Appendix P

Memoranda Providing Updates for Revised PRSP Land Use Plan

TECHNICAL MEMORANDUM

DATE: October 29, 2018

TO: County of Placer

FROM: Curtis Lam, PE
HydroScience Engineers

SUBJECT: Addendum #1 to the Potable Water, Recycled Water, and Water Conservation Master Plans for the Placer Ranch Specific Plan

Introduction

This Technical Memorandum functions as an Addendum to the Potable Water, Recycled Water, and Water Conservation Master Plans (Master Plans), dated July 2017, prepared for the Placer Ranch Specific Plan. Its purpose is to evaluate the differences between the Original Project and the Revised Project (based on an updated Land Use Plan, dated October 17, 2018). Together, this Addendum and its associated Master Plan provide the appropriate technical data and analysis to guide buildout of Placer Ranch's backbone infrastructure as depicted on the Revised Project's Land Use Plan.

Background

The Master Plan evaluated the infrastructure requirements for the Original Project, however in October 2018, several refinements were made to the land use plan, which resulted in the Revised Project.

These refinements generally included the following revisions to the land use plan:

- In the area west of Fiddyment Road and north of Sunset Boulevard, several land use parcels were reconfigured to shift residential and school uses outside a 2,000' buffer from the Western Regional Sanitary Landfill's properties. This resulted in the enlargement of Park parcel PR-102, a southerly shift of school parcel PR-92, the conversion of GC and HDR (parcels PR-61 and PR-42) to a Campus Park use.
- Along Maple Park Drive, MDR and HDR uses (parcels PR-32 and PR-42) were converted to LDR and MDR.
- Along Campus Park Boulevard, the PF site for a water tank (parcel PR-100) was enlarged.
- Paseo's have been adjusted in response to land plan refinements in order to maintain the east/west connectivity.
- The alignments of C Street and Maple Park Drive were shifted slightly in response to the land use adjustments described above, while maintaining the prior street pattern and connections.
- Along Fiddyment Road, Campus Park parcel PR-70 was converted to MDR.
- Within the Town Center district south of Sunset Boulevard, HDR parcels PR-50 & 51 were converted to MDR, and MDR parcels PR-35-38 were converted to LDR.
- The allocation of "floating" reserve units in the Town Center district was increased from 150 units to 300 units. These units continue to be factored as HDR units.
- South of Sunset Boulevard, the alignment of Foothills Boulevard has been shifted in an eastward direction to align with the existing Duluth Avenue corridor south of the Plan Area. As a result of this shift, LDR parcel PR-24, CP parcel PR-88, and MDR parcel PR-38 have been slightly enlarged.
- In the area south of Sunset Boulevard and east of Foothills Boulevard, MDR parcel PR-38 was enlarged to provide vehicular access to Sunset Boulevard, per the Foothill Boulevard realignment noted above. This adjustment also resulted in a portion of OS parcel PR-134 being converted to MDR.
- In the area north of Sunset Boulevard and east of Foothills Boulevard, Campus Park parcels PR-86-89 were converted to a low-density, active-adult, residential use (LDR-A), and Campus Park parcels PR-84 and 85 were reduced in size.

- A private park site was added within the active adult community north of Sunset Boulevard and east of Foothills Boulevard.
- A 100'-wide paseo has been added along the east edge of the plan area as a buffer between the active adult residential parcels and offsite industrial uses located in the Sunset Area Plan.
- East of Foothills Boulevard, Campus Park Boulevard was slightly realigned in response to the land use adjustments described above, while maintaining the east/west connectivity to the Sunset Area Plan.
- Park sites were added and/or enlarged (as described above) to increase the plan-wide park acreage in a manner that meet the General Plan's active parkland requirement of 5 ac./1,000 population.

The table below summarizes the differences between the Original Project and the Revised Project.

Table 1: Comparison of Original and Revised Land Uses and Development Assumptions

		Acreage			Dwelling Units/ Square Footage		
Land Use Designation		**Revised Project**	**Original Project**	**Difference**	**Revised Project**	**Original Project**	**Difference**
Residential Uses							
LDR	Low Density Residential	446.0 ac	407.9 ac	38.2 ac	2,210 du	2,039 du	171 du
LDR-A	Low Density Res. - Age-Restricted	183.1 ac	131.0 ac	52.1 ac	1,050 du	720 du	330 du
MDR	Medium Density Residential	112.3 ac	132.3 ac	-20.0 ac	872 du	1,057 du	-185 du
HDR	High Density Residential*	60.0 ac	93.0 ac	-33.0 ac	1,504 du	2,011 du	-507 du
Subtotal		801.4 ac	764.2 ac	37.3 ac	5,636 du	5,827 du	-191 du
Commercial and Employment Uses							
GC	General Commercial	22.7 ac	25.6 ac	-2.9 ac	296,513 sf	334,933 sf	-38,420 sf
CMU	Commercial Mixed Use	48.8 ac	48.8 ac	0.0 ac	637,718 sf	637,718 sf	0 sf
CP	Campus Park	335.0 ac	395.5 ac	-60.6 ac	4,506,282 sf	5,384,152 sf	-877,870 sf
UZ	University	301.3 ac	301.3 ac	0.0 ac	3,000,000 sf	3,000,000 sf	0 sf
Subtotal		*707.7 ac*	*771.2 ac*	*-63.5 ac*	*8,440,513 sf*	*9,356,803 sf*	-916,290 sf
Open Space and Public Uses							
PF	Public Facilities (Schools)	32.7 ac	32.0 ac	0.7 ac			
PF	Public Facilities (County Facilities)	10.3 ac	5.5 ac	4.8 ac			
PR	Parks and Recreation	69.8 ac	50.7 ac	19.1 ac			
OS	Open Space (Preserves/Paseos)	264.8 ac	272.8 ac	-8.0 ac			
Subtotal		*377.5 ac*	*360.9 ac*	*16.6 ac*			
Other							
ROW	Placer Parkway	158.5 ac	158.5 ac	0.0 ac			
ROW	Major Roadways & Landscape	168.1 ac	158.5 ac	9.6 ac			
Subtotal		*326.6 ac*	*317.0 ac*	*9.6 ac*			
Total		**2,213.3 ac**	**2,213.3 ac**	**0.0 ac**	**5,636 du** **8,440,513 sf**	**5,827 du** **9,356,803 sf**	**-191 du** **-916,290 sf**

* includes 300 reserve units within the Town Center district

Analysis

An evaluation of the differences between the Original Project and the Revised Project, as described in the Background section above, was conducted to determine if changes in overall project demands occurred. If warranted, additional adjustments to the Master Plan will be made when the project's first Small Lot Tentative Subdivision Map is processed by Placer County. The Original Project potable water and recycled water demands are shown in Table 2, both with and without water conservation. The potable water and recycled water demands for the Revised Project is presented in Table 3, both with and without water conservation. The difference between the values in Tables 2 and 3 is presented in Table 4.

Table 2: Potable and Recycled Water Demands – Original Project

Land Use Designation	Abbrev.	Total Area (acres)	Dwelling Units	Water Use Factor (gpd/DU-acre)	Total Demand (AFY)	Potable Demand (AFY)[1]	Potable w/ cons. (AFY)[2]	RW Demand (AFY)[3,4]	RW w/ cons. (AFY)[3,4]
Residential									
Low Density Residential	LDR	407.9	2,039	429	980	980	755	0	0
Low Density Residential - Age-Restricted	LDR-A	131.0	720	429	346	346	267	0	0
Medium Density Residential	MDR	132.3	1,057	312	369	369	285	0	0
High Density Residential	HDR	93.0	2,011	143	322	262	245	60	33
Non-Residential									
General Commercial	GC	25.6	0	1,116	32	20	20	12	6
Commercial Mixed Use	CMU	48.8	0	1,116	61	37	37	24	11
Campus Park	CP	395.5	0	1,482	657	464	464	192	87
University (CSU Campus)	UZ	301.3	0	Varies	1,398	1,154	1,154	244	110
Public Facilities (Schools)	PF	32.0	0	1,785	64	48	48	16	7
Public Facilities (County Facilities)	PF	5.5	0	1,785	11	8	8	3	1
Parks and Recreation	PR	72.6	0	1,071	87	9	9	188	85
Open Space Preserves	OS	250.9	0	0	0	0	0	0	0
Placer Parkway	ROW	158.5	0	0	0	0	0	0	0
Major Roadways & Landscape Corridors	ROW	158.5	0	1,116	29	0	0	77	35
Totals		**2,213.3**	**5,827**		**4,355**	**3,698**	**3,292**	**816**	**373**

