Traffic Memorandum

To: Gorman & Company
Attn: Nathaniel Stark, AIA
Steamboat Springs, CO 80477

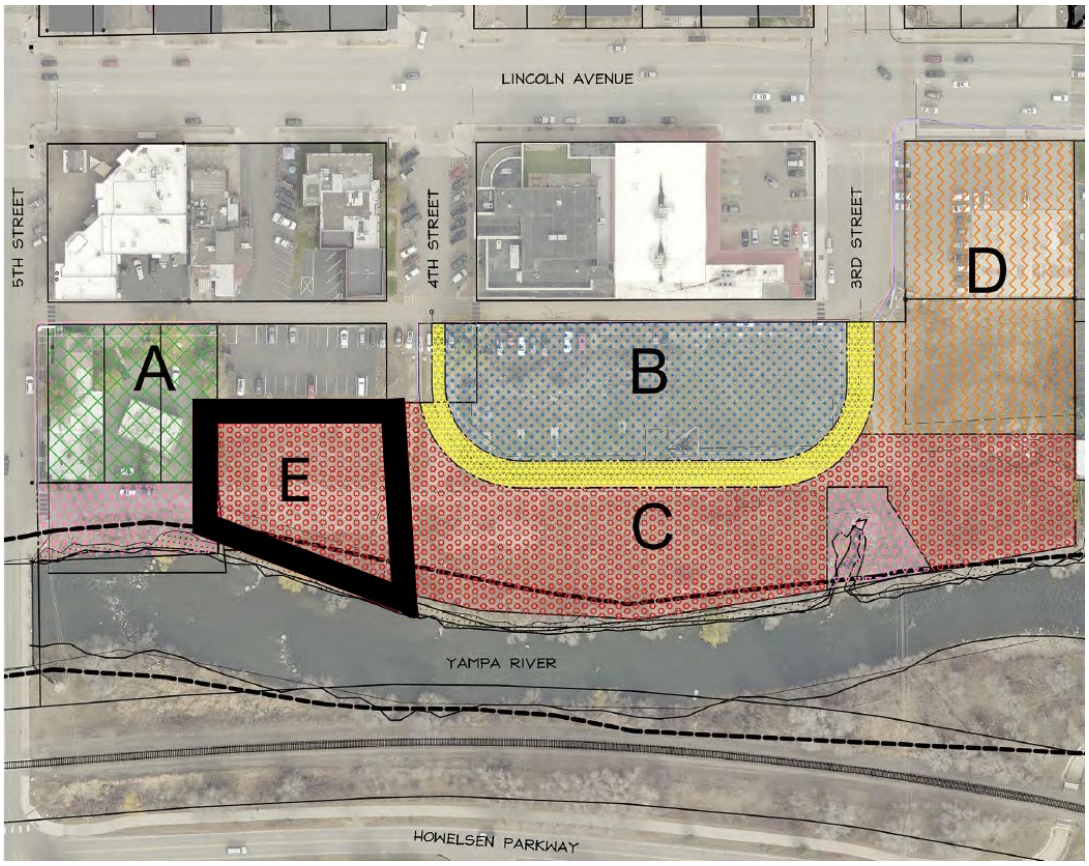
From: Kari J. McDowell Schroeder, PE, PTOE

Date: September 7, 2023

Re: **RiverView – Trip Generation Analysis**

Purpose: RiverView is a new 4.74-acre mixed-use community along the Yampa River. The proposed land uses include hotel, retail, restaurant, office and residential. The applicant is proposing to modify a portion of the previously approved land uses to accommodate current market conditions. The proposed PUD amendment includes modifications to Subarea B and Subarea E. This memorandum will compare the currently approved uses to the proposed uses and discuss the resulting differences in traffic generation.

