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TREE PROTECTION REPORT

660 UNIVERSITY AVENUE

PALO ALTO, CALIFORNIA

(511 BYRON ST., 660 & 680 UNIVERSITY AVE.)

Submitted to:

Smith Development
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Mountain View, CA 94041

Prepared by:

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EXHIBITS

1.0 INTRODUCTION

Smith Development is planning to construct a mixed-use, four-story building with two levels of underground parking on three properties[1] aligning the southeast side of University Avenue, between Middlefield Road and Byron Street; the project is titled 660 University Avenue. Two existing buildings and a surface parking lot currently occupy the site and will be demolished. As part of their planning submittal, Smith Development has retained me to prepare this *Tree Protection Report*, and specific tasks assigned to execute are as follows (this report serves to update my prior one, dated 11/19/21, prepared for this project):

- Visit the site on 1/16/21, 11/9/21 and 12/12/23 to identify 25 trees which have trunks located within the subject property, on adjoining properties within close proximity to the boundary, and along street frontages up to 30 feet from the boundary.
- Determine each tree's trunk diameter pursuant to the City's *Tree Technical Manual*[2] and the *Guide for Plant Appraisal*, *10th Edition*;[3] all diameters represent inches and are rounded to the nearest whole number.
- Estimate each tree's height and average canopy spread (rounded to the nearest fifth).
- Ascertain each tree's health, structural integrity and form, and assign an overall condition rating (e.g. good, fair, poor or dead).
- Rate each tree's suitability for preservation (e.g. high, moderate or low).
- Obtain photographs; see Exhibit C (represent those obtained in 2021).
- Assign numbers in a sequential pattern from #1 thru 25, and plot on the site map in Exhibit B (base map is a copy of the *Topographic & Boundary Survey* prepared by BKF and dated 2/17/21).
- Affix round metal tags with corresponding, engraved numbers onto the trunks of onsite and street trees (i.e. all but #10).
- Identify which are defined by the PAMC as protected and/or street trees.
- Review the Planning Resubmittal #5 drawing set, dated 10/31/23, to ascertain the potential tree disposition and potential impacts.
- Provide design guidelines and protection measures to help avoid or mitigate potential impacts to retained trees, as well as conform with City requirements.
- Prepare a written report presenting the above information, and submit via email as a PDF document.

[1] The three property addresses include 511 Byron Street, 660 and 680 University Avenue.
[2] Available for viewing at *www.cityofpaloalto.org/civica/filebank/blobdload.asp?BlobID=6436*.
[3] Authored by the Council of Tree & Landscape Appraisers, and published by the International Society of Arboriculture (ISA).

2.0 TREE DESCRIPTION

Twenty-five (25) trees of 11 various species were inventoried for this report. They are sequentially numbered as 1 thru 25, and the table below identifies their common names, assigned numbers, counts and overall percentages.

Table 1 - Tree Count and Composition

NAME	TREE NUMBER(S)	COUNT	% OF TOTAL
Chinese pistache	8	1	4%
Coast live oak	10	1	4%
Crape myrtle	19 thru 24	6	24%
European hackberry	1	1	4%
Glossy privet	4 & 5	2	8%
London plane tree	2, 3 & 6	3	12%
Olive tree	11	1	4%
Purple Robe locust	17 & 18	2	8%
Raywood ash	12 thru 16	5	20%
Southern magnolia	7 & 9	2	8%
Yew pine	25	1	4%
	Total	**25**	**100%**

Specific information regarding each tree is presented within the table in Exhibit A. The trees' assigned numbers and approximate locations can be viewed on the site map in Exhibit B, and photographs are presented in Exhibit C.

Nine (9) trees, #1 thru 9, have trunks within the public right-of-way and are defined and regulated by the PAMC as street trees. Tree #1 is along Middlefield Road, #2 thru 6 align University Avenue, and #7 thru 9 align Byron Street. Of these, #1 thru 8 are along the street frontage of the project site, whereas #9 is along the frontage of the neighboring southeastern property (and included to conform with CPA report standards).