Notes:
1. Demand removes recycled water.
2. Demands include total water demand minus water conservation measures for all water sources, as outlined in the Placer Ranch WCP (HydroScience, 2016).
3. A detailed summary of Recycled Water demand and Recycled Water conservation efforts are elaborated upon in the Placer Ranch Recycled Water Master Plan and Placer Ranch Water Conservation Plan. (HydroScience, 2016).
4. Recycled water demands are calculated as outlined in the DRAFT Placer Ranch Recycled Water Master Plan and differ from the methods employed in the calculation of potable water demands.
5. HDR land uses include 150 units that are a density bonus but not physically assigned to a specific parcel. These units were distributed amongst the Village Center parcels for modeling purposes.
6. Parks and Recreation includes the total acreage for this land use, not the credited acreage

Table 3: Potable and Recycled Water Demands – Revised Project

Land Use Designation	Abbrev.	Total Area (acres)	Dwelling Units	Water Use Factor (gpd/DU-acre)	Total Demand (AFY)	Potable Demand (AFY)[1]	Potable w/ cons. (AFY)[2]	RW Demand (AFY)[3,4]	RW w/ cons. (AFY)[3,4]
Residential									
Low Density Residential	LDR	442.1	2,210	429	1,062	1,062	940	0	0
Low Density Residential - Age-Restricted	LDR-A	187.0	1,050	429	505	505	267	0	0
Medium Density Residential	MDR	112.2	872	312	305	305	235	0	0
High Density Residential	HDR	60.2	1,504	143	241	202	189	39	21
Non-Residential									
General Commercial	GC	22.7	0	1,116	28	17	17	11	5
Commercial Mixed Use	CMU	48.8	0	1,116	61	37	37	24	11
Campus Park	CP	331.0	0	1,482	556	393	393	163	73
University (CSU Campus)	UZ	301.3	0	Varies	1,398	1,154	1,154	244	110
Public Facilities (Schools)	PF	32.7	0	1,785	65	49	49	16	7
Public Facilities (County Facilities)	PF	10.3	0	1,785	21	16	16	5	2
Paseo/Greenbelt	PASEO/GB	25.9	0	1,785	31	3	3	67	30
Parks and Recreation	PR	69.8	0	1,071	84	8	8	181	81
Open Space Preserves	OS	250.7	0	0	0	0	0	0	0
Placer Parkway	ROW	158.5	0	0	0	0	0	0	0
Major Roadways & Landscape Corridors	ROW	160.1	0	1,071	30	0	0	82	37
Totals		**2213.3**	**5636**		**4,386**	**3,752**	**3,309**	**831**	**378**

Notes:
1. Demand removes recycled water.
2. Demands include total water demand minus water conservation measures for all water sources, as outlined in the Placer Ranch WCP (HydroScience, 2016).
3. A detailed summary of Recycled Water demand and Recycled Water conservation efforts are elaborated upon in the Placer Ranch Recycled Water Master Plan and Placer Ranch Water Conservation Plan. (HydroScience, 2016).
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5. HDR land uses include 150 units that are a density bonus but not physically assigned to a specific parcel. These units were distributed amongst the Village Center parcels for modeling purposes.
6. Parks and Recreation includes the total acreage for this land use, not the credited acreage

Table 4: Potable and Recycled Water Demands – Comparison of Revised and Original Project

Land Use Designation	Abbrev.	Total Area (acres)	Dwelling Units	Water Use Factor (gpd/DU-acre)	Total Demand (AFY)	Potable Demand (AFY)[1]	Potable w/ cons. (AFY)[2]	RW Demand (AFY)[3,4]	RW w/ cons. (AFY)[3,4]
Low Density Residential	LDR	34.2	171	0	82	82	185	0	0
Low Density Residential - Age-Restricted	LDR-A	56	330	0	159	159	0	0	0
Medium Density Residential	MDR	-20.1	-185	0	-64	-64	-50	0	0
High Density Residential	HDR	-32.8	-507	0	-81	-60	-56	-21	-12
Non-Residential					0	0	0	0	0
General Commercial	GC	-2.9	0	0	-4	-3	-3	-1	-1
Commercial Mixed Use	CMU	0	0	0	0	0	0	0	0
Campus Park	CP	-64.5	0	0	-101	-71	-71	-29	-14
University (CSU Campus)	UZ	0	0	Varies	0	0	0	0	0
Public Facilities (Schools)	PF	0.7	0	0	1	1	1	0	0
Public Facilities (County Facilities)	PF	4.8	0	0	10	8	8	2	1
Paseo/Greenbelt	PASEO/GB	25.9	0	1785	31	3	3	67	30
Parks and Recreation	PR	-2.8	0	0	-3	-1	-1	-7	-4
Open Space Preserves	OS	-0.2	0	0	0	0	0	0	0
Placer Parkway	ROW	0	0	0	0	0	0	0	0
Major Roadways & Landscape Corridors	ROW	1.6	0	-45	1	0	0	5	2
Totals			**-191**		**31**	**54**	**17**	**15**	**5**

Notes:
1. Demand removes recycled water.
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5. HDR land uses include 150 units that are a density bonus but not physically assigned to a specific parcel. These units were distributed amongst the Village Center parcels for modeling purposes.
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Conclusions

Based on the analysis above, it was determined that, after water conservation, potable demands increased by approximately 0.52% when comparing the Revised Project to the Original Project. Recycled water demands increased by 1.3% after water conservation when comparing the Revised Project to the Original Project. The impact of the change in land use within Placer Ranch is negligible. There are no expected impacts for the ability to supply either potable water or recycled water to the project. The total demand is also less than the demand allocated in the updated SB610 Water Supply Assessment issued by the Placer County Water Agency on August 2, 2017.

In summary, the analysis demonstrates that the changes in potable water and recycled water demand between the Original Project and the Revised Project are not significant.

TECHNICAL MEMORANDUM

DATE: November 5, 2018

TO: County of Placer

FROM: Mark Sauer
MacKay & Somps Civil Engineers, Inc.

SUBJECT: Addendum #1 to the Storm Drainage Master Plan for the Placer Ranch Specific Plan

Introduction

This Technical Memorandum functions as an Addendum to the Storm Drainage Master Plan, dated July 18, 2017, prepared for the Placer Ranch Specific Plan. Its purpose is to evaluate the differences between the Original Project and the Revised Project (based on an updated Land Use Plan, dated October 17, 2018). Together, this Addendum and its associated Master Plan provide the appropriate technical data and analysis to guide buildout of Placer Ranch's backbone infrastructure as depicted on the Revised Project's Land Use Plan.

Background

The Master Plan evaluated the infrastructure requirements for the Original Project, however in October 2018, several refinements were made to the land use plan, which resulted in the Revised Project.

These refinements generally included the following revisions to the land use plan:

- In the area west of Fiddyment Road and north of Sunset Boulevard, several land use parcels were reconfigured to shift residential and school uses outside a 2,000' buffer from the Western Regional Sanitary Landfill's properties. This resulted in the enlargement of Park parcel PR-102, a southerly shift of school parcel PR-92, the conversion of GC and HDR (parcels PR-61 and PR-42) to a Campus Park use.
- Along Maple Park Drive, MDR and HDR uses (parcels PR-32 and PR-42) were converted to LDR and MDR.
- Along Campus Park Boulevard, the PF site for a water tank (parcel PR-100) was enlarged.
- Paseo's have been adjusted in response to land plan refinements in order to maintain the east/west connectivity.
- The alignments of C Street and Maple Park Drive were shifted slightly in response to the land use adjustments described above, while maintaining the prior street pattern and connections.
- Along Fiddyment Road, Campus Park parcel PR-70 was converted to MDR.
- Within the Town Center district south of Sunset Boulevard, HDR parcels PR-50 & 51 were converted to MDR, and MDR parcels PR-35-38 were converted to LDR.
- The allocation of "floating" reserve units in the Town Center district was increased from 150 units to 300 units. These units continue to be factored as HDR units.
- South of Sunset Boulevard, the alignment of Foothills Boulevard has been shifted in an eastward direction to align with the existing Duluth Avenue corridor south of the Plan Area. As a result of this shift, LDR parcel PR-24, CP parcel PR-88, and MDR parcel PR-38 have been slightly enlarged.
- In the area south of Sunset Boulevard and east of Foothills Boulevard, MDR parcel PR-38 was enlarged to provide vehicular access to Sunset Boulevard, per the Foothill Boulevard realignment noted above. This adjustment also resulted in a portion of OS parcel PR-134 being converted to MDR.
- In the area north of Sunset Boulevard and east of Foothills Boulevard, Campus Park parcels PR-86-89 were converted to a low-density, active-adult, residential use (LDR-A), and Campus Park parcels PR-84 and 85 were reduced in size.
- A private park site was added within the active adult community north of Sunset Boulevard and east of Foothills Boulevard.

