DATE:	January 11, 2023
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FROM:	Chrissy Mancini Nichols, Tania Schleck
PROJECT NAME:	Sonora Court Parking Study

SKS Partners engaged Walker Consultants ("Walker") to conduct a parking study for the proposed Sonora Court mixed-use development located within the Caltrain Lawrence Station Area Plan at 1154 and 1170 Sonora Court. The parking study took into account planned transportation demand management (TDM) (discussed further in the TDM Plan Walker prepared under separate cover) and operations strategies such as valet parking the developer will use to manage parking demand, as well as Walker's expertise on parking planning and policy in Sunnyvale.

Overall Findings

- To reduce parking demand and single-occupancy vehicle (SOV) trip generation, Walker has prepared a transportation demand management (TDM) plan (provided under separate cover) and anticipates achieving a 35 percent reduction in SOV trips during the peak hour.
- As a result of the projected reduction in SOV trips, Walker evaluated parking needs based on a 35 percent reduction in the driving ratio used in the model to quantify the recommended parking supply. Walker recommends the following parking supply for the proposed site based on peak parking times:
    - Building A - The recommended supply to serve Building A during the peak hour (weekday at approximately 10:00 a.m.) is 346± parking spaces.
    - Building B - The recommended supply to serve Building B during the peak hour (weekday at approximately 10:00 a.m.) is 207+ parking spaces.
- Compared to the recommended parking supply, Building A is projected to have a surplus of 6± spaces and Building B is projected to have a surplus of 0± spaces. Table 1 on page 2 summarizes the parking requirements, recommended parking supply, and number of parking spaces provided.
- Building A and Building B will have a valet parking operation during the daytime hours when the office users are present. A Parking Management Plan is provided under separate cover that discusses how the parking operation will be managed.

Table 1: Sonora Court Parking Summary

Building	Parking Spaces Required[1]	Recommended Parking Supply	Parking Spaces Provided
Building A	477	346	352
Building B	271	207	207

[1] Parking required by Sunnyvale Municipal Code LSAP with State Density Bonus requirements for the residential uses (assumes project includes 20% low-income or 11% very low income and is within ½ mile of a major transit stop.
Source: Walker Consultants, 2022.

Assembly Bill 2097

On September 22, 2022, the State of California passed Assembly Bill 2097, which prohibits municipalities from requiring parking within 0.5 mile of a major transit stop, with certain exceptions. Given that the Caltrain Lawrence Station is adjacent from the site (0.5 mile away from the proposed development), it is likely the development would be subject to this legislation. However, the applicant is proposing to accommodate the projected parking needs of the development on-site to ensure the site functions and to minimize on-street parking impacts.

Project Description

The project site consists of two parcels: one at 1154 Sonora Court and one at 1170 Sonora Court in the City of Sunnyvale. The project site is shown in Figure 1 on page 3. The parcels are located just north of the Lawrence Caltrain Station. Each of the existing properties have a single-story building and surface parking, which are proposed to be demolished as part of the proposed project. The project site is surrounded by primarily office and multi-family residential uses.

Figure 1: Sonora Court Project Site

Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

The proposed projects consist of a new mixed-use development that will be delivered in two buildings (Building A and Building B) with a total of 221,481 square feet of new office space and 277 new residential units. Both buildings include two-levels of subterranean parking with a combined supply of 559 parking spaces. Figure 2 includes a rendering of the Sonora Court development.

Figure 2: Proposed Sonora Court Mixed-Use Development, Sunnyvale, CA

Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

Parking Required – Lawrence Station Area Plan

The Sonora Court development is located in the City of Sunnyvale's Lawrence Station Area Plan (LSAP) area. The LSAP was adopted in 2016 and updated in 2021 to guide future development of the area surrounding the Lawrence Caltrain Station. The LSAP indicates that historically there is an overabundance of on- and off-street parking in the LSAP plan area. The LSAP highlights the importance of effectively managing existing parking supply and not overbuilding parking in the future. Specifically, the LSAP includes the following parking management strategies to achieve these goals for parking infrastructure:

- Shared parking – allowing for parking to be shared for different uses that have different periods of peak parking demand.
- Structured parking – encouraging parking to be provided in structures rather than surface lots to avoid developments surrounded by parking lots.
- Unbundling – encouraging the selling or renting of parking separately from the price of a residence or commercial lease.
- Car Sharing – encouraging care sharing among employees and residents.

