

Appendix C

Modeling Assumptions for Circulation Study Trip Cap Analysis and VISSIM Modeling

May 2021

General Strategy

- Based on discussions with Google on preliminary Master Plan submittal. Final submittal expected by September.
- Google will achieve 35% SOV rate on all existing and future Google offices. Reaching 35% will include benefit of trip internalization with new housing (primarily increases Ped/Bike mode up to ~20%).
- Study scenarios with and without Rengstorff Ramp Realignment and new roadway connection to Landings/Plymouth frontage road.
- District Parking plan that reduces on-site parking and redirects trips to large structures. Reduced SOV rate would free up existing parking for new office.

Land Use Plan

- Refer to Google Master Plan submittal.
- See TAZ table for allocation of new, rebuilt office and new residential – also includes Gateway Master Plan land use.

SOV Rate

- SOV rate for existing trips (from Feb. 2020 counts) reduced from 56% to ~42% reflecting Google 35% rate for current offices. Apply reduction to all peak period trips on Shoreline and Rengstorff.
- Existing trips from current Google offices to be replaced by housing should be completely removed.
- SOV rate for non-Google approved projects (e.g. Microsoft) would remain at 45% - no change from previous scenarios.
- 35% SOV rate for all new (1.55 msf) and rebuilt office (1.76 msf), including Google Master Plan and SyWest office at Gateway.

Parking Assignment

- For all new office (including rebuilt Google office), parking demand is estimated at 2.0 per 1000 sf. 10% of parking is assumed to be on-site, the rest in district structures or in existing surface spaces.
- See attached table for assumed parking assignments. Primary change from Landings is shift of Charleston East trips to proposed Amphitheater garage.

- Distribution of District Parking trips should be as follows:
 - Huff and Joaquin on-site– 50% Rengstorff, 50% Shoreline
 - Amphitheater – 60% Rengstorff, 40% Shoreline
 - Gateway – 50% Rengstorff, 50% Shoreline
 - Shorebird on-site – 43% Rengstorff, 27% Shoreline, 30% La Avenida to Inigo.

Trip Distribution

- Existing trips and non-Google approved projects same as previous scenarios (e.g. Microsoft and Sobrato mostly on La Avenida).
- New trips, including rebuilt office, should follow above parking allocation.
- Charleston East trips routed to Amphitheater parking.

Bus Plan (Google update)

- 60 Google buses per hour throughout the 4-hour peak in each direction on Charleston (AM drop off, PM pickup). Assume NB buses arrive via Shoreline and SB buses are split between Rengstorff (25%) and San Antonio / Garcia (75%). Assume same split for departing buses.
- 30 second dwell time in the AM; 80 second dwell in PM (per Google).
- Assume 3 VTA buses per hour each direction on Shoreline and Charleston (Line 40).
- Assume 6 MVgo shuttles per hour each direction on Shoreline and Charleston.
- Assume 40 buses per hour use Bus Lane.

Residential Trips

- Use trip rates from Residential TDM Guidelines (see below), which assumes 50% SOV:

Time of Day	Trip Rate for Vehicles Entering North Bayshore	Trip Rate for Vehicles Exiting North Bayshore	Total Trip Rate (a)	Proposed Number of Units (b)	Trip Performance Standard (a * b)
Morning Peak Hour	0.05	0.14	0.19	200	38 vehicles
Evening Peak Hour	0.16	0.12	0.28	200	56 vehicles

- External vehicle trips should be split between Shoreline, Inigo and Rengstorff.

Infrastructure

- Include Priority Transportation Improvements (as adjusted below).
- Key new projects to include:
 - Amphitheater Parkway – 4 lanes from CRAG to Shoreline, plus turn lanes to access parking garage.
 - Extension of Inigo to Charleston per Google plan.
 - Other local streets per the Google and Gateway Master Plans.
 - Bike connections to Stevens Creek Trail at Charleston & Shorebird.
 - Extension of Bus Lane from Plymouth/Space Park to Charleston.
 - Ped/Bike bridge over Shoreline at La Avenida
- Develop two scenarios with and without Rengstorff Ramp Realignment project, Permanente Creek bridge and connection to Plymouth. Include three lanes each direction from new ramp intersection to CRAG.