- A 100'-wide paseo has been added along the east edge of the plan area as a buffer between the active adult residential parcels and offsite industrial uses located in the Sunset Area Plan.
- East of Foothills Boulevard, Campus Park Boulevard was slightly realigned in response to the land use adjustments described above, while maintaining the east/west connectivity to the Sunset Area Plan.
- Park sites were added and/or enlarged (as described above) to increase the plan-wide park acreage in a manner that meet the General Plan's active parkland requirement of 5 ac./1,000 population.

The table below summarizes the differences between the Original Project and the Revised Project.

Table 1: Comparison of Original and Revised Land Uses and Development Assumptions

		Acreage			Dwelling Units/ Square Footage		
Land Use Designation		**Revised Project**	**Original Project**	**Difference**	**Revised Project**	**Original Project**	**Difference**
Residential Uses							
LDR	Low Density Residential	446.0 ac	407.9 ac	38.2 ac	2,210 du	2,039 du	171 du
LDR-A	Low Density Res. - Age-Restricted	183.1 ac	131.0 ac	52.1 ac	1,050 du	720 du	330 du
MDR	Medium Density Residential	112.3 ac	132.3 ac	-20.0 ac	872 du	1,057 du	-185 du
HDR	High Density Residential*	60.0 ac	93.0 ac	-33.0 ac	1,504 du	2,011 du	-507 du
Subtotal		*801.4 ac*	*764.2 ac*	*37.3 ac*	*5,636 du*	*5,827 du*	*-191 du*
Commercial and Employment Uses							
GC	General Commercial	22.7 ac	25.6 ac	-2.9 ac	296,513 sf	334,933 sf	-38,420 sf
CMU	Commercial Mixed Use	48.8 ac	48.8 ac	0.0 ac	637,718 sf	637,718 sf	0 sf
CP	Campus Park	335.0 ac	395.5 ac	-60.6 ac	4,506,282 sf	5,384,152 sf	-877,870 sf
UZ	University	301.3 ac	301.3 ac	0.0 ac	3,000,000 sf	3,000,000 sf	0 sf
Subtotal		*707.7 ac*	*771.2 ac*	*-63.5 ac*	*8,440,513 sf*	*9,356,803 sf*	*-916,290 sf*
Open Space and Public Uses							
PF	Public Facilities (Schools)	32.7 ac	32.0 ac	0.7 ac			
PF	Public Facilities (County Facilities)	10.3 ac	5.5 ac	4.8 ac			
PR	Parks and Recreation	69.8 ac	50.7 ac	19.1 ac			
OS	Open Space (Preserves/Paseos)	264.8 ac	272.8 ac	-8.0 ac			
Subtotal		*377.5 ac*	*360.9 ac*	*16.6 ac*			
Other							
ROW	Placer Parkway	158.5 ac	158.5 ac	0.0 ac			
ROW	Major Roadways & Landscape	168.1 ac	158.5 ac	9.6 ac			
Subtotal		*326.6 ac*	*317.0 ac*	*9.6 ac*			
Total		**2,213.3 ac**	**2,213.3 ac**	**0.0 ac**	**5,636 du** **8,440,513 sf**	**5,827 du** **9,356,803 sf**	**-191 du** **-916,290 sf**

* includes 300 reserve units within the Town Center district

Analysis

An evaluation of the differences between the Original Project and the Revised Project, as described in the Background section above, was conducted to determine if changes in the overall project occurred. The table below shows the differences in contributary areas and percent impervious rates between the Original Project and the Revised Project by watershed and basin facility. Only minor differences can be observed at each basin and overall there is a decrease in percent impervious rates. Only slight changes to the facilities proposed in the Storm Drainage Master Plan are expected due to these minor changes. Additionally, due to the decrease in the percent impervious rates, it is expected that the required retention volume for the 100-year 8-day event will be less. If warranted, additional adjustments to the Master Plan will be made when the project's first Small Lot Tentative Subdivision Map is processed by Placer County.

In the approved SDMP, fifteen (15) basins are proposed to mitigate the 10-year 24-hour and 100-year 24-hour events' peak flows. In the University Creek corridor in-stream basins utilize culverts at planned road crossings to attenuate flows. In the Orchard Creek and North Branch Placer Tributary corridors, detention basins are proposed for attenuation. All the proposed basins mitigate both events so that at the project boundary, water surface elevations are at or below existing and peak flows are 90% or less than existing. At the three project boundary compliance points, the contributing land area remains the same however the percent impervious rates are reduced at two of the locations. The third location, Orchard Creek, the percent impervious rate remains the same. Due to the overall reduction of imperviousness of the site, it is expected that overall detention requirements will slightly decrease. (Table 2)

In addition to flood control, the proposed basins contribute to providing hydromodification compliance at the project boundary for the 2-year 24-hour event. Hydromodification compliance is met by the incorporation of on-site Low Impact Development (LID) measures described below and attenuation achieved through the proposed basins described above. Due to the same reasons that the detention facilities may see slight reductions, so should hydromodification requirements.

Low Impact Development measures are proposed on-site to clean and reduce storm water at discharge points for the 85th percentile 24-hour event. LID measures proposed are tree planting and preservation, disconnected impervious areas, and if warranted in the future, soil amendments. The quantity of each LID feature was allocated by land use and is specified as a LID measure per acre of land use type. Vegetated swales are proposed at outfalls to supplement the abovementioned measures. Since LID features were determined by land use type in the SDMP, proposed land use changes herein do not alter the rates of application found in the SDMP. Vegetated swales may see slight localized changes due to the contributing land use changes; however in general, higher percent impervious land use types have been replaced with lower percent impervious land use types as can be observed in Table 1 and on the attached exhibits.

To convey storm water runoff to the drainage corridor, conceptual trunk storm drain pipes are analyzed in the SDMP. These trunk storm drain pipes are sized to the 10-year 24-hour event with the consideration of overland flows in the streets from infrequent high intensity storm events such as the 100-year 24-hour event. As previously mentioned, generally, higher percent impervious land use types have decreased while lower percent impervious land use types have increased with the Revised Project. Localized increases and decreases in trunk storm drain pipes may occur, however, the overall inventory of pipes should not change at this level of analysis.

Placer Ranch Specific Plan is a part of the Natomas Cross Canal watershed. It has been found that upstream development in the watershed increases the potential flooding in the lower portion of Natomas Cross Canal watershed. Due to this, mitigation by way of retention for the 100-year 8-day event is required for the proposed project. To determine the required retention volume for Placer Ranch, the equations developed by Civil Engineering Solutions, Inc. in the Pleasant Grove/Curry Creek Watershed Mitigation Fee report updated in 2017 are used in the SDMP. These equations use soil types and percent impervious rates to determine the required volume for retention of a contributing area. The overall decrease in percent impervious rates directly relates to a reduction in overall volume needed to be retained for the 100-year 8-day event.

The contributory areas for each proposed basin for the Original Project and the Revised Project are shown in Exhibits 1 and 2 respectively.

