exists. The applicant should be required to rely on the most recent edition of the *Trip Generation Manual* as well as provide verifiable information that establishes that the trip generation estimates are reliable and sufficiently similar to the currently established ITE land uses.

The TIS lists “Recreational Cottages” as a land use and relies on ITE land use code #220, or “Apartment,” for this use. The site plan and application don’t provide any information that would allow one to confirm whether what is proposed meets the description of “Apartment.” In the 11<sup>th</sup> edition of the ITE *Trip Generation Manual*, “Apartment” no longer exists. The applicant should be required to rely on the most recent edition of the *Trip Generation Manual* as well as provide verifiable information that establishes that the trip generation estimates are reliable and sufficiently similar to the currently established ITE land uses.

The TIS appears to rely on average rates for determining trip generation. In the case of the Single-Family Detached Housing land use, the ITE *Trip Generation Handbook* would lead a practitioner to utilize the fitted curve equation in estimating trips. In using the average trip rate, the TIS undercounts trips related to this use. If it is determined that multi-family housing (low-rise), one of the current 11<sup>th</sup> edition ITE land uses, instead of “Apartments,” from the 10<sup>th</sup> edition of ITE, is the most appropriate use to estimate trips for the “Recreational Cottages,” then using the average trip rate significantly undercounts trips versus using the fitted curve equation.

The applicant should be required to update their TIS to choose appropriate trip generation for the development that will be constructed as well as rely on current, industry standard trip generation figures. With an accurate representation of the trips generated by the site, the operations of the Highway 93/KM Ranch Road and Highway 93/Bowdish Road will operate worse than illustrated in the TIS.

Without a reliable TIS, it cannot be established that the zoning amendment can “Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements” as required by Flathead County Zoning Regulations Section 2.08.040.

**The TIS Fails to Account for Approved Developments not Constructed**

It is industry standard to include the traffic impact of other developments that have been approved, yet are not constructed (commonly referred to as “in-process” traffic) as part of new traffic impact studies to ensure that the traffic impact of those projects are considered. The March 2022 TIS noted that the “Ridge Run Baseball Stadium is currently planned for construction...with approximately 3,545 seats and a parking lot with approximately 571 parking spaces.” In the November 2022 TIS, it was noted that “The Ridge Run Baseball stadium is currently in operation...” The November 2022 TIS relies on March 2022 and August 2022 traffic counts. In the March 2022 TIS, there was no evidence that the traffic generated from the stadium was included in the traffic analysis of the intersections studied. The same issue exists in

the November 2022 TIS.

Information provided by Friends for Responsible Rural Growth (Appendix 1), but not independently confirmed by Greenlight Engineering, indicates that there are a number of other developments that have been approved in the general vicinity of the development. These developments are not referenced in the TIS, so it can be assumed no consideration was paid to them. Regardless of this information, the applicant should be required to verify whether the impacts of approved, yet not constructed developments are considered as part of this TIS.

**Issues with Traffic Counts**

Appendix A of the TIS illustrates that the applicant's traffic engineer collected traffic counts from 7:20 AM to 8:20 AM (Figure 1 below) and 4:43 PM to 5:43 PM (Figure 2). We have reviewed other traffic impact studies prepared by this engineer and have seen traffic counts collected over an hour or less. We have never seen other engineers collect traffic counts and perform analysis in such a way. It is highly unlikely that the peak hour of the system (the hour in which the highest volumes occur) happens to be during whatever random time the engineer started collecting traffic counts. All other traffic impact studies we have conducted or reviewed have included traffic counts over a longer period, typically from 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM. Intervals are typically reported in five minute increments to ensure that analysis is completed for the actual peak hour. The purpose of this methodology is to ensure that traffic studies are based upon when traffic volumes are at their peak volume, not some other time when traffic volumes are lower.

Cars																				
Start Tim	Northbound				Southbound				Eastbound				Westbound				Total All			
	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn				
7:20 AM	2	184	0	0	3	0	206	3	0	3	2	0	8	0	10	0	0	0	0	421
7:35 AM	4	244	0	0	4	0	205	5	0	5	7	0	8	0	15	5	0	1	0	6 509
7:50 AM	1	177	0	0	1	0	169	5	0	5	13	0	8	0	21	5	0	4	0	9 418
8:05 AM	5	191	0	0	5	1	190	3	0	4	8	1	0	0	9	2	0	1	0	3 423
Total	13	1	0	0	14	1	0	16	0	17	33	1	24	0	58	14	0	6	0	20 109