TAZ Table

TAZ	Description	2020 + Approved			Gateway & Google Plans							Office Parking			Residential Parking (Off-site)	
		R&D	OFF	Approved New OFF	R&D	OFF	Transferred Office	New OFF	Total Office	Change	MFDU	Existing (Est.)	Needed @ 2.0 / 1000	MP Proposed		
3125		61,364	9,582		61,364	9,582			70,946	0		192	142	192		
3126	Broadreach			224,505		224,505			224,505	0		606	449	606		
3127	1555 Plymouth		3,657				-3,657		0	-3,657		10	0			
3128									0	0						
3129	Gateway - Google		84,000				-84,000	250,000	250,000	250,000	1,000	227	500	500	1,000	
3129	Gateway - SyWest							250,000	250,000	250,000	1,400		500	500		
3130	VIA Parcel								0	0						
3131	Microsoft			643,680		643,680			643,680	0		1,747	1,747	1,747		
3132	Eden Housing	48,646			19,706				19,706	-28,940	100	131	39	39		
3133	Sobrato 2			231,000		231,000			231,000	0	110	624	599	599		
3134	Computer History								0	0		0		0		
3141	Sobrato 1/2		156,134			156,134			156,134	0	110	422	422	422		
3149	Sobrato 2								0	0		535	0	0		
3150	Microsoft	54,210			54,210				54,210	0		146	108	108		
3151	Retail								0	0	300			0		
3152	Hotel	35,434							0	-35,434		96		0		
3153		13,960			13,960				13,960	0		38				
3154									0	0						
3155	Santiago Villa								0	0	358					
3156									0	0						
3157		120,506						89,500	89,500	-31,006		325	179	18		
3158		104,481							0	-104,481		282				
3159		74,940							0	-74,940	1,100	202				
3160	Shorebird	52,321							0	-52,321	1,100	141			210	
3161		107,224						308,800	308,800	201,576		290	618	62		
3162		170,858						772,000	772,000	601,142		461	1,544	154		
3163		116,858						463,200	463,200	346,342		316	926	93		
3164		121,536							0	-121,536		328				
3165		115,083			115,083				115,083	0		311				
3166	Stierfin Ct	362,000	70,000		362,000	70,000			432,000	0		1,166	864	1,166		
3167		355,490			355,490				355,490	0		960	711	960		
3168	Cruttenden	500,000			500,000				500,000	0		1,350	1,000	1,350		
3169									0	0						
3170	Amphitheater								0	0				4,300		
3171	Charleston East			595,000		595,000			595,000	0		50	50	50		
3172			61,468					380,100	380,100	318,632			760	76		
3173		77,883	26,760					126,700	126,700	-104,643	920	210			420	
3174	Joaquin North	120,459	50,000						0	-170,459	700	325				
3175		111,600						380,100	380,100	268,500	700	301	760	76		
3176		77,942							0	-77,942	700	210				
3177		130,700						380,100	380,100	249,400	700	353	760	76		
3178		74,515			74,515				74,515	0		201	149	201		
3179	Huff Garage	127,000			127,000				127,000	0		2,052	1,963	2,052		
3180		92,408			92,408				92,408	0		250	185	250		
3181		61,290			61,290				61,290	0		165	123	165		
3182	Googleplex	221,702			221,702				221,702	0		1,398	965	1,166		
3183		260,703			260,703				260,703	0						
3184									0	0						
3185									0	0						
3186									0	0						
3187		371,232			371,232				371,232	0		1,002	742	742		
3188									0	0	4			0		
3189		42,126			42,126				42,126	0		114	84	84		
3190	Landings			799,482		799,482			799,482	0		1,145	1,145	1,145		
3191		118,414			118,414				118,414	0		320	237	237		
3192		180,600			180,600				180,600	0		488	361	361		
3193									0	0				0		
3194	Intuit	109,980			109,980				109,980	0		297	297	297		
3195		127,896			127,896				127,896	0		345	345	345		
3196		98,964			98,964				98,964	0		267	267	267		
3197	Intuit			178,600		178,600			178,600	0		482	482	482		
3198	Intuit, Google	138,019	252,560		138,019	145,560			283,579	107,000		766	567	567		
3199		525,677			525,677				525,677	0		1,419	1,051	1,051		
	Google	5,484,021	714,161	2,672,267	4,032,339	3,053,543			3,400,500	10,486,382	1,573,233	9,837	22,532	21,643	22,509	1,630
		4,994,931	710,504	1,618,987	3,607,623	2,000,263			3,150,500	8,758,386	1,391,264	18,348	17,258	18,123		

Parking Allocation Table

Office	Sq. Ft. (x1000)	Parking Needed	Allocated Parking Location					
			On-Site	Gateway	Huff	Amphi- theater	Existing Lots - West	Existing Lots -East
Charleston East	595	1,240	50	0	0	1,190	0	0
Landings	800	1,599	1,145	0	454	0	0	0
Joaquin	1,267	2,534	253	0	1,200	610	471	0
Shorebird	1,633	3,266	327	0	0	2,500	0	439
Gateway	500	1,000	0	1,000	0	0	0	0
	4,795	9,639	1,775	1,000	1,654	4,300	471	439