Figure 1: RiverView Subarea Map



Previous Approvals (*2018 TIS*): The impacts of the traffic generation from the RiverView project were analyzed and reviewed in the *Transportation Impact Study for Riverview*[1] (*2018 TIS*[1]) completed on January 6, 2018. The City of Steamboat Springs (City) and Colorado Department of Transportation reviewed, approved, and permitted the project based upon this analysis[1]. Therefore, the approved *2018 TIS*[1] is used as the master transportation study and basis of comparison for any proposed project modifications.

A subsequent traffic memorandum entitled *RiverView – Trip Generation Analysis*[2] (*Trip Generation Memo*[2]) augmented the study on July 24, 2020. The RiverView project site was originally broken down into four Subareas A-D. The 2020 PUD Amendment added one additional subarea (Subarea E) from Subarea C. This memorandum analyzed the impacts of reducing Subarea C from 18 townhomes to 9 single family homes. The new Subarea E added 15 condos and parking. It determined that the impact resulted in a one percent increase in the site traffic. No revisions to the current CDOT Access Permits were required. The results of this PUD Amendment are included in the new trip generation analysis.

Proposed Land Use Modification: The applicant is proposing the following land use modifications to the previous PUD. Refer to the current Site Plan in **Figure 2**.

- Subarea B will include a single building with 72 residential units, consisting of four levels of residential use and two levels of parking.

- Subarea E will include a single building with 32 residential units, consisting of three levels of residential use and a single level of parking.

Trip Generation: A trip generation analysis was prepared based upon the proposed land use change. The Institute of Transportation Engineers' *Trip Generation Manual*[3] was used to determine the anticipated traffic generated by applying the number and type of residential units to the trip generation rates or equations provided in the *Trip Generation Manual*[3].

The RiverView project includes pedestrian, bicycle and transit connectivity. A ten percent (10%) multimodal reduction was taken for all land uses in both the original trip generation analysis and the revised analysis.

Trip generation calculations (**Table 1**) that were used in the original *2018 TIS*[1] analysis and used for CDOT permitting. The revised trip generation calculations associated with the proposed modifications to Subarea/Building B and Subarea/Building E are shown in **Table 2**.

Previous RiverView traffic generation: Per the original *2018 TIS*[1] analysis, the project was anticipated to generate a total of 1,650 new vehicle trips per day (vpd) on the average weekday. Peak hour traffic on a weekday at project buildout is expected to be 126 vehicles per hour (vph) during the morning peak hour and 158vph during the evening peak hour.

With the 2020 PUD Amendment[2], the project was expected to generate a total of 1,669 new vehicle trips on the average weekday. This includes the morning peak hour traffic which was anticipated to generate 126 vehicle trips and the evening peak hour traffic was anticipated to generate 162 vehicle trips.

