

MEMORANDUM

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Subject: Quinn Capital Partners Development Trip Generation

UT20-2207

INTRODUCTION

The purpose of this memorandum is to summarize the evaluation of trip generation for the updated land uses for the Quinn Capital Partners development in Park City, Utah. Fehr & Peers evaluated the trip generation of the proposed land uses in the previous master plan and of the proposed land uses in the updated plan in comparison. This memorandum summarizes the evaluation of trip generation for the proposed land use changes.

LAND USE

The previous master plan concept (site plan attached in Appendix) proposed the following land uses:

- Hotel (100 rooms)
 - Movie Theater (15,000 square feet)
 - Entertainment Venue (14,500 square feet)
 - Mixed Use (33,350 square feet)
 - Mixed Use (25,625 square feet)
 - Sound Effects Stage (15,700 square feet)
 - Office (37,200 square feet)
 - Workshop Office (10,000 square feet)
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Fehr & Peers used trip generation rates published in the ITE Trip Generation, 10th Edition, 2017, to estimate trip generation rates for this study. To keep consistent with land uses presented in the ITE manual, the following ITE land uses were used to evaluate the previous master plan concept:

- Hotel (ITE Land Use 310) – 100 rooms
- Movie Theater (ITE Land Use 444) – 15,000 square feet
- High-Turnover Restaurant (ITE Land Use 932) – 14,500 square feet
- Shopping Center (ITE Land Use 820) – 33,350 square feet
- Shopping Center (ITE Land Use 820) – 25,625 square feet
- Office (ITE Land Use 710) – 15,700 square feet
- Office (ITE Land Use 710) – 37,200 square feet
- Office (ITE Land Use 710) – 10,000 square feet

The updated plan for the project site consists of the following land uses, along with the corresponding ITE land uses:

- Multifamily Housing (ITE Land Use 220) – 325 dwelling units
- Office (ITE Land Use 710) – 30,000 square feet
- Shopping Center (ITE Land Use 820) – 33,000 square feet

TRIP GENERATION

To capture the mixed-use component of the land uses (for both the previous master plan concept and the updated plan), internal capture was incorporated into the trip generation evaluation for this study using Fehr & Peers' mixed-use development (MXD+) methodology. The MXD+ trip generation methodology accurately captures the trip-reducing benefits of mixed-use development projects and is used throughout the United States to help developers, agencies, and the public to quantify these trip reductions. The MXD+ trip generation model is promoted by the United States Environmental Protection Agency (EPA) and has been adopted by the San Diego Association of Governments (SANDAG), American Society of Civil Engineers (ASCE), American Planning Association (APA), and many others as a recommended resource for trip generation of smart-growth developments. The MXD+ model uses ITE trip generation rates and applies additional variables to those trip generation rates. Some of the additional variables include:

- Employment
- (Population + Employment) per square mile
- Land area
- Total jobs / population diversity



- Retail jobs / population diversity
- Number of intersections per square mile
- Employment within a mile
- Employment within a 30-minute trip by transit
- Average household size
- Vehicles owned per capita

The calculated trip generation for the previous master plan concept is shown below in **Table 1**.

Land Use ¹	Number of Units	Unit Type	Daily Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Daily Trips
Hotel (310)	100	Rooms	702	3%	50%	50%	339	339	678
Movie Theater (444)	15,000	Square Feet	1,171	3%	50%	50%	566	566	1,132
High-Turnover Restaurant (932)	14,500	Square Feet	1,627	3%	50%	50%	786	786	1,572
Shopping Center (820)	33,350	Square Feet	2,849	3%	50%	50%	1,376	1,376	2,752
Shopping Center (820)	25,625	Square Feet	2,382	3%	50%	50%	1,151	1,151	2,302
Office (710)	15,700	Square Feet	176	3%	50%	50%	85	85	170
Office (710)	37,200	Square Feet	407	3%	50%	50%	197	197	394
Office (710)	10,000	Square Feet	114	3%	50%	50%	55	55	110
Net Weekday Trips							4,555	4,555	9,110
Land Use ¹	Number of Units	Unit Type	AM Peak Hour Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Hotel (310)	100	Rooms	45	10%	60%	40%	24	16	40
Movie Theater (444)	15,000	Square Feet	3	10%	95%	5%	3	0	3
High-Turnover Restaurant (932)	14,500	Square Feet	144	10%	55%	45%	71	58	129
Shopping Center (820)	33,350	Square Feet	168	10%	62%	38%	93	57	150
Shopping Center (820)	25,625	Square Feet	165	10%	62%	38%	92	56	148
Office (710)	15,700	Square Feet	41	10%	86%	14%	32	5	37
Office (710)	37,200	Square Feet	61	10%	86%	14%	47	8	55
Office (710)	10,000	Square Feet	36	10%	86%	14%	28	5	33
Net Weekday AM Peak Hour Trips							390	205	595
Land Use ¹	Number of Units	Unit Type	PM Peak Hour Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Hotel (310)	100	Rooms	49	13%	54%	46%	23	20	43
Movie Theater (444)	15,000	Square Feet	93	13%	94%	6%	76	5	81
High-Turnover Restaurant (932)	14,500	Square Feet	142	13%	62%	38%	77	47	124
Shopping Center (820)	33,350	Square Feet	241	13%	48%	52%	101	109	210
Shopping Center (820)	25,625	Square Feet	198	13%	48%	52%	83	90	173
Office (710)	15,700	Square Feet	20	13%	16%	84%	3	15	18
Office (710)	37,200	Square Feet	45	13%	16%	84%	6	33	39
Office (710)	10,000	Square Feet	13	13%	16%	84%	2	10	12
Net Weekday PM Peak Hour Trips							371	329	700
Land Use ¹	Number of Units	Unit Type	Saturday Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Saturday Trips
Hotel (310)	100	Rooms	1,227	4%	50%	50%	591	591	1,182
Movie Theater (444)	15,000	Square Feet	1,490	4%	50%	50%	717	717	1,434
High-Turnover Restaurant (932)	14,500	Square Feet	1,775	4%	50%	50%	855	855	1,710
Shopping Center (820)	33,350	Square Feet	1,538	4%	50%	50%	741	741	1,482
Shopping Center (820)	25,625	Square Feet	1,182	4%	50%	50%	569	569	1,138
Office (710)	15,700	Square Feet	35	4%	50%	50%	17	17	34
Office (710)	37,200	Square Feet	82	4%	50%	50%	39	39	78
Office (710)	10,000	Square Feet	22	4%	50%	50%	11	11	22
Net Saturday Trips							3,540	3,540	7,080