The LSAP includes the overarching transportation demand management (TDM) goal of reducing vehicle trips in the LSAP area through TDM programs. Specifically, the LSAP includes the following TDM policies:

- Encourage business and property owners to collaborate on area-wide TDM strategies for their sites in the LSAP area.
- Achieve a daily trip reduction target of 20 percent and a peak hour trip reduction target of 35 percent for new office/R&D development.
- Achieve a peak hour trip reduction of 5 percent for new retail development.
- Encourage the provision of the following features as part of a TDM program for the LSAP area:
    - Provide shuttle service
    - Provide bicycle parking and end-of-trip facilities (e.g. lockers, showers)
    - Create marketing campaigns to discourage auto trips
    - Offer free transit passes to employees
    - Dedicate carpool/vanpool parking spaces
    - Offer cash in place of a free parking space (parking cash-out)
    - GreenTrip registration

The LSAP allows for reduced parking requirements as compared to the off-street parking requirements in the City of Sunnyvale municipal code Chapter 19.46. Further the State Density Bonus program allows for parking reductions with the provision of affordable housing units. Table 2 on page 5 summarizes the required parking per the municipal code (in the LSAP area) versus the parking provided.

Table 2: Sonora Court Parking Requirements versus Parking Provided

Land Use	Size[1]	Required Ratio[2]	Parking Required
Building A			
Office	142,282	2.75 spaces/1,000SF	391
Residential – studio	52	0.5 space/unit	26
Residential – 1 bedroom	68	0.5 space/unit	34
Residential – 2 bedrooms	52	0.5 space/unit	26
Total Parking Required (Building A)			*477*
Total Parking Required (3% Reduction – Bike Showers/Lockers)			*463*
Total Parking Provided (Building A)			*352*
Shortage			*-111*
Building B			
Office	77,249	2.75 spaces/1,000SF	218
Residential – studio	27	0.5 space/unit	14
Residential – 1 bedroom	48	0.5 space/unit	24
Residential – 2 bedrooms	30	0.5 space/unit	15
Total Parking Required (Building B)			*271*
Total Parking Required (3% Reduction – Bike Showers/Lockers)			*263*
Total Parking Provided (Building B)			*207*
Shortage			*-56*
Total Parking Required (Bldg A & B)			**726**
Total Parking Provided (Bldg A & B)			**559**
Shortage			**-167**

[1] Land use program data provided by WRNS Studio.

[2] Parking ratios per the Sunnyvale Municipal Code Title 19, Article 3, Chapter 19.35. State Density Bonus requirements assume the project includes 20% low-income or 11% very low income and is within ½ mile of a major transit stop.

Source: Walker Consultants, 2022.

Parking Needs Analysis

To provide an understanding of how much parking would be needed to adequately accommodate the proposed project, a parking needs analysis was conducted.

The Benefits of Shared Parking

Shared Parking is fundamentally defined as the ability to use the same parking resource by multiple nearby or adjacent land uses without conflicts and encroachment, including spill over onto adjacent properties and streets. For the analysis herein, Walker employed the use of a shared parking model to project "parking demand" for the project. In accordance with economic theory, "demand" is defined as the quantity of goods or services needed under a specific set of circumstances. Like all zoning requirements for parking, it is the recommended supply based on industry standards and not necessarily a projected maximum accumulation of vehicles, and particularly not over the life of a project. All land use developments experience variations in parking demand as tenants and parking characteristics change.

Shared parking methodology was developed in the 1980s and has been a widely accepted industry standard for rightsizing parking facilities over the past 30+ years. Accepted by cities throughout the U.S. and codified in some zoning ordinances as THE acceptable practice, this shared parking analysis using Walker's Shared Parking Model considers the types, quantities, and user groups of land uses for the development, as well as site-and market-specific characteristics of parking and travel behavior in Sunnyvale. Walker's Shared Parking Model is based on the Urban Land Institute (ULI), the International Council of Shopping Center's (ICSC), and the National Parking Association's (NPA) third edition of its *Shared Parking* publication (SP3)[1]. The Institute of Transportation Engineers (ITE) has also endorsed it as an acceptable method of parking planning and management; it recognized the 2nd edition as the outstanding parking innovation in 2005 and collaborated with the development of SP3. Walker led a team of consultants in writing the updated Shared Parking Third Edition and features the most up-to-date parking demand model. The model is designed to project the parking needs of various types of development from 6:00 a.m. to 12:00 midnight on a typical weekday and a weekend for every month of the year.

Shared parking allows for the sharing of parking spaces among uses in a mixed-use environment — in lieu of providing a minimum number of parking spaces for each individual use. Shared parking commonly results in a reduction of required parking spaces. This reduction, which is sometimes significant, depends on the quantities and mix of uses.

