



GREENLIGHT ENGINEERING

July 13, 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 March 2022 Montarise Village Traffic Impact Study (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 as part of phase 1 as well as full buildout of the development, but provides no mitigation for the failures. For this reason alone, there is no reason to further consider this application for approval.
- The trip generation presented contains numerous errors and significantly under counts the traffic generated by the development. The "business park" is planned to contain a "convenience store" which will greatly exceed the trips reported for a business park.
- 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.
- It is not clear that widening of the Highway 93/KM Ranch Road & Highway 93/Bowdish intersections will be constructed by the developer.
- There are numerous TIS omissions against industry standard.
- The new intersections with KM Ranch Road should be evaluated for safety as they intersect KM Ranch Road at or near horizontal curves.
- The development will substantially increase traffic on KM Ranch Road, a gravel road.

The Development Causes Intersections to Fail with No Mitigation

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

Table 5 of the TIS establishes that the intersection of Highway 93/Bowdish Road will operate at LOS D with the construction of phase 1 with no mitigation offered to bring the intersection into compliance.

Table 6 of the TIS establishes that the development will cause the US 93/KM Ranch Road and US 93/Bowdish Road intersections to fail by operating at level of service E, yet inexplicably offers no analysis or mitigation to address these failures.

Based on these multiple, acknowledged failures alone, the application must be denied and no further review is necessary.

The TIS argues that "The project may be developed through Phase 1 but may need to create intersection improvements to further develop the property..." Beyond phase 1, the development will continue to worsen operations as additional traffic is generated. However, it is already been clearly established that the transportation system will not be adequate with the approval of even phase 1.

The TIS further states that "The Montana Department of Transportation (MDT) corridor plan will likely establish which of these approaches should be improved..." and "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."

The language of the TIS doesn't instill confidence that the transportation issues caused by the development (even for phase 1) 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.

The TIS indicates that "The project would be constructed in three phases over the next three to five years based on market demand," putting the projected full buildout to 2027. Appendix C of the TIS illustrates a phase 1 completion in year 2023 and 2025 for the complete buildout of the development, a time much sooner than 2027. By not providing an appropriate analysis year, the TIS neglects to consider regional traffic growth that will occur between 2025 and 2027.

The TIS provides no analysis and no mitigation for the intersection failures caused by the proposed development. 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, provides evidence that their development can't proceed beyond phase 1 (and is not even adequate to approve phase 1), offers no mitigation to approve phase 1 or beyond 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.

The APEX Engineering Environmental Assessment includes:

“The owner has anticipated...needed safety improvements, in proposing the two divided entries on to KM Ranch Road, and the separated right and left/thru lanes at the Bowdish Road and Highway 93 intersection...As MDT makes their determination for maintaining an acceptable LOS, the owner also anticipates the installation of a traffic signal at either Bowdish Road or KM Ranch Road for the future phases beyond Phase 1, of Montarise Village.”

The TIS offers no analysis of a potential traffic signal.

It is clear that there is 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.

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 trip generation presented in the March 2022 TIS is based 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 old 10th edition trip generation data.

Table 3 of the TIS contains numerous errors in estimating phase 1 traffic. The TIS under represents the trip generation of the single-family and multi-family uses in the weekday AM peak hour by approximately 20 trips and in the weekday PM peak hour by approximately 80 trips. Neither are an insignificant amount of trips.

The TIS presents that the RV park will generate 144 daily trips. However, neither the 10th edition or 11th edition present any daily trip generation figures for an RV park, so it is not clear what this figure is based upon.

Very little information is provided regarding the 3.2 acres of Business Park referenced in the TIS. The site plan illustrates a 3.22 acre “commercial” area.

Per the ITE Trip Generation Manual:

“A business park consists of a group of flex-type or incubator one- or two-story buildings served by a common roadway system. The tenant space is flexible and lends itself to a variety of uses. The rear side of the building is often served by a garage door. Tenants may be start-up companies or small mature companies that require a variety of space. The space may include offices, retail and wholesale stores, restaurants, recreational areas and warehousing, manufacturing, light industrial, or scientific research functions. A common mix is 20 to 30 percent office/commercial and 70 to 80 percent industrial/warehousing.”