Table 2: Comparison of Original and Revised by Detention Basin Contributory Areas

	Contributory Area			Percent Impervious Rates		
Watershed & Basin	**Revised Project**	**Original Project**	**Difference**	**Revised Project**	**Original Project**	**Difference**
University Creek						
Basin#1	629.8	639.9 ac	-10.1 ac	35.6%	36.9%	-1.3%
Basin#2	220.9	210.9 ac	10.1 ac	46.8%	45.7%	1.1%
Basin#3	43.2	43.2 ac		5.7%	5.7%	
Basin#4	487.5	487.5 ac		22.5%	22.5%	
Basin#5	125.4	125.4 ac		36.1%	36.1%	
Basin#6	106.0	106.0 ac		39.0%	40.4%	-1.4%
Basin#7	517.3	517.1 ac	0.2 ac	50.6%	50.8%	-0.2%
Basin#8	224.0	224.0 ac		19.5%	19.5%	
Basin#9	56.5	56.7 ac	-0.2 ac	71.6%	71.4%	0.1%
Basin#10	137.2	137.2 ac		51.2%	51.2%	
Subtotal	*2,547.7 ac*	*2,547.7 ac*	*0.0 ac*	*37.0%*	*37.3%*	*-0.3%*
North Branch Placer Tributary						
Basin#11	63.9 ac	64.0 ac	-0.2 ac	32.5%	36.4%	-3.8%
Basin#12	127.2 ac	127.1 ac	0.1 ac	43.9%	43.6%	0.2%
Basin#13	97.2 ac	85.8 ac	11.4 ac	45.2%	71.4%	-26.2%
Basin#14	85.4 ac	96.8 ac	-11.4 ac	76.4%	75.5%	0.9%
Subtotal	*373.7 ac*	*373.7 ac*	*0.0 ac*	*49.7%*	*57.0%*	*-7.3%*
Orchard Creek						
Basin#15	56.7 ac	56.7 ac		70.7%	70.7%	
Subtotal	*56.7 ac*	*56.7 ac*	*0.0 ac*	*70.7%*	*70.7%*	*0.0%*
Total	**2,978.0 ac**	**2,978.0 ac**	**0.0 ac**	**39.2%**	**40.4%**	**-1.2%**

* Percent Impervious Rates are weighted averages

Conclusion

Based on the analysis above, it is determined that the facilities proposed in the original Storm Drainage Master Plan would not be significantly impacted by the land use changes. Retention requirements to the project will be reduced due to the lower percent impervious. Detention and hydromodification facilities operate to comply at the project boundaries and will also undergo a reduction in size due to the reduced impervious cover. Only storm water quality and trunk drainage facilities may undergo minor increases and decreases based on contributing area. However, at the master plan level of analysis, these facilities remain adequately sized in the approved SDMP to provide a foundation for future studies' analysis when a greater level of detail is warranted for small lot tentative maps and improvement plans. In summary, the analysis demonstrates that the changes between the Original Project and the Revised Project are not significant.

CAPITOL UTILITY SPECIALISTS
DRY UTILITY PLANNING • CONSULTING • DESIGN

TECHNICAL MEMORANDUM

DATE: October 31, 2018

TO: County of Placer

FROM: Gary Krause

SUBJECT: Addendum #1 to the Technical Dry Utilities Study for the Placer Ranch Specific Plan

Introduction

This Technical Memorandum functions as an Addendum to the Technical Dry Utilities Study for the Placer Ranch Specific Plan, dated July 18, 2017, prepared for the Placer Ranch Specific Plan. Its purpose is to evaluate the differences between the Original Project and the Revised Project (based on an updated Land Use Plan, dated October 17, 2018). Together, this Addendum and its associated Master Plan provide the appropriate technical data and analysis to guide buildout of Placer Ranch's backbone infrastructure as depicted on the Revised Project's Land Use Plan.

Background

The Technical Dry Utilities Study evaluated the infrastructure requirements for the Original Project, however in October 2018, several refinements were made to the land use plan, which resulted in the Revised Project.

These refinements generally included the following revisions to the land use plan:

- In the area west of Fiddyment Road and north of Sunset Boulevard, several land use parcels were reconfigured to shift residential and school uses outside a 2,000' buffer from the Western Regional Sanitary Landfill's properties. This resulted in the enlargement of Park parcel PR-102, a southerly shift of school parcel PR-92, the conversion of GC and HDR (parcels PR-61 and PR-42) to a Campus Park use.
- Along Maple Park Drive, MDR and HDR uses (parcels PR-32 and PR-42) were converted to LDR and MDR.
- Along Campus Park Boulevard, the PF site for a water tank (parcel PR-100) was enlarged.
- Paseo's have been adjusted in response to land plan refinements in order to maintain the east/west connectivity.

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- The alignments of C Street and Maple Park Drive were shifted slightly in response to the land use adjustments described above, while maintaining the prior street pattern and connections.
- Along Fiddyment Road, Campus Park parcel PR-70 was converted to MDR.
- Within the Town Center district south of Sunset Boulevard, HDR parcels PR-50 & 51 were converted to MDR, and MDR parcels PR-35-38 were converted to LDR.
- The allocation of "floating" reserve units in the Town Center district was increased from 150 units to 300 units. These units continue to be factored as HDR units.
- South of Sunset Boulevard, the alignment of Foothills Boulevard has been shifted in an eastward direction to align with the existing Duluth Avenue corridor south of the Plan Area. As a result of this shift, LDR parcel PR-24, CP parcel PR-88, and MDR parcel PR-38 have been slightly enlarged.
- In the area south of Sunset Boulevard and east of Foothills Boulevard, MDR parcel PR-38 was enlarged to provide vehicular access to Sunset Boulevard, per the Foothill Boulevard realignment noted above. This adjustment also resulted in a portion of OS parcel PR-134 being converted to MDR.
- In the area north of Sunset Boulevard and east of Foothills Boulevard, Campus Park parcels PR-86-89 were converted to a low-density, active-adult, residential use (LDR-A), and Campus Park parcels PR-84 and 85 were reduced in size.
- A private park site was added within the active adult community north of Sunset Boulevard and east of Foothills Boulevard.
- A 100'-wide paseo has been added along the east edge of the plan area as a buffer between the active adult residential parcels and offsite industrial uses located in the Sunset Area Plan.
- East of Foothills Boulevard, Campus Park Boulevard was slightly realigned in response to the land use adjustments described above, while maintaining the east/west connectivity to the Sunset Area Plan.
- Park sites were added and/or enlarged (as described above) to increase the plan-wide park acreage in a manner that meet the General Plan's active parkland requirement of 5 ac./1,000 population.

The table below summarizes the differences between the Original Project and the Revised Project.

Table 1: Comparison of Original and Revised Land Uses and Development Assumptions

		Acreage			Dwelling Units/ Square Footage		
Land Use Designation		**Revised Project**	**Original Project**	**Difference**	**Revised Project**	**Original Project**	**Difference**
Residential Uses							
LDR	Low Density Residential	446.0 ac	407.9 ac	38.2 ac	2,210 du	2,039 du	171 du
LDR-A	Low Density Res. - Age-Restricted	183.1 ac	131.0 ac	52.1 ac	1,050 du	720 du	330 du
MDR	Medium Density Residential	112.3 ac	132.3 ac	-20.0 ac	872 du	1,057 du	-185 du
HDR	High Density Residential*	60.0 ac	93.0 ac	-33.0 ac	1,504 du	2,011 du	-507 du
Subtotal		801.4 ac	764.2 ac	37.3 ac	5,636 du	5,827 du	-191 du
Commercial and Employment Uses							
GC	General Commercial	22.7 ac	25.6 ac	-2.9 ac	296,513 sf	334,933 sf	-38,420 sf
CMU	Commercial Mixed Use	48.8 ac	48.8 ac	0.0 ac	637,718 sf	637,718 sf	0 sf
CP	Campus Park	335.0 ac	395.5 ac	-60.6 ac	4,506,282 sf	5,384,152 sf	-877,870 sf
UZ	University	301.3 ac	301.3 ac	0.0 ac	3,000,000 sf	3,000,000 sf	0 sf
Subtotal		*707.7 ac*	*771.2 ac*	*-63.5 ac*	*8,440,513 sf*	*9,356,803 sf*	-916,290 sf
Open Space and Public Uses							
PF	Public Facilities (Schools)	32.7 ac	32.0 ac	0.7 ac			
PF	Public Facilities (County Facilities)	10.3 ac	5.5 ac	4.8 ac			
PR	Parks and Recreation	69.8 ac	50.7 ac	19.1 ac			
OS	Open Space (Preserves/Paseos)	264.8 ac	272.8 ac	-8.0 ac			
Subtotal		*377.5 ac*	*360.9 ac*	*16.6 ac*			
Other							
ROW	Placer Parkway	158.5 ac	158.5 ac	0.0 ac			
ROW	Major Roadways & Landscape	168.1 ac	158.5 ac	9.6 ac			
Subtotal		*326.6 ac*	*317.0 ac*	*9.6 ac*			
Total		**2,213.3 ac**	**2,213.3 ac**	**0.0 ac**	**5,636 du** **8,440,513 sf**	**5,827 du** **9,356,803 sf**	**-191 du** **-916,290 sf**

* includes 300 reserve units within the Town Center district

Analysis

An evaluation of the difference in projected gas and electric peak demand between the original and revised projects was conducted to determine what, if any, effect those demand changes will have on the dry utility facilities planned to serve the development.