The key goal of a shared parking analysis is to find the balance between providing adequate parking to support a development from a commercial and operational standpoint, while minimizing the negative aspects of excessive land area or resources devoted to parking. We like to describe this as just enough parking for commerce to thrive. It allows tighter, denser connections between land uses, improving walkability and reducing vehicle trips between land uses. It also avoids burdening a development with excessive paved areas and parking spaces.

Allowing multiple land uses and entities to share parking spaces has to the creation of many popular real estate developments and districts, resulting in the combination of office, residential, retail, hotel, and entertainment districts that rely heavily on shared parking for economic viability. Traditional downtowns in large and small cities have depended on shared parking since the time of the horse and buggy, in order to be compact, walkable, and economically viable. In the same way, mixed-use projects have also benefited from the shared-parking principle, which offers multiple benefits to a community, not the least of which is lesser environmental impact due to the reduction in required parking needed, as well as the ability to create a more desirable mix of uses at one location.

Shared parking is thus a key to smarter growth, reducing the environmental and social impacts of underutilized parking.

Shared Parking Methodology

SP3 considers the parking demand for more than 55 different land uses including base parking ratios and default values for daily, hourly, and seasonal variations. The methodology further requires consideration of the availability and use of alternative modes of transportation and captive market effects. In the case of the project, a shared parking analysis recognizes the interrelationship of parking among residents, and on-site, accessory uses such as

[1] Shared Parking (Third Edition), 2019, The Urban Land Institute, Washington, D.C.

proposed retail and food and beverage space as well as the adjacent office uses. The SP3 model generates 494 parking demand computations as follows:

- 19 hours during a day, beginning at 6 a.m. and concluding at midnight
- 2 days per week, a weekday, and a weekend day
- 13 months of the year (including late December as a separate retail month)
- 19 x 2 x 13 = 494 different calculations

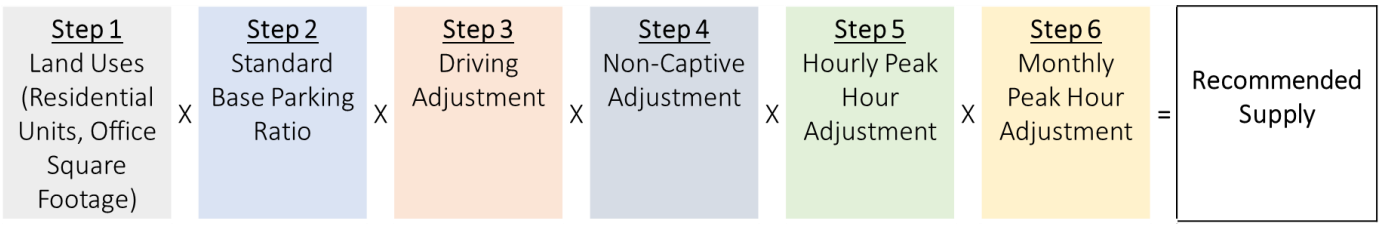
The recommended parking demand is derived based on the highest figure generated from these 494 computations. The model projects the demand on a "design" day, which is typically an activity level based on the parking demand at the 85th percentile level relative to similar properties, including office and residential. It is neither the maximum spaces that might be needed by an unusually successful development (ALL tenants at 100th percentile) nor those used by an average project.

A shared parking analysis begins first by taking the land use quantities of the project, e.g., number of residential units, and multiplying by a base parking demand ratio and monthly and hourly adjustment factors. All base ratios and hourly and monthly adjustments in SP3 are on industry standards that have been vetted by leading parking consultants and real estate professionals.

Two additional adjustments are also applied to the base parking demand ratios, one to reflect an estimate of the local transportation modal split through the application of drive ratios and another to account for the best estimate of captive market effects, as discussed later in this report.

Figure 3 provides an illustrative view of the steps involved in the shared parking analysis.

Figure 3: Steps of Shared Parking Analysis



Source: Walker Consultants, 2022.

Step 1 - Land Use Program

The proposed projects consist of a new mixed-use development delivered in two buildings. Table 3 summarizes the land use program for the project, by building.