The TIS presents that this “business park” will generate 479 weekday trips, 60 weekday AM peak hour trips, and 54 weekday PM peak hour trips based on the total acreage of the site. However, neither the 10th or 11th edition of the Trip Generation Manual offers any data for how to determine trip generation based on the acreage of a site.

A typical business park is quite large. Within the Trip Generation Manual, the smallest business park is 40,000 square feet of gross floor area. It is unlikely that this could be constructed on 3.2 acres. Should the business park be smaller than 40,000 square feet, then per ITE, the ITE data should not be used for estimating trips for this development as it would be out of the range of data.

In an email from the project team to Flathead County, the “commercial use” referenced on the site plan includes a “convenience store/coffee shop” (see Appendix 1).

A typical convenience store is approximately 2,500 square feet. However, per the 11th Edition of the Trip Generation Manual, a 2,500 square foot convenience store will generate over 1900 weekday trips, 156 weekday AM peak hour trips, and 123 weekday PM peak hour trips, significantly more than predicted for the entire business park. A coffee shop also generates a significant amount of trips. The convenience store certainly would not be the only development that could physically be accommodated on the 3.22 acres and surely not what is solely envisioned for this commercial area.

The site plan illustrates a “school” but the TIS fails to account for a school.

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 TIS notes 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.” However, there is no evidence that the traffic generated from the stadium is included in the traffic analysis of the intersections studied.

Information provided by Friends for Responsible Rural Growth (Appendix 2), 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. The applicant should be required to verify whether these developments are appropriately considered.

Traffic Growth Potentially Not Accounted For

It is industry standard to include regional traffic growth to develop future year traffic volumes within a traffic impact study. For example, the TIS notes 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.”

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. In this case, the TIS indicates that the completion of phase 1 will occur by 2023 and the full development will be completed in 2025. As noted earlier, given the transportation failures reported in the TIS with no plan for resolution, these dates are not likely to be achieved. Nevertheless, there is no evidence that any growth rate was applied as part of the TIS as it was not stated that this was done and the figures presented in Appendix B of the TIS are such that it is not possible to determine if this growth rate was applied.

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 in performing peak hour analysis. We have never seen other engineers collect traffic counts and perform analysis in such a way.

Cars	Northbound				Southbound				Eastbound				Westbound				Total All				
	Start Tim	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total					
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 Time	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

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.

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. Certainly, 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 subsequent Appendix B “Traffic Model” values are also impossible to verify and check the work of the engineer as the values don't match up and the numerous discrepancies are not explained.

For example, the northbound through volume of 796 from Appendix A of the traffic counts is illustrated as an Appendix B northbound through volume of 1161 in Appendix B of the Traffic Model. The seasonal factor of 1.19 applied to 796 is 947, not 1161. Appendix B is very unclear and challenging to review.

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.

Interim Improvements at Highway 93/KM Ranch Road and Highway 93/Bowdish Road Not Clearly Offered as Mitigation

The TIS notes that the Highway 93 intersections “should function adequately through Phase 1 of the development except for some minor delay issues at the Bowdish intersection in the PM peak hours.”

It should be highlighted that the operations for phase 1 presented in the TIS (although the TIS establishes that the operations at Highway 93/Bowdish is still inadequate for approval at phase 1) are predicated on “both the Bowfish Road approach and KM Ranch Road approaches should be widened to include separated right and left/thru lanes.” The TIS relies on these improvements being in place. The TIS and application do not clearly state that the development will construct these improvements, but it needs to be ensured these improvements are both feasible and are constructed.

Important Traffic Data Omitted

The TIS omits evidence of information necessary for conducting accurate intersection capacity analysis including the impact of trucks, buses, bicycles, or pedestrians. None of these users were counted ensuring there is no or very limited analysis of non-motorized users. 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 standard.