Table 2: Impact of Original and Revised Land Uses on Peak Electric Demand

	Electric Peak Demand (Acreage Method)			Electric Peak Demand (SF & DUs Method)		
Land Use Designations	Original Project 2017	Revised Project 2018	Difference	Original Project 2017	Revised Project 2018	Difference
Residential MDR & LDR	17.2	18.6	1.4	17.2	18.6	1.4
Residential HDR	6.8	5.1	-1.7	6.8	5.1	-1.7
Commercial	36.6	31.7	-4.9	41.0	35.1	-5.9
University	9.8	9.8	0.0	17.1	17.1	0.0
Schools & Public Facilities	3.4	3.7	0.4	4.1	4.4	0.4
Total Peak Demand (MVA)	**73.8**	**68.9**	**-4.8**	**86.2**	**80.3**	**-5.9**

The anticipated electric demand decreased roughly 7% (from 4.8 to 5.9 MVA, dependent on the method used to measure it), which will have no significant impact on the electric facilities (size of substation, size of main line feeders, et al) planned to feed the development.

Table 3: Impact of Original and Revised Land Uses on Peak Gas Demand

	Natural Gas Peak Demand		
Land Use Designations	Original Project 2017	Revised Project 2018	Difference
Residential MDR & LDR	190.8	206.6	15.8
Residential HDR	90.5	67.7	-22.8
Commercial	317.8	272.0	-45.8
University	150.0	150.0	0.0
Schools & Public Facilities	16.3	6.3	-10.0
Total Peak Demand (MCFH)	**765.4**	**702.6**	**-62.8**

The anticipated gas demand decreased 8.2% (63 MCFH), which will have no significant impact on the on the natural gas main line facilities planned to feed the development.

Conclusions

Based on the analysis above it was determined that though projected demands decreased due to the revised land uses, the effects on the dry utility facilities necessary to serve the project as detailed in the Placer Ranch Technical Dry Utilities Study dated 7/18/2017 are inconsequential.

In summary, the analysis demonstrates that the changes between the Original Project and the Revised Project are negligible and will not change any of the conclusions reached in the technical study.

TECHNICAL MEMORANDUM

DATE: October 30, 2018

TO: County of Placer

FROM: Mark Sauer
Mackay & Somps

SUBJECT: Addendum #1 to the Sanitary Sewer Master Plan for the Placer Ranch Specific Plan

Introduction

This Technical Memorandum functions as an Addendum to the Sanitary Sewer Master Plan, dated September 1, 2017, prepared for the Placer Ranch Specific Plan. Its purpose is to evaluate the differences between the Original Project and the Revised Project (based on an updated Land Use Plan, dated October 17, 2018). Together, this Addendum and its associated Master Plan provide the appropriate technical data and analysis to guide buildout of Placer Ranch's backbone infrastructure as depicted on the Revised Project's Land Use Plan.

Background

The Master Plan evaluated the infrastructure requirements for the Original Project, however in October 2018, several refinements were made to the land use plan, which resulted in the Revised Project.

These refinements generally included the following revisions to the land use plan:

- In the area west of Fiddyment Road and north of Sunset Boulevard, several land use parcels were reconfigured to shift residential and school uses outside a 2,000' buffer from the Western Regional Sanitary Landfill's properties. This resulted in the enlargement of Park parcel PR-102, a southerly shift of school parcel PR-92, the conversion of GC and HDR (parcels PR-61 and PR-42) to a Campus Park use.
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- Along Fiddyment Road, Campus Park parcel PR-70 was converted to MDR.
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- A private park site was added within the active adult community north of Sunset Boulevard and east of Foothills Boulevard.

- A 100'-wide paseo has been added along the east edge of the plan area as a buffer between the active adult residential parcels and offsite industrial uses located in the Sunset Area Plan.
- East of Foothills Boulevard, Campus Park Boulevard was slightly realigned in response to the land use adjustments described above, while maintaining the east/west connectivity to the Sunset Area Plan.
- Park sites were added and/or enlarged (as described above) to increase the plan-wide park acreage in a manner that meet the General Plan's active parkland requirement of 5 ac./1,000 population.

The table below summarizes the differences between the Original Project and the Revised Project.

Table 1: Comparison of Original and Revised Land Uses and Development Assumptions

		Acreage			Dwelling Units/ Square Footage		
Land Use Designation		**Revised Project**	**Original Project**	**Difference**	**Revised Project**	**Original Project**	**Difference**
Residential Uses							
LDR	Low Density Residential	446.0 ac	407.9 ac	38.2 ac	2,210 du	2,039 du	171 du
LDR-A	Low Density Res. - Age-Restricted	183.1 ac	131.0 ac	52.1 ac	1,050 du	720 du	330 du
MDR	Medium Density Residential	112.3 ac	132.3 ac	-20.0 ac	872 du	1,057 du	-185 du
HDR	High Density Residential*	60.0 ac	93.0 ac	-33.0 ac	1,504 du	2,011 du	-507 du
Subtotal		801.4 ac	764.2 ac	37.3 ac	5,636 du	5,827 du	-191 du
Commercial and Employment Uses							
GC	General Commercial	22.7 ac	25.6 ac	-2.9 ac	296,513 sf	334,933 sf	-38,420 sf
CMU	Commercial Mixed Use	48.8 ac	48.8 ac	0.0 ac	637,718 sf	637,718 sf	0 sf
CP	Campus Park	335.0 ac	395.5 ac	-60.6 ac	4,506,282 sf	5,384,152 sf	-877,870 sf
UZ	University	301.3 ac	301.3 ac	0.0 ac	3,000,000 sf	3,000,000 sf	0 sf
Subtotal		*707.7 ac*	*771.2 ac*	*-63.5 ac*	*8,440,513 sf*	*9,356,803 sf*	-916,290 sf
Open Space and Public Uses							
PF	Public Facilities (Schools)	32.7 ac	32.0 ac	0.7 ac			
PF	Public Facilities (County Facilities)	10.3 ac	5.5 ac	4.8 ac			
PR	Parks and Recreation	69.8 ac	50.7 ac	19.1 ac			
OS	Open Space (Preserves/Paseos)	264.8 ac	272.8 ac	-8.0 ac			
Subtotal		*377.5 ac*	*360.9 ac*	*16.6 ac*			
Other							
ROW	Placer Parkway	158.5 ac	158.5 ac	0.0 ac			
ROW	Major Roadways & Landscape	168.1 ac	158.5 ac	9.6 ac			
Subtotal		*326.6 ac*	*317.0 ac*	*9.6 ac*			
Total		**2,213.3 ac**	**2,213.3 ac**	**0.0 ac**	**5,636 du** **8,440,513 sf**	**5,827 du** **9,356,803 sf**	**-191 du** **-916,290 sf**

* includes 300 reserve units within the Town Center district

Analysis

An evaluation of the differences between the Original Project and the Revised Project, as described in the Background section above, was conducted to determine if changes in overall project sanitary sewer demands occurred. If warranted, additional adjustments to the Master Plan will be made when the project's first Small Lot Tentative Subdivision Map is processed by Placer County.

The table below summarizes the Average Dry Weather Flow (ADWF) sanitary sewer flows from the Original Project.

Table 2: Average Dry Weather Flow Sanitary Sewer Demands from the Original Project

Land Use	Flow Rate	Area (acres)	Dwelling Units	ADWF (mgd)
LDR – Low Density Residential	190 GPD/DU	538.9	2,759	0.524
MDR – Medium Density Residential	190 GPD/DU	132.3	1,057	0.201
HDR – High Density Residential	130 GPD/DU or 2040 GPD/AC	93.0	2,011	0.261
GC – General Commercial	850 GPD/AC	25.6		0.022
CMU – Community Commercial Mixed Use	2,300 GPD/AC	48.8		0.112
CP – Campus Park (Mix of Office, GC, R&D & LI)	850 GPD/AC	395.5		0.336
PF – Public Facilities (County Facilities)	660 GPD/AC	5.5		0.004
PF – Public Facilities (Schools)	170 GPD/AC	32.0		0.005
UZ – University (CSU Campus)	2,304 GPD/AC	251.2[1]		0.579
PR – Parks & Recreation	10 GPD/AC	50.7		0.0005
	TOTAL	**1,573.5**	**5,827**	**2.045**

[1] Excludes open space area within the University property

The table below summarizes the ADWF sanitary sewer flows from the Revised Project.