Figure 2: RiverView Site B & E

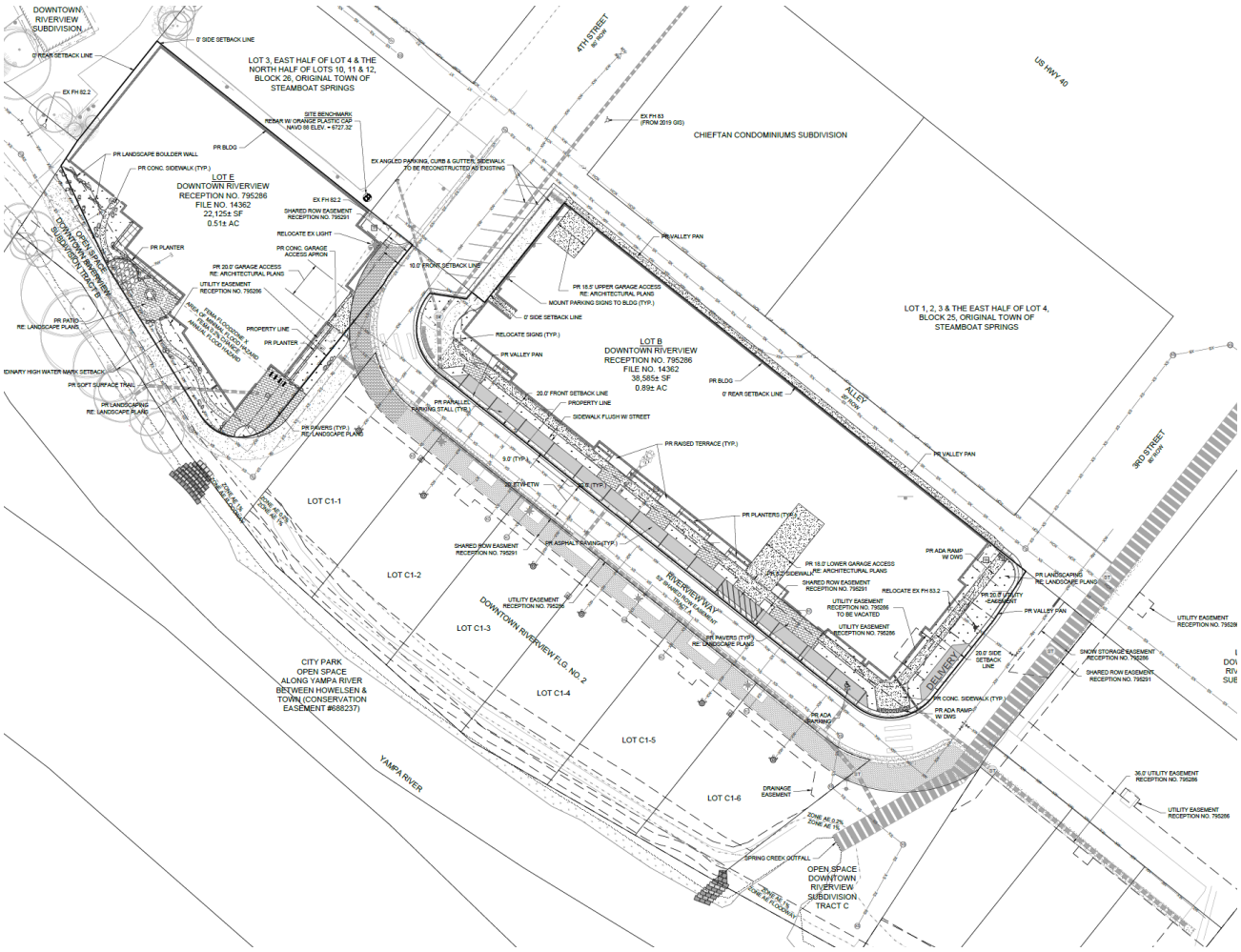


Table 1 - Project Trip Generation (Original)

RiverView

Steamboat Springs, CO

Estimated Project-Generated Traffic[1] (Original)