**Figure 1: Weekday AM Peak Hour Traffic Counts from TIS**

Start Tim	Northbound				Southbound				Eastbound				Westbound				Total All			
	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn				
4:43 PM	8	216	2	0	10	0	225	6	0	6	2	0	4	0	6	1	0	1	0	2 489
4:58 PM	6	217	2	0	8	0	234	8	0	8	2	0	3	0	5	0	0	1	0	1 495
5:13 PM	7	232	2	0	9	2	247	4	0	6	5	0	6	0	11	0	0	2	0	2 535
5:28 PM	4	227	7	0	11	0	245	9	0	9	2	0	3	0	5	1	0	0	0	1 524
Total	27	0	13	0	40	2	0	27	0	29	12	0	16	0	28	2	0	4	0	6 103

**Figure 2: Weekday PM Peak Hour Traffic Counts from TIS**

There are two study intersections evaluated as part of the TIS, but the raw traffic counts included only depict up to one intersection as shown in Figures 1 and 2 above. Unfortunately, the weekday PM peak hour count is not labeled clearly, so it cannot be determined if that were collected at US 93/KM Ranch Road or US 93/Bowdish Road. It appears that traffic count information is missing from the TIS.

Additionally, in reviewing the traffic counts, the total volumes for each movement don't equal the sum of the preceding values. For instance, in the weekday AM peak hour at the Highway

93/KM Ranch intersection traffic count, northbound left turn volumes of 2, 4, 1 and 5 are illustrated with a total of 13. The sum of those four values is not 13 as reported. For northbound through volumes of 184, 244, 177, 191 are reported as totaling as 1, again clearly in error as those values actually total 796. These inexplicable errors are obvious throughout the counts making the traffic counts impossible to verify.

The TIS omits evidence of information necessary for conducting accurate intersection capacity analysis including the impact of trucks, buses, bicycles, or pedestrians. With the exception of the August 2022 traffic count at the US 93/KM Ranch Road intersection when pedestrians were counted, none of these users were otherwise counted. All of these users of the transportation system have an effect on the intersection operational analysis at Highway 93/KM Ranch Road and Highway 93/Bowdish Road and are inputs of the *Highway Capacity Manual* intersection capacity methodology.

The TIS illustrates a peak hour factor of 1.0 for all scenarios. It is typical to study the peak 15 minutes of the transportation system. Utilizing a peak hour factor of 1.0, it is clear that the peak 15 minutes of the transportation system has not been studied in opposition to industry standards. Using a peak hour factor of 1.0 will illustrate better LOS intersection capacity results than if analyzing the peak 15 minutes of the transportation system.

The applicant should be required to provide a quality check of their work or explain their work, and resubmit the TIS to ensure that the methodology is sound and can be reviewed. Until then, the application should not be approved as the TIS is not accurate or reliable.

Without a reliable TIS, it cannot be established that the zoning amendment can “Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements” as required by Flathead County Zoning Regulations Section 2.08.040.

**No Analysis of Non-motorized Modes**

The TIS fails to evaluate the effects of the zoning amendment on “non-motorized transportation systems” as required by Flathead County Zoning Regulations Section 2.08.040.



**Conclusion**

As described above, the TIS contains numerous errors and omissions and clearly illustrates that the zoning amendment fails to “Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements” and consider the effects of the zoning amendment on “non-motorized transportation systems” per Flathead County Zoning Regulations Section 2.08.040.

There are numerous unmitigated transportation failures. There are several errors and omissions of the TIS, making the TIS unreliable.

As a result it cannot be found that the transportation system is adequate and the zoning amendment must be denied.

Should you have any questions, feel free to contact me at 503-317-4559.

Sincerely,

Rick Nys, P.E.  
Principal Traffic Engineer



## Appendix 1

### Friends for Responsible Rural Growth List of Possible In-process Developments



Development	Approximate Location	Development Type	Zoning change?	Status	Acres	Housing Units	Housing Breakdown
Farm District	Church and Hwy 93	Mixed Use		6/6 Kalispell Planning Board approved annexation, B-2 zoning with a comm'l pud overlay	37.6	102	Potential for 120 multi-family or townhouses
Spring Creek Park	Three Mile Drive and Spring Creek Rd	Mixed Use	R-3 to RA-1 for 25.6 acres	3/7 approved first phase by Kalispell city council	90.87	600	464 multi, 65 SFD, 113 townhomes/row houses
Montana Raceway Park	Hwy 93 and McDermott Lane	Residential	AG-40 to R-1	4/5 commissioners approved	40	28	SFD
Woodlands / BAE Development, LLC	Hwy 93 So. Whitefish	Residential	AG-20 to SAG-5	3/9 County Planning Board hearing	44.6	18	SFD
Aspen Creek West	Three Mile Drive	Residential		7/5 Kalispell City Council approved subdivision	20	60	31 SFD, 29 townhomes
Eagle Valley Ranch	North Kalispell Hwy 93	Mixed Use		1/10/19 Originally approved by Planning Board approved 5/16 Planning Board approved annexation of commercial property. ACCORDING TO THEIR WEBSITE, THEY ARE CURRENTLY UNDER CONSTRUCTION	64	114	114 SFD, Multi-family

Provided by: Friends for Responsible Rural Growth