Table 3: Average Dry Weather Flow Sanitary Sewer Demands from the Revised Project

Land Use	Flow Rate	Area (acres)	Dwelling Units	ADWF (mgd)
LDR – Low Density Residential	190 GPD/DU	629.1	3,260	0.619
MDR – Medium Density Residential	190 GPD/DU	112.3	872	0.166
HDR – High Density Residential	130 GPD/DU or 2040 GPD/AC	60.0	1,504	0.196
GC – General Commercial	850 GPD/AC	22.7		0.019
CMU – Community Commercial Mixed Use	2,300 GPD/AC	48.8		0.112
CP – Campus Park (Mix of Office, GC, R&D & LI)	850 GPD/AC	335.0		0.285
PF – Public Facilities (County Facilities)	660 GPD/AC	10.3		0.007
PF – Public Facilities (Schools)	170 GPD/AC	32.7		0.006
UZ – University (CSU Campus)	2,304 GPD/AC	251.2[1]		0.579
PR – Parks & Recreation	10 GPD/AC	69.8		0.0007
	TOTAL	**1,571.9**	**5,636**	**1.989**

[1] Excludes open space area within the University property

Conclusions

Based on the analysis above, it has been determined that the ADWF sanitary sewer flows have been reduced by 0.056 mgd. The Original Project has an ADWF demand of 2.045 mgd and the Revised Project (land use plan dated October 17, 2018) has an ADWF demand of 1.989 mgd. Based on the results for the ADWF, the Peak Wet Weather Flow (PWWF) will also be reduced with the Revised Project. Therefore, the PWWF as modeled hydraulically with the Original Project will remain as the resultant PWWF. In summary, the analysis demonstrates that the changes between the Original Project and the Revised Project are not significant.

FEHR PEERS

MEMORANDUM

Date: August 29, 2018

To: Mark Sauer, MacKay & Somps
Michele Kingsbury, Crystal Jacobsen, & Rich Moorehead, Placer County

From: Rob Hananouchi & Neil Smolen, Fehr & Peers

Subject: Trip Generation & VMT Analysis for Placer Ranch Land Use Plan – Version 3.0

RS15-3379.04

This memorandum documents the external trip generation and vehicle miles of travel (VMT) analyses for a new land use plan for the proposed Placer Ranch Specific Plan (Land Use Version 3.0, MacKay & Somps, 2018, and henceforth referred to as the 2018 Land Use Plan). It also compares these values to the trip generation and VMT data for the Placer Ranch land use plan analyzed in the Transportation Impact Study (TIS) (Land Use Version 1.1., MacKay & Somps, 2016, and henceforth referred to as the 2017 Land Use Plan). This analysis expands upon the previous trip generation evaluation completed by Fehr & Peers in June 2018.

Background

The previous trip generation evaluation estimated the difference in gross vehicle trip generation (i.e., total vehicle trips generated by the Placer Ranch Specific Plan (PRSP)) between the 2017 Land Use Plan and 2018 Land Use Plan. The previous evaluation showed that the 2018 Land Use Plan would generate fewer gross vehicle trips than the 2017 Land Use Plan. However, since that evaluation used trip generation rates contained in *Trip Generation Manual, 9th Edition* (Institute of Transportation Engineers, 2012), it did not account for how differences in the built environment characteristics between the two land use plans, such as reduced net density for the entire PRSP area in the 2018 Land Use Plan, could affect the net external vehicle trip generation. Furthermore, the previous evaluation acknowledged that while the gross vehicle trip generation was less with the 2018 Land Use Plan, that may not directly correlate with project-generated VMT or VMT per service population.

Land Use Comparison

As documented in the June 8, 2018 memorandum, the 2018 Land Use Plan generally proposes less development (fewer residential units and less non-residential building area) than the 2017 Land Use Plan. **Table 1** presents a comparison of the 2017 Land Use Plan and 2018 Land Use Plan.

Table 1: Placer Ranch Land Use Plan Comparison

Land Use Designation	Units	2017 Land Use Plan	2018 Land Use Plan	Delta[1]
Low Density Residential	Dwelling Units	2,039	2,210	171
Low Density Residential – Age Restricted	Dwelling Units	720	1,050	330
Medium Density Residential	Dwelling Units	1,057	872	-185
High Density Residential	Dwelling Units	2,011	1,504	-507
Residential Sub-Total	**Dwelling Units**	**5,827**	**5,636**	**-191**
General Commercial	KSF	335	297	-38
Commercial Mixed Use – Commercial	KSF	478	478	0
Commercial Mixed Use – Office	KSF	159	159	0
Campus Park – Office	KSF	1,034	865	-169
Campus Park – Commercial	KSF	1,077	901	-176
Campus Park – Research & Development	KSF	1,292	1,082	-211
Campus Park – Light Industrial	KSF	1,378	1,154	-225
Campus Park – Warehousing	KSF	603	505	-98
Non-Residential Sub-Total	**KSF**	**6,356**	**5,441**	**-917**
Elementary School	Students	800	800	0
Middle School	Students	1,000	1,000	0
University	Students	30,000	30,000	0

Notes:

KSF = thousand square feet

1. Delta = 2018 Land Use Plan – 2017 Land Use Plan. A positive value indicates the 2018 Land Use Plan proposes more units/floor area. A negative value indicates the 2018 Land Use Plan proposes less units/floor area.

Source: MacKay & Somps, 2018.

Trip Generation Analysis

Methodology

As a next step in comparing the trip generation of the two land use plans, this analysis uses the travel forecasting model which was used for the Transportation Impact Study (TIS) to forecast the net external trip

generation for the 2018 Land Use Plan. This allows for an "apples-to-apples" comparison of the internal and external trip generation for the 2017 Land Use Plan and the 2018 Land Use Plan.

The travel forecasting model was updated to reflect the 2018 Land Use Plan, including changes to the location and quantity of land uses and minor revisions to the Placer Ranch roadway network, including the removal of the collector road between C Street and Maple Park Drive and the realignment of C Street, Maple Park Drive, and Campus Park Boulevard east of Foothills Boulevard. The travel model was then run with these 2018 Land Use Plan inputs and roadway network edits. The model outputs were post-processed to categorize the origins and destinations of trips generated by the PRSP as either internal or external. Internal trips are short trips that remain within the PRSP while external trips are longer because they have an origin or destination outside the PRSP.

Results and Conclusions

Table 2 compares the internal and net external vehicle trip generation of the 2017 Land Use Plan and 2018 Land Use Plan. **Table 2** shows that the 2018 Land Use Plan would generate fewer external vehicle trips than the 2017 Land Use Plan during all study periods (Daily, AM peak hour, and PM peak hour).

Table 2: Placer Ranch Trip Generation Comparison[1]

	Daily			AM Peak Hour			PM Peak Hour		
	Internal [3]	External [4]	Total	Internal[2]	External[3]	Total	Internal[2]	External[3]	Total
2017 Land Use Plan	54,410	161,988	216,398	2,802	10,247	13,049	3,877	13,053	16,930
2018 Land Use Plan	48,683	150,725	199,408	2,522	9,478	12,000	3,451	12,065	15,516
Delta[2]	-5,727	-11,263	-16,990	-280	-769	-1,049	-426	-988	-1,414

Notes:
KSF = thousand square feet
1. Daily gross vehicle trip ends based on outputs from the Placer County travel forecasting model.
2. Delta = 2018 Land Use Plan – 2017 Land Use Plan. A negative value indicates the 2018 Land Use Plan generates fewer trips.
3. Represents trips that remain internal to the PRSP.
4. Represents trips that travel to or from origins or destinations outside the PRSP.
Source: Fehr & Peers, 2018.

The lower internal and external trip generation for the 2018 Land Use Plan demonstrate that traffic levels are expected to be less than the 2017 Land Use Plan at all study locations. Since the TIS uses the 2017 Land Use Plan, the TIS presents slightly higher traffic levels than would occur with the 2018 Land Use Plan. Therefore, the TIS adequately covers and may slightly overstate the traffic impacts of the 2018 Land Use Plan.