Table 3: Sonora Court Land Use Program

Land Use	Building A	Building B
Office (Gross Square Feet)	142,270	79,211
Residential Units – studio	52	27
Residential Units – 1 bedroom	68	48
Residential Units – 2 bedrooms	52	30
Retail/Coffee Shop (Gross Square Feet)	0	380

Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

Assumptions

The following assumptions were made for the shared parking analysis:

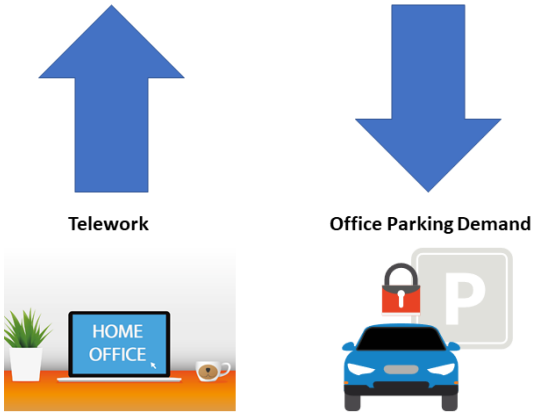
- Building A and Building B will not share parking with one another.
- Within each building, the residents, resident guests, office employees, and office visitors will all share parking with one another. No reserved parking will be provided.
- The retail/coffee shop in Building B is intended to serve people riding Caltrain or office employees/residents already at the project site. No additional parking demand is anticipated from this use.

Step 2 - Base Parking Ratios

The base parking demand ratios represent how many parking spaces should be supplied if the spaces are unshared, and the project is in a suburban context where the driving ratio, or the number of people driving to the site, is at or near 100 percent. Table 4 on page 9 displays the base parking demand ratios used for this analysis. The base ratios used for the residential uses are the published rates in the Third Edition of *Shared Parking,* and Walker's Shared Parking Model, both created in partnership with the Urban Land Institute (ULI). The base ratios are informed by thousands of field parking occupancy studies performed by parking and transportation professionals over decades.

For the office use, Walker modified the weekday base parking ratio included in *Shared Parking*, Third Edition based on preliminary research Walker has done related to the increased trend of teleworking. The COVID-19 pandemic has resulted in a significant increase in teleworking, a trend that trend may continue even post-pandemic. Walker has reviewed more than 100 articles and research studies related to office and teleworking patterns to inform our analysis. It is important to note that the near- and long-term future of remote work is unclear, however Walker's research and literature review suggests these trends. Increases in teleworking often result in a decrease in office parking demand (shown visually in Figure 4 on page 9).

Figure 4: Relationship Between Increased Teleworking and Office Parking Demand



Source: Max Pixel, Walker Consultants.

The adjustments made to the base ratio represent Walker's professional judgement based on preliminary research on teleworking and trends observed.

Table 4: Base Parking Ratios

Land Use	Base Ratio	
Residential, Suburban	**Weekday**	**Weekend**
Studio Resident	0.85	0.85
1-bedroom Resident	0.90	0.90
2-bedroom Resident	1.65	1.65
Resident Guest	0.10	0.15
Office (100-500ksf) – Building A	**Weekday**	**Weekend**
Visitor	0.17	0.03
Employee	2.22	0.31
Office (25-100ksf) – Building B	**Weekday**	**Weekend**
Visitor	0.19	0.03
Employee	2.34	0.32

Source: Walker Consultants, 2022

Step 3 - Driving Ratio

A driving ratio is the percentage of patrons and employees that are projected to drive to the site in a personal vehicle expressed as a ratio. This excludes all non-driving modes of transportation including shuttle busses and other public transportation, taxi, ride-hailing (Lyft/Uber), walking, and bicycling.

Without transportation demand management (TDM) measures, the driving ratio is 82 percent based on the 2019 American Community Survey 5-Year Estimates Means of Transportation to Work data with the workplace

geography being the City of Sunnyvale. Carpooling is accounted for by calculating the cars generated by the single occupancy vehicle (SOV) commuters and carpools and dividing total cars by total commuters, less the telecommuters.

The driving ratio is anticipated to be highly dependent upon implementation of the planned TDM strategies. As discussed in the TDM plan that Walker prepared under separate cover, the project is anticipated to reach the goal of a 35 percent peak hour trip reduction, with mandatory monitoring and reporting of the TDM measures proposed. Therefore, Walker analyzed a 35 percent driving ratio adjustment (65 percent driving ratio). While the TDM strategies also target residential uses, since the peak hour for the development is driven by the office uses, which peak during the day when people are at work, Walker did not adjust the residential driving ratio. Walker assumed a 100 percent driving ratio for residential and office visitor uses.