ITE Code	Units		Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (vpd)	Morning Peak Hour Inbound % Trips	Morning Peak Hour Inbound Trips	Morning Peak Hour Outbound % Trips	Morning Peak Hour Outbound Trips	Evening Peak Hour Inbound % Trips	Evening Peak Hour Inbound Trips	Evening Peak Hour Outbound % Trips	Evening Peak Hour Outbound Trips
Existing Land Use														
#710 General Office Building	4.0	ksf	11.03	1.56	1.49	44	88%	6	12%	1	17%	2	83%	5
Proposed Land Use Expansion														
Subarea A (Phase 2)														
#230 Condos/Townhomes	23	DU	[3] Fitted Curve Equation			180	17%	3	83%	14	67%	13	33%	6
10% Multimodal Trip Reduction						-18		0		-1		-1		-1
Subtotal						162		3		13		12		5
#826 Specialty Retail	2.5	ksf	44.32	3.69	2.71	111	48%	5	52%	5	44%	3	56%	4
10% Multimodal Trip Reduction						-11		-1		-1		0		0
Subtotal						100		4		4		3		4
#931 Quality Restaurant	4.0	ksf	89.95	5.57	9.02	360	82%	19	18%	5	62%	23	38%	14
10% Multimodal Trip Reduction						-36		-2		-1		-2		-1
Subtotal						324		17		4		21		13
Subtotal Subarea A						586		24		21		36		22
Subarea B (Phase 4)														
#220 Apartment	20	DU	[3] Fitted Curve Equation			245	20%	3	80%	11	65%	19	35%	11
10% Multimodal Trip Reduction						-25		0		-1		-2		-1
Subtotal						220		3		10		17		10
#230 Condos/Townhomes	26	DU	[3] Fitted Curve Equation			200	17%	3	83%	15	67%	14	33%	7
10% Multimodal Trip Reduction						-20		0		-2		-1		-1
Subtotal						180		3		13		13		6
Subtotal Subarea B						400		6		23		30		16
Subarea C (Phase 1)														
#230 Condos/Townhomes	18	DU	[3] Fitted Curve Equation			145	17%	3	83%	11	67%	10	33%	5
10% Multimodal Trip Reduction						-15		0		-1		-1		-1
Subtotal						130		3		10		9		4
Subarea D (Phase 3)														
#230 Condos/Townhomes	24	DU	[3] Fitted Curve Equation			186	17%	3	83%	14	67%	13	33%	7
10% Multimodal Trip Reduction						-19		0		-1		-1		-1
Subtotal						167		3		13		12		6
#310 Hotel	56	Rooms	8.17	0.56	0.59	458	61%	20	39%	13	53%	18	47%	16
10% Multimodal Trip Reduction						-46		-2		-1		-2		-2
Subtotal						412		18		12		16		14
Subtotal Subarea D						579		21		25		28		20
Proposed Total Trips						**1,694**		**54**		**79**		**103**		**62**
Proposed New Trips						**1,650**		**48**		**78**		**101**		**57**

[1] Values obtained from *Trip Generation, 9th Edition,* Institute of Transportation Engineers, 2012.

DU = Dwelling Units

ksf = 1,000sf

Table 2 - Project Trip Generation (Proposed Revision)
RiverView
Steamboat Springs, CO
Estimated Project-Generated Traffic[1] (Revised)

ITE Code	Units		Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (vpd)	Morning Peak Hour Inbound % Trips	Morning Peak Hour Inbound Trips	Morning Peak Hour Outbound % Trips	Morning Peak Hour Outbound Trips	Evening Peak Hour Inbound % Trips	Evening Peak Hour Inbound Trips	Evening Peak Hour Outbound % Trips	Evening Peak Hour Outbound Trips
Existing Land Use														
#710 General Office Building	4.0	ksf	11.03	1.56	1.49	44	88%	6	12%	1	17%	2	83%	5
Proposed Land Use Expansion														
Subarea A														
#230 Condos/Townhomes	23	DU	[3] Fitted Curve Equation			180	17%	3	83%	14	67%	13	33%	6
10% Multimodal Trip Reduction						-18		0		-1		-1		-1
Subtotal						162		3		13		12		5
#826 Specialty Retail	2.5	ksf	44.32	3.69	2.71	111	48%	5	52%	5	44%	3	56%	4
10% Multimodal Trip Reduction						-11		-1		-1		0		0
Subtotal						100		4		4		3		4
#931 Quality Restaurant	4.0	ksf	89.95	5.57	9.02	360	82%	19	18%	5	62%	23	38%	14
10% Multimodal Trip Reduction						-36		-2		-1		-2		-1
Subtotal						324		17		4		21		13
Subtotal Subarea A						586		24		21		36		22
Subarea B														
#221 Multifamily Housing (Mid-Rise)[2]	72	DU	[3] Fitted Curve Equation			297	26%	8	74%	21	60%	23	40%	15
10% Multimodal Trip Reduction						-30		-1		-2		-2		-2
Subtotal						267		7		19		21		13
Subtotal Subarea B						267		7		19		21		13
Subarea C														
#210 Single Family Homes	9	DU	[3] Average Rate			85	26%	2	74%	5	64%	6	36%	3
10% Multimodal Trip Reduction						-8		0		-1		-1		0
Subtotal						77		2		4		5		3
Subarea D														
#230 Condos/Townhomes	24	DU	[3] Fitted Curve Equation			186	17%	3	83%	14	67%	13	33%	7
10% Multimodal Trip Reduction						-19		0		-1		-1		-1
Subtotal						167		3		13		12		6
#310 Hotel	56	Rooms	8.17	0.56	0.59	458	61%	20	39%	13	53%	18	47%	16
10% Multimodal Trip Reduction						-46		-2		-1		-2		-2
Subtotal						412		18		12		16		14
Subtotal Subarea D						579		21		25		28		20
Subarea E														
#220 Multifamily Housing (Low-Rise)[2]	32	DU	[3] Fitted Curve Equation			280	24%	9	76%	30	62%	30	38%	18
10% Multimodal Trip Reduction						-28		-1		-3		-3		-2
Subtotal						252		8		27		27		16
Proposed Total Trips						**1,760**		**62**		**96**		**117**		**74**
Proposed New Trips						**1,716**		**56**		**95**		**115**		**69**