Tree #10 is located offsite in close proximity to the property boundary. Trees #11 thru 25 have trunks situated within the property.

Two (2) trees, #9 and 19, are not shown on the topo survey used for Exhibit B. As such, consider their trunk locations represented in Exhibit B as being only roughly approximate locations and not surveyed by me.

Trees #1-9 and 11-25 are considered ornamentals and not native to the local region. Tree #10 is a coast live oak is native, and represents the largest, most visible tree inventoried for this project.

Tree #10 (coast live oak)

Tree #10 is defined by the CPA as a protected tree (refer to Section 3.0 in this report for additional information). Its trunk diameter is 50 inches[4] at 54 inches above soil grade, is around 60 feet tall, and has a mostly balanced canopy spreading nearly 90 feet across.

As part of the initial site study, Smith Development retained me in January 2021 to evaluate #10's condition, as well as provide development setbacks to adequately protect its root zone and canopy while achieving a reasonable assurance of survival, structural integrity and form. A summary of additional observations obtained on 1/16/21 follows (and confirmed to be the same on 12/12/23), and photos obtained on 1/16/21 then can be observed in Exhibit C (page C-3). Information regarding my recommended setbacks and review of potential impacts are presented in Section 5.0.

The oak appears viable and healthy, and exhibits no symptoms or signs of being infected or infested by harmful pathogens. Shoot growth, color and density appear typical for a coast live oak, and woundwood has favorably closed off the vast majority of prior wounds.

[4] The diameter represents an approximation using a Biltmore stick.

Existing features beneath its canopy and surrounding the trunk appear dated, and based on its generally healthy condition, I conclude the tree has adapted well to current site and growing conditions. Its base is buried by leaf debris, and is situated roughly 6 inches or less from a 2-foot tall wall. Northeast of its trunk is barren soil, surface roots, and a raised deck which nears 2 feet above grade and serves as a walkway. Towards the southwest, this walkway continues by nearly 30 feet from the trunk, steadily descending and serving as an ADA ramp leading to the neighbor's parking lot.

Beneath the section of canopy overhanging the project site is an asphalt parking lot elevated above original grade by roughly 2 feet. There are no signs of roots forming cracks or mounds of the asphalt surface; however, given the dated age of the wall and surrounding features, I suspect roots are present, but highly limited as compared to the more favorable root-growing conditions on the neighboring property. A parking lot medium, particularly as elevated as this one, is quite unsuitable for promoting root growth, and the retaining wall footing (depth unknown) also contributes towards deflecting root growth away from the parking lot.

Its structure also appears intact and stable, consisting of a main trunk dividing into five leaders at 10 feet high; their unions are favorably spaced apart, although visual and manual examination of the junction should occur once neighboring site access can be obtained to identify the presence of any defects, or lack thereof. The section of trunk and root collar buried by leaf debris should also be examined at that time.

The canopy is highly elevated above the parking lot, and appears to have been regularly pruned over its many years. The elevated canopy, however, does unfavorably displace limb and branch weight towards the canopy's edges, and potentially increases the possibility of limb and branch failure (although the regular maintenance provided certainly helps minimize this risk).

3.0 REGULATED TREES

The PAMC regulates specific types of trees on public and private property for the purpose of avoiding their removal or disfigurement without first being reviewed and permitted by the CPA. Three categories within the status of regulated trees include protected trees (PAMC 8.10), street trees (PAMC 8.04.020) and designated trees. Additional Information regarding regulated trees can be viewed on page xiii of the City's *Tree Technical Manual*.

One tree, #10, is defined as a protected tree due to being a coast live oak with a trunk diameter of 50 inches (the threshold for coast live oaks is having a trunk diameters of ≥11.5 inches at 54 inches above grade). Note that although a new and expanded definition for protected trees was recently codified by the CPA on 7/21/22, the prior definition, presented herein, applies to this project as the planning application precedes 7/21/22.