Step 4 - Non-Captive Ratio

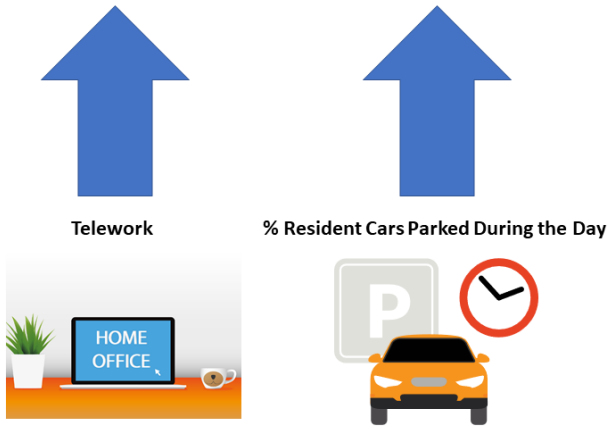
A shared parking analysis recognizes that people often visit two or more establishments within the same development site, without increasing the on-site parking demand. The noncaptive ratio is an estimate of the percentage of parkers at a land use who are not already counted as being parked at another of the land uses. The term "captive" has been borrowed from market researchers to describe people who are already present in the immediate vicinity and are likely patrons of a second use. Traffic engineers also make captive adjustments to account for people visiting multiple venues on one trip. However, the parking adjustment will not be precisely the same as the captive adjustments for either market researchers or traffic engineers.

The shared parking model has a subroutine that calculates the potential patronage of various destinations based on the populations of employees and residents present in the development. We have used the default values verbatim. All non-captive ratios are 100 percent (assumes that people are only parked for one land use), except for office employees which have a 98 percent non-captive ratio (2 percent of office employees are projected to live at the Sonora Court residential uses).

Step 5 - Presence Factors

Adjustments are made to the shared parking model to account for parking demand variability by hour of day and month of year. These time-based adjustments are referred to as a “presence” adjustment. Presence is expressed as a percentage of the peak hour demand on a design day (a typical day) for both time of day and month of the year. The Third Edition of Shared Parking provides these presence factors for residential and office land uses. Walker used the presence factors recommended in Shared Parking Third Edition, with one modification: Walker increased residential daytime presence factors to account for more residents working from home. With the trend of increase telework, more residents may stay home and keep their vehicles parked (illustrated in Figure 5 on page 11).

Figure 5: Relationship Between Increased Teleworking and Residential Presence



Source: Max Pixel, Walker Consultants.

Parking Needs Analysis Results

Building A

For Building A, the peak parking demand is expected to occur in January, on a weekday, at approximately 10:00 a.m. with a recommended supply of 346± parking spaces. With plans to accommodate 352 spaces on-site, the proposed project would experience a surplus of 6± spaces. Table 5 shows the recommended parking supply for Building A by land use.

Table 5: Recommended Parking Supply – Building A

Land Use	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Adj	Project Ratio	Unit	Peak Hr Adj 10AM	Peak Mo Adj Jan	Recom Parking Supply
Residential										
Studio	52	units	0.85	100%	100%	0.85	units	59%	100%	**27**
1-Bedroom	68	units	0.90	100%	100%	0.90	units	59%	100%	**37**
2-Bedroom	52	units	1.65	100%	100%	1.65	units	59%	100%	**51**
Visitor	172	units	0.10	100%	100%	0.10	units	20%	100%	**4**
Office (100,000-500,000 SF GFA)										
Visitor	142,270	SF GFA	0.17	100%	100%	0.17	SF GFA	100%	100%	**25**
Employee	142,270	SF GFA	2.22	65%	98%	1.42	SF GFA	100%	100%	**202**
Total										**346**
									Proposed Parking Supply	352
									Surplus	*+6*

Source: Walker Consultants, 2022.

Building B

For Building B, the peak parking demand is expected to occur in January, on a weekday, at approximately 10:00 a.m. with a recommended supply of 207± parking spaces. It is projected that there will be a surplus of 0± spaces. Table 6 summarizes the recommended parking supply for Building B by land use.

Table 6: Recommended Parking Supply – Building B

Land Use	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Adj	Project Ratio	Unit	Peak Hr Adj 10AM	Peak Mo Adj Jan	Recom Parking Supply
Residential										
Studio	27	units	0.85	100%	100%	0.85	units	59%	100%	**14**
1-Bedroom	48	units	0.90	100%	100%	0.90	units	59%	100%	**26**
2-Bedroom	30	units	1.65	100%	100%	1.65	units	59%	100%	**30**
Visitor	105	units	0.10	100%	100%	0.10	units	20%	100%	**2**
Office (25,000-100,000 SF GFA)										
Visitor	79,211	SF GFA	0.19	100%	100%	0.19	SF GFA	100%	100%	**16**
Employee	79,211	SF GFA	2.34	65%	98%	1.50	SF GFA	100%	100%	**119**
Total										**207**
									Proposed Parking Supply	207
									Surplus	0

Source: Walker Consultants, 2022.