The TIS fails to include the traffic crash data. The TIS provides insufficient, very limited information necessary to evaluate the safety of the transportation system.

All of these omissions are unusual and typically not seen in traffic impact studies.

The TIS should be updated to provide necessary data to ensure the adequacy of the transportation system.

New Intersections Should Be Evaluated for Safety

The site plan illustrates new roadways that intersect KM Ranch Road within or near horizontal curves in KM Ranch Road. These locations should be evaluated to ensure these are safe configurations. Intersection and stopping sight distance may be limited at these locations, creating safety issues that don't currently exist. The TIS offers no evaluation of any of the new roadway network created by the development.

Impacts to KM Ranch Road

The TIS illustrates that 10% of the site traffic will utilize KM Ranch Road. 10% of the daily traffic per the TIS would be an increase of more than 300 vehicles per day west of Montarise Drive, the development's westernmost access to KM Ranch Road. While the TIS states that KM Ranch Road has a "total paved width of 24 feet," most of KM Ranch Road is gravel. The proposed development will have a direct negative effect on this road with the addition of this traffic to this road that is already a maintenance challenge. This TIS fails to address this impact.

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
Email from Applicant to Flathead County



Tamara Tanberg

From: Wayne Dubois <wdubois@flathead.mt.gov>
Sent: Friday, October 29, 2021 12:39 PM
To: Tamara Tanberg
Subject: RE: WFHR: request for a subdivision evaluation

Tamara,

The primary issue we are facing is the ability to provide more than basic law enforcement services to our community at large because of growth. Subdivisions such as this, which add a total of 242 total units, significantly increase the demand on our already short staffed force to spend time in that area. Of course, there is not a ton you can do about that other than supporting our Sheriff when he requests additional resources.

We are committed to the safety and security of our community, but to do the best we can and provide more than the minimum level of service, we need more deputies on the road, in addition to our special units and civilian staff.

Respectfully,

Wayne DuBois
Undersheriff/SWAT Commander – Flathead County Sheriff's Office
NTOA Western Region Director
406-885-3510

From: Tamara Tanberg <tamara@apcc-mt.com>
Sent: Friday, October 29, 2021 12:23 PM
To: Wayne Dubois <wdubois@flathead.mt.gov>
Subject: WFHR: request for a subdivision evaluation

Wayne,

Our office is assisting the owner, Montarise, LLC, with a subdivision and Mixed-use P.U.D. proposal on a **155.9-acre** parcel located seven miles south of Whitefish, at the **intersection of KM Ranch Road and US Highway 93** (northeast of the landfill—please see attached vicinity map).

The name of the subdivision is **Montarise**.

There are two primary access routes, one from KM Ranch Road and the other to the north, in line with the Bowdish Road/US Highway 93 intersection. Both access points have existing turn lanes from US Highway 93.

The preliminary plat shows interior short cul-de-sac roads and looped roadways connecting to the two primary access routes (please refer to the plat maps attached).

Please notice on the colored map, the different categories of residential dwelling units, with **92** single family residences total.

Within the 5-acre average sized lots marked "ALT A, B & C", the owner proposes multifamily residential, with density of 52 units, 75 units, and 47 units, respectively (for a total of **174** multi-family units).

Also included in the PUD are a **68-unit** RV Park, a church (with a small private school), and a commercial use (i.e. convenience store/coffee shop, an interior resource for the subdivision residents) are located near the main access roads.

All of the above is contained within **three development phases**.

We are requesting your department's evaluation and comments of the impact of the increased dwelling units at this location, on your resources and the ability to cover any needs arising in the future. As you have provided in the past, a brief email is sufficient. We appreciate your time and your help with this, and please contact me with any questions.

Thank you,

Tamara Tanberg | APEC Engineering Inc.

75 Somers Road
Somers, Montana 59932
Phone: (406) 393-2127

Email: tamara@apcc-mt.com
Please visit: <http://www.apcc-mt.com>

Appendix 2
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