[1] Values obtained from *Trip Generation, 9th Edition,* Institute of Transportation Engineers, 2012.

[2] Values obtained from *Trip Generation, 11th Edition,* Institute of Transportation Engineers, 2021.

DU = Dwelling Units

ksf = 1,000sf

Proposed RiverView Project-Generated Traffic: The Institute of Transportation Engineers' (ITE) *Trip Generation Manual*[3] was used to determine the anticipated trip generation for the proposed land use changes. The previous *2018 TIS*[1] analysis used the *Trip Generation Manual*[4], 9th Edition, as it was current at the time of analysis. The previously approved trip generation calculations were not changed.

ITE has since continued to collect national data and implemented a multifamily differentiation based upon the number of floors of residential units. Through two major revision updates, the 9th Edition's (published in 2012) multifamily (apartment and condo) data was found to be conservative compared to ITE's new data. The current 11th Edition (published in 2021) of the *Trip Generation Manual*[3] data was applied only to the proposed land use changes in Subarea/Building B and Subarea/Building E.

ITE land use #220 (Multifamily Housing Low-Rise) was used in the trip generation analysis for three levels of residential and single level of parking in Subarea/Building E. ITE land use #221 (Multifamily Housing Mid-Rise) was used in the trip generation analysis for the four levels of residential and two levels of parking in Subarea/Building B.

- Land Use #220 (Multifamily Housing Low-Rise): ITE land use #220 was used in the trip generation analysis for Subarea/Building E. Per the ITE *Trip Generation Handbook's*[5] Figure 4.2 Process for Selecting Average Rate or Equation. The appropriate methodology is to use the fitted curve line.

- Land Use #221 (Multifamily Housing Mid-Rise): ITE land use #221 was used in the trip generation analysis for Subarea/Building B. Per the ITE *Trip Generation Handbook's*[5] Figure 4.2 Process for Selecting Average Rate or Equation. The appropriate methodology is to use the fitted curve line.

Based upon the applicant's proposed land uses, the project was expected to generate a total of 1,716 new vehicle trips on the average weekday. This includes the morning peak hour traffic which was anticipated to generate 151 vehicle trips and the evening peak hour traffic was anticipated to generate 184 vehicle trips.

Comparison to *2018 TIS*[1]: Compared to the previous *2018 TIS*[1], the new land use is expected to increase traffic by 66 vehicles per day, which includes 25 additional trips in the morning peak hour and 26 additional trips during the evening peak hour. This is summarized in **Table 3**.