Vehicle Miles of Travel

Methodology

Similar to the trip generation analysis presented above, the VMT analysis for the 2018 Land Use Plan uses the VMT travel forecasting model which was used for the TIS. This allows for an "apples-to-apples" comparison of the VMT estimates for the 2017 Land Use Plan and the 2018 Land Use Plan.

The VMT travel forecasting model was updated to reflect the 2018 Land Use Plan, similar to the trip generation model described above. The travel forecasting model was then run with the 2018 Land Use Plan inputs, and the outputs were processed to quantify the project-generated weekday VMT.

This analysis also reviewed how the project-generated VMT results would change under the Cumulative Plus Placer Ranch Plus Sunset Area Plan (SAP) – 20-Year Absorption scenario. For that scenario, the Placer Ranch 2018 Land Use Plan replaced the 2017 Land Use Plan in the Cumulative Plus Placer Ranch Plus SAP – 20-Year Absorption VMT travel forecasting model.

Results and Conclusions

Table 3 compares the forecasted project-generated VMT for Placer Ranch with the 2017 Land Use Plan (presented in Table 31 of the TIS) to the forecasted project-generated VMT for Placer Ranch with the 2018 Land Use Plan. As shown in **Table 3**, the project-generated weekday VMT of the 2018 Land Use Plan is 101,834 miles less than the 2017 Land Use Plan. Similarly, the VMT per service population is also forecasted to be approximately 0.82 miles less per person.

Table 3: Project-Generated VMT – Cumulative Plus Placer Ranch Conditions

Trip Type	Average Weekday VMT		
	2017 Land Use Plan	2018 Land Use Plan	Delta
Internal-to-Internal (I-I)	41,466	37,433	-4,033
Internal-to-External (I-X)	714,270	662,749	-51,521
External-to-Internal (X-I)	688,586	642,306	-46,280
Total VMT	**1,444,322**	**1,342,488**	**-101,834**
Service Population[1]	64,142	61,855	-2,287
VMT per Service Pop.	22.52	21.70	-0.82

Notes:
VMT presented in this table represents VMT generated by uses in the PRSP.
1. Service population = residential population + employment + college/university enrollment
Source: Fehr & Peers, 2018.

Table 4 presents the forecasted project-generated weekday VMT for the SAP area (Placer Ranch plus the remainder of the SAP) for Cumulative Plus Placer Ranch Plus 20 years of development in the remainder of the SAP. **Table 4** compares the project-generated weekday VMT for this scenario with the Placer Ranch 2017 Land Use Plan and the Placer Ranch 2018 Land Use Plan. As shown in **Table 4**, the project generated weekday VMT with the 2018 Land Use Plan and 20 years of development in the remainder of the SAP is 101,834 miles less than the 2017 Land Use Plan and 20 years of development in the remainder of the SAP. Similarly, the weekday VMT per service population is also forecasted to be approximately 0.19 miles less per person.

Table 4: Project-Generated VMT –
Cumulative Plus Placer Ranch Plus SAP – 20-Year Absorption Conditions

Trip Type	Average Weekday VMT		
	2017 Land Use Plan[1]	2018 Land Use Plan[2]	Delta
Internal-to-Internal (I-I)	100,128	95,092	-5,036
Internal-to-External (I-X)	1,551,718	1,500,520	-51,198
External-to-Internal (X-I)	1,401,698	1,355,968	-45,730
Total VMT	**3,053,544**	**2,951,580**	**-101,834**
Service Population[3]	80,122	77,835	-2,287
VMT per Service Pop.	38.11	37.92	-0.19

Notes:
VMT presented in this table represents VMT generated by uses in the Sunset Area, including existing uses, and the PRSP.
1. Represents the Placer Ranch 2017 Land Use Plan plus 20 years of development in the remainder of the SAP.
2. Represents the Placer Ranch 2018 Land Use Plan plus 20 years of development in the remainder of the SAP.
3. Service population = residential population + employment + college/university enrollment
Source: Fehr & Peers, 2018.

The results presented in **Table 3** and **Table 4** demonstrate that the VMT forecasts for the 2018 Land Use Plan are less than the 2017 Land Use Plan. Since the VMT forecasts presented in the TIS uses the 2017 Land Use Plan, the TIS uses VMT levels that are higher than would occur with the 2018 Land Use Plan. Therefore, the VMT presented in the TIS and used in other technical sections of the EIR adequately covers and may slightly overstate the VMT effects of the 2018 Land Use Plan.

Limitations

A limitation of the current practice of trip generation and VMT analysis is that the models being used do not fully account for the influence of new mobility options and transformational trends, which are changing travel behavior and are likely to influence future travel demand. These trends include, but are not limited

to, internet shopping, ride-hailing (i.e., Uber), car sharing, and autonomous vehicles (AVs). While the current tools as used in this analysis are state-of-the-practice based on observed travel behavior, trip generation and VMT levels especially 20+ years into the future could be much different than reported above or in the TIS as these new options and trends change how people travel.

MEMORANDUM

To: Placer County

From: Economic & Planning Systems, Inc. (EPS)

Subject: Sunset Area Plan and Placer Ranch Specific Plan Urban Decay Analysis Addendum; EPS #172140

Date: October 3, 2018

The Economics of Land Use

Introduction

This memorandum serves as an addendum to the Sunset Area Plan (referred to hereinafter as the Sunset Area or Project) and Placer Ranch Specific Plan (PRSP) Urban Decay Analysis (Study), dated February 2018. The purpose of the Study was to evaluate the potential for Project-specific and cumulative urban decay impacts from Sunset Area development. Following completion of the Study, Placer County (County) provided Economic & Planning Systems, Inc. (EPS) with a revised land use program for the PRSP, a planning area within the larger Project. The purpose of this addendum is to summarize the implications of the revised land use program on the Study's conclusions.

Background

The Study, based on Phase 1 land uses and dated August 2017 (hereafter referred to as the Original Project), estimated the extent to which the Sunset Area would have competitive impacts on existing development within a defined Market Area and consequently cause urban decay, or the substantial and prolonged physical deterioration of properties and structures.[1] [2] The Study concluded that Project-specific Phase 1 land uses

[1] The Study evaluates the impacts of Phase 1 only (20-year buildout from 2021–2041) to be consistent with the intent of the Project to provide clear direction regarding physical development and land use decisions over a 20-year horizon. Phase 2 (remaining development) is anticipated to occur beyond a 20-year horizon.

[2] The defined Market Area encompasses the Cities of Lincoln and Rocklin and unincorporated parts of the County, including the Sunset Area and the community of Sheridan. Refer to the Study for more details.

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are not likely to result in conditions conducive to urban decay. In addition, under the cumulative impact analysis, the Study concluded that the amount of planned retail space in the defined Market Area is estimated to exceed market support but planned retail likely will be scaled back or delayed beyond the timeframe of the Study until there is adequate market support.

Analysis of Revised Project

The County subsequently refined PRSP land uses and provided EPS with an updated land use program, dated April 2018 (hereafter referred to as the Revised Project). Land use differences between the Original Project and the Revised Project are shown in **Table 1**. The Revised Project plans for 191 fewer gross residential units and a reduction of 892,000 gross nonresidential building square feet. Specifically, the Revised Project comprises a decrease of 942,000 gross square feet of Office, Research & Development (R&D), and Industrial development and a slight increase of 50,000 gross retail building square feet in Phase 1.

Table 1. Sunset Area Plan Phase 1 Land Use Comparison: Original and Revised Project

	Original Project		Revised Project		Revised Less Original Project Differences
Land Use	Sunset Area Plan (includes PRSP)	PRSP Only	Sunset Area Plan (includes PRSP)	PRSP Only	
Residential Units (Gross)	**6,147**	**5,827**	**5,956**	**5,636**	**(191)**
Nonresidential Building Sq. Ft (Gross)					
Retail	866,000	98,000	916,000	148,000	50,000
Office	1,612,000	555,000	1,434,000	377,000	(178,000)
R&D	1,128,000	915,000	787,000	574,000	(341,000)
Industrial	5,259,000	1,479,000	4,836,000	1,056,000	(423,000)
University	1,700,000	1,700,000	1,700,000	1,700,000	0
Hotel	706,000	0	706,000	0	0
Entertainment [1]	942,000	0	942,000	0	0
Total Building Sq. Ft	**12,212,000**	**4,747,000**	**11,320,000**	**3,855,000**	**(892,000)**

Source: Macay & Somps Placer Ranch Land Use Comparison Version 3.0 (4/20/18); Placer County; EPS.
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[1] Excludes retail and office, which have been included in the retail and office totals above.