1. (XXX) Indicates ITE Land Use Code. Land Use Code from the Institute of Transportation Engineers - 10th Edition Trip Generation Manual (ITE Manual)

2. Traffic Generated by the development according to trip generation rates provided in the ITE Manual

3. Percentage of trips Entering and Exiting the development according to the ITE Manual.

4. Internal capture derived from the MXD+ methodology.

SOURCE: Fehr & Peers, 2020



The calculated trip generation for the updated plan is shown below in **Table 2**.

Land Use ¹	Number of Units	Unit Type	Daily Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Daily Trips
Multifamily Housing (220)	325	Dwelling Units	2,416	6%	50%	50%	1,140	1,140	2,280
Office (710)	30,000	Square Feet	330	6%	50%	50%	156	156	312
Shopping Center (820)	33,000	Square Feet	2,829	6%	50%	50%	1,335	1,335	2,670
Net Weekday Trips							2,631	2,631	5,262
Land Use ¹	Number of Units	Unit Type	AM Peak Hour Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Multifamily Housing (220)	325	Dwelling Units	146	9%	23%	77%	30	102	132
Office (710)	30,000	Square Feet	55	9%	86%	14%	43	7	50
Shopping Center (820)	33,000	Square Feet	168	9%	62%	38%	94	58	152
Net Weekday AM Peak Hour Trips							167	167	334
Land Use ¹	Number of Units	Unit Type	PM Peak Hour Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Multifamily Housing (220)	325	Dwelling Units	169	17%	63%	37%	88	52	140
Office (710)	30,000	Square Feet	36	17%	16%	84%	5	25	30
Shopping Center (820)	33,000	Square Feet	239	17%	48%	52%	95	103	198
Net Weekday PM Peak Hour Trips							188	180	368
Land Use ¹	Number of Units	Unit Type	Saturday Trip Generation ²	% Internal Capture ⁴	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Saturday Trips
Multifamily Housing (220)	325	Dwelling Units	2,646	6%	50%	50%	1,246	1,246	2,492
Office (710)	30,000	Square Feet	66	6%	50%	50%	31	31	62
Shopping Center (820)	33,000	Square Feet	1,522	6%	50%	50%	717	717	1,434
Net Saturday Trips							1,994	1,994	3,988

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2. Traffic Generated by the development according to trip generation rates provided in the ITE Manual

3. Percentage of trips Entering and Exiting the development according to the ITE Manual.

4. Internal capture derived from the MXD+ methodology.

SOURCE: Fehr & Peers, 2020

As shown in **Table 1**, vehicle trip reductions of approximately 3%, 10%, 13%, and 4% for daily, AM peak hour, PM peak hour, and Saturday, respectively, were applied due to internal capture for the previous master plan concept. For the updated plan, vehicle trip reductions of approximately 6%, 9%, 17%, and 6% for daily, AM peak hour, PM peak hour, and Saturday, respectively, were applied due to internal capture as shown in **Table 2**.

The comparison of total trips generated for the development between what was presented in the previous master plan and the calculated updated results for this study are shown below in **Table 3**.

Table 1 Trip Generation Comparison

Calculated Trip Generation (Total Trips)				
	Daily	AM Peak	PM Peak	Saturday
Previous Master Plan	9,110	595	700	7,080
Updated Plan	5,262	334	368	3,988

SOURCE: Fehr & Peers, 2020



As shown in **Table 3**, the updated trip generation shows lower total trips generated for daily (42% trip decrease), AM peak hour (44% trip decrease), PM peak hour (47% trip decrease), and Saturday (44% trip decrease). There is also higher daily, PM peak hour, and Saturday trip reductions for the updated plan compared to the previous master plan due to the introduction of residential land use in the mix.

CONCLUSION

Fehr & Peers evaluated the total trips generated by the proposed land uses in the previous master plan, and also evaluated the trip generation of the development with redefined land uses. As shown previously above, there is a decrease in trip generation due to the redefined land uses at the proposed development for daily, AM peak hour, PM peak hour, and Saturday trips.

APPENDIX

Previous Master Plan Concept





Building Legend

- 1A Hotel Lodging
- 1B Recording Studio
- 1C Stage Venue
- 1D Residence - omitted
- 1E Grand Ball Room
- 1F Atrium
- 2 Screening Rooms/Theater
- 3 Entertainment Venue
- 4 Mixed Use
- 5 Mixed Use
- 6 Sound Effects Stage
- 6A Office, Effects Stage
- 7 Sound Stages
- 7A Workshop
- 7B Production Support/Offices
- 8 Workshop Office