Table 3: Trip Generation Comparison of Proposed New Trips

	Average Weekday	Morning Peak Hour		Evening Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Description	**New Trips** (vpd)	**New Trips** (vph)	**New Trips** (vph)	**New Trips** (vph)	**New Trips** (vph)
***2018 TIS*[1] Trip Gen**	1,650	48	78	101	57
Revised Trip Gen	1,716	56	95	115	69
Difference	66	8	17	14	12
		25		26	

This additional traffic volume is a minimal 13% or less increase in traffic over the volumes in the *2018 TIS*[1]. This comparison was calculated by comparing the new forecasted traffic volumes with the previously approved and permitted Year 2040 traffic volumes from the *2018 TIS*[1].

An excerpt of the anticipated Year 2040 total traffic volumes for both the *2018 TIS*[1] and new calculations for the 2023 Proposed PUD Amendment for Subarea/Building B and Subarea/Building E is attached. These figures are included for comparison purposes only. **Table 4** summarizes the total traffic volume comparison.

Table 4: Side Street Traffic Volume Comparison

Year 2040 Total Traffic Side Street Traffic		
Description	**AM Volume** (vph)	**PM Volume** (vph)
5th Street – South Leg		
***2018 TIS*[1] Trip Gen**	371	882
Revised Trip Gen	377	889
Difference	1.6%	0.8%
4th Street – South Leg		
***2018 TIS*[1] Trip Gen**	39	46
Revised Trip Gen	44	52
Difference	12.8%	13.0%
3rd Street – South Leg		
***2018 TIS*[1] Trip Gen**	126	379
Revised Trip Gen	136	391
Difference	7.9%	3.2%

Infrastructure Recommendations: The infrastructure recommendations from the *2018 TIS*[1] do not change with the revised trip generation.

State Highway Access Permit: A new access permit is required when there is a land use change and/or the anticipated volume to increase by more than twenty percent (20%) per the State Highway Access Code[6]. The proposed land use modification swaps residential uses and does not increase traffic by more than thirteen percent. Therefore, new State Highway Access Permits for the project are not required.

Conclusion: The traffic impacts associated with RiverView's proposed residential land use changes are minimal. There are no changes to the original infrastructure recommendations in the *2018 TIS*[1] because of this modification.

As future development plans are submitted to the City of Steamboat Springs, a traffic analysis will be required to determine if the changes are in compliance with the RiverView's Master Transportation Plan – the *2018 TIS*[1].

Please contact me if you would like any additional information or have any questions regarding this analysis.

Sincerely,
McDowell Engineering, LLC

Kari J. McDowell, PE, PTOE
Traffic Engineer

Attachments:

1. Original *2018 TIS*[1] Figure 22: Year 2040 Total Traffic
2. Proposed Figure 22 Revised: Year 2040 Total Traffic (2023 Proposed PUD Amendment for Subarea B & E)

References:

1. *Transportation Impact Study for Riverview.* McDowell Engineering, January 6, 2018.
2. *RiverView – Trip Generation Analysis* Memorandum. McDowell Engineering, July 24, 2020
3. *Trip Generation Manual, 11th Edition*. Institute of Transportation Engineers, 2021.
4. *Trip Generation Manual, 9th Edition*. Institute of Transportation Engineers, 2012.
5. *Trip Generation Handbook, 3rd Edition.* Institute of Transportation Engineers, 2017.
6. *State Highway Access Code, Volume 2, Colorado Code of Regulations 601-1.* State of Colorado, March 2002.

Figure 22: Year 2040 Total Traffic

LEGEND :

AM/PM Volumes = XX/XX vph

Turning Movements =

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TRANSPORTATION ENGINEERING CONSULTANTS

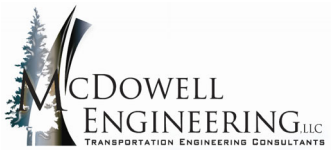
Project Number: M1230
Prepared by: KJS

Figure 22 Revised: Year 2040 Total Traffic (2023 Proposed PUD Amendment for Subarea B & E)

LEGEND :

AM/PM Volumes = XX/XX vph

Turning Movements =



Project Number: M1625

Prepared by: KJS