EPS evaluated the Revised Project to determine the impact of the reduction in residential units, nominal increase in retail space, and substantial decrease in other nonresidential space on the Study's conclusions. The decrease in residential units and nonresidential uses reduces the number of Project households, off-campus students assumed to be living in the Project, and estimated employment, as shown in **Table 2**.

Table 2. Sunset Area Plan Phase 1 Demographic Summary Comparison: Original and Revised Project

Demographic	Original Project		Revised Project		Revised Less Original Demographic Differences
	Sunset Area Plan (includes PRSP)	PRSP Only	Sunset Area Plan (includes PRSP)	PRSP Only	
Occupied Households (Units)	5,840	5,535	5,659	5,354	**(181)**
Employees	15,321	7,420	14,062	6,160	**(1,259)**
Visitors	700,000	0	700,000	0	**0**
On-Campus Faculty Households (Units)	100	100	100	100	**0**
Students					
Off-Campus Students	1,468	1,468	1,000	1,000	**(468)**
On-Campus Students	2,400	2,400	2,400	2,400	**0**
Total Students	3,868	3,868	3,400	3,400	**(468)**

Source: Placer County; EPS.

Estimated Project-Specific Retail Impacts Based on Revised Project

The defined Market Area inclusive of the Project is estimated to add approximately 27,861 households over the initial phase of the Project. The reduction in Project residential, student, and employee populations reduces the amount of market demand for retail space both in the Project and the defined Market Area. As shown in **Table 3**, the Revised Project results in a reduction of $2.8 million in demand for Project retail space and a reduction of $4.8 million in demand for retail space in the entire Market Area, including the Project. In addition, the slight increase in Phase 1 retail space in the Project increases estimated retail sales by approximately $27.7 million.

Table 3. Sunset Area Plan and PRSP Phase 1 Project Generated Demand

Item	Original Project		Revised Project		Revised Less Original Project Generated Demand
	Sunset Area Plan (including PRSP)	PRSP Only	Sunset Area Plan (including PRSP)	PRSP Only	
Total Retail and Food Services					
Project Generated Demand for Project Retail	$148,533,722	$59,280,075	$145,756,328	$57,256,602	**($2,777,395)**
Total Project Generated Demand in MA	$248,712,845	$248,712,845	$243,883,139	$243,883,139	**($4,829,705)**

Source: Placer County; EPS.

The Sunset Area is estimated to capture a portion of demand generated by new households in the Market Area, as well as demand from Project employees, students, and visitors. Of this captured demand, the Revised Project would result in a sales shift of about 6.2 percent from existing retail establishments in the Market Area, an increase from the estimated sales shift of 4.7 percent under the Original Project, as shown in **Table 4**. As discussed in the Study, while there is no absolute rule, most establishments usually can withstand a short-term sales shift of 5 to 7 percent over a 3- to 5-year timeframe, as this typically represents a business cycle downturn. Thus, although the percentage of sales shifted from existing retail establishments increased, this relatively modest shift is not likely to create conditions conducive to urban decay because the degree to which the market would be affected does not exceed thresholds in which an otherwise healthy retail sector could recover.

The Study estimated no shift in sales from existing retail establishments in the Market Area when evaluating PRSP retail impacts only. And the Study concluded there was estimated support for more retail space than what was proposed in the initial phase of the PRSP. The Revised Project does not alter these PRSP Project-specific retail impact conclusions, even accounting for reduced market demand and increased Phase 1 retail space.

Table 4. Sunset Area Plan Phase 1 Project-Specific Urban Decay Impacts Comparison

	Original Project		Revised Project		Revised Less Original
Item	Sunset Area Plan (includes PRSP)	PRSP Only	Sunset Area Plan (includes PRSP)	PRSP Only	**Project-Specific Impacts**
Project Retail Sales	$364,591,895	$48,955,995	$389,314,672	73,678,772	$24,722,777
Net New Sales					
Project Capture of Existing Leakage in Market Area	$10,407,458	$3,296,979	$10,407,458	3,296,979	$0
Project Capture of Market Area Demand (Excl. Project)	$120,036,336	$37,449,702	$120,036,336	37,449,702	$0
Project Capture of Project Demand	$148,533,722	$59,280,075	$145,756,328	57,256,602	($2,777,395)
Total Net New Sales	**$278,977,517**	**$100,026,756**	**$276,200,122**	**98,003,283**	**($2,777,395)**
Estimated Shift from Existing Retail	**$85,614,378**	**$0**	**$113,114,550**	**0**	**$27,500,172**
Percentage Shift from Existing Retail	**4.7%**	**0.0%**	**6.2%**	**0.0%**	**1.5%**

Source: Placer County; EPS.

Estimated Cumulative Retail Impacts Based on Revised Project

As described in the Study, there is an estimated 6.2 million gross building square feet of retail space planned in the Market Area, excluding proposed retail space in the Project. In estimating the cumulative impacts of the Revised Project and other future planned retail in the Market Area on existing retail outlets, this Study applies the same methodology as used in the Project-specific analysis. The estimated impact of the addition of the cumulative proposed retail projects in the Market Area by Revised Project buildout in 2041 is shown in **Table 5**. The percentage of sales shifted from existing retail outlets is estimated to increase from 42.3 percent to 43.7 percent.[3] As concluded in the Study, this impact continues to be a substantial and unsustainable shift that, if realized, has the potential to result in existing retail outlets becoming vacant or existing vacant retail outlets remaining vacant for a sustained period, although this scenario is unlikely. The cumulative impact findings continue to suggest there is substantially more retail planned in the Market Area than will be supportable by market demand, and planned retail will be reduced in scale or delayed beyond the timeframe of the Study until there is adequate market support. The Revised Project does not alter the cumulative impact conclusions identified in the Study.

[3] Note that the cumulative impacts of the Project and other retail projects in the Market Area on existing retail is identical for the Sunset Area and PRSP because the Market Area is identical. Thus, supply and demand conditions in the Market Area are also identical.

Table 5. Sunset Area Plan Phase 1 Cumulative Urban Decay Impacts Comparison

Item	Original Project		Revised Project		Revised Less Original Cumulative Impacts
	Sunset Area Plan (includes PRSP)	PRSP Only	Sunset Area Plan (includes PRSP)	PRSP Only	
Project + Other Planned Retail (Cumulative) Sales	$1,745,615,599	$1,745,615,599	$1,770,338,376	1,770,338,376	$24,722,777
Net New Sales					
Market Area Capture of Existing Leakage in Market Area	$44,151,414	$44,151,414	$44,151,414	44,151,414	$0
Market Area Capture of MA Demand (Excl. Project)	$469,914,647	$469,914,647	$469,914,647	469,914,647	$0
Market Area Capture of Project Demand	$248,712,845	$248,712,845	$243,883,139	243,883,139	($4,829,705)
Total Net New Sales	**$762,778,905**	**$762,778,905**	**$757,949,200**	**757,949,200**	**($4,829,705)**
Estimated Shift from Existing Retail	**$982,836,693**	**$982,836,693**	**$1,012,389,176**	**1,012,389,176**	**$29,552,483**
Percentage Shift from Existing Retail	**42.3%**	**42.3%**	**43.7%**	**43.7%**	**1.4%**

Source: Placer County; EPS.

Office and Industrial Urban Decay Impacts Based on Revised Project

The Study concluded that there was no evidence to suggest new office and industrial development in the Project, including the PRSP, would create conditions conducive to urban decay. Given the significant reductions in office, R&D, and industrial space proposed for Phase 1 of the PRSP relative to the Original Project, the Revised Project does not alter this conclusion.

Urban Decay Conclusions Based on Revised Project

Consistent with the Study, this addendum concluded the risk of urban decay is unlikely to result from development of the Revised Project. Also consistent with the Study, the cumulative development of the Revised Project and other planned retail projects in the Market Area have the potential to cause negative impacts on existing retail establishments if all planned retail development is absorbed by 2041. However, conditions conducive to urban decay are unlikely given that all planned retail is unlikely to develop until sufficient market support can be demonstrated. In the event of any retail vacancies, urban decay is unlikely given the Market Area's strong market conditions and economic outlook, property owners' incentive to maintain their properties in the current local economy, the presence of a competitive and dynamic retail market that adapts to changing consumer preferences through retenanting and repositioning strategies, and local jurisdiction regulations that assist in mitigating conditions leading to urban decay.