Trees #1 thru 9 are situated within the public right-of-way and defined as street trees.

The designated tree category applies to existing trees planted on a commercial or planned development site, for either designated tree landscape or to mitigate tree removal. This category can be enacted by the CPA and applied to any specific tree associated with a proposed development.

4.0 SUITABILITY FOR TREE PRESERVATION

Each tree has been assigned either a high, moderate or low suitability for preservation rating as a means to cumulatively measure its health, structural integrity, anticipated life span, remaining life expectancy, location, size, particular species, tolerance to construction impacts, growing space, and safety to property and persons within striking distance. Descriptions of these ratings are presented below, and the high category comprises 1 tree (4%), the moderate category 15 (or 60%), and the low category 9 (or 36%).

High: Applies to #10.

This coast live oak appears healthy and structurally stable; has no obvious, significant health issues or structural defects; presents a good potential for contributing long-term to the site; and requires only periodic or regular care and monitoring to maintain its longevity and structural integrity.

Moderate: Applies to #1-3, 7, 8, 11 and 17-25.

These trees contribute to the site, but at levels less than those assigned a high suitability; might have health and/or structural issues which may or may not be reasonably addressed and properly mitigated; and frequent care is typically required for their remaining lifespan.

Low: Applies to #4-6, 9 and 12-16.

These trees have significant health and/or structural issues expected to worsen regardless of tree care measures employed (i.e. beyond likely recovery). As a general guideline, they should be removed regardless of future site improvements, and any which are retained require frequent monitoring and care throughout their remaining lifespans to minimize risk to any persons or property within striking distance.

5.0 IMPACT ANALYSIS

5.1 Tree Disposition Summary

My review of project plans reveals the following tree disposition:

- **Remove** (19 in total): #4-6, 8 and 11-25.
- **Retain in Place** (6 in total): #1-3, 7, 9 and 10.

Table 2 below, and continued on the next page, summarizes each tree's proposed disposition, and lists their name, trunk diameter, canopy spread, and suitability for preservation.

Table 2 - Tree Disposition Table

TREE #	COMMON NAME	DISPOSITION		DIAM (in.)	CAN (ft.)	SUITABILITY FOR PRESERVATION
		RETAIN	RMV			
1	European hackberry	X	-	20	40	Moderate
2	London plane tree	X	-	15	50	Moderate
3	London plane tree	X	-	14	40	Moderate
4	Glossy privet	-	X	6	15	Low
5	Glossy privet	-	X	13	20	Low
6	London plane tree	-	X	10	35	Low
7	Southern magnolia	X	-	21	35	Moderate
8	Chinese pistache	-	X	14	35	Moderate
9	Southern magnolia	X	-	20	35	Low
10	Coast live oak	X	-	50	90	High
11	Olive tree	-	X	8, 8	10	Moderate
12	Raywood ash	-	X	2	10	Low
13	Raywood ash	-	X	12	15	Low
14	Raywood ash	-	X	11	20	Low
15	Raywood ash	-	X	6	15	Low
16	Raywood ash	-	X	15	20	Low
17	Purple Robe locust	-	X	6	20	Moderate
18	Purple Robe locust	-	X	5	20	Moderate

Table continued:

TREE #	COMMON NAME	DISPOSITION		DIAM (in.)	CAN (ft.)	SUITABILITY FOR PRESERVATION
		RETAIN	RMV			
19	Crape myrtle	-	X	5	10	Moderate
20	Crape myrtle	-	X	3, 3, 2	5	Moderate
21	Crape myrtle	-	X	6	10	Moderate
22	Crape myrtle	-	X	6	10	Moderate
23	Crape myrtle	-	X	6	15	Moderate
24	Crape myrtle	-	X	4, 3, 2	10	Moderate
25	Yew pine	-	X	8	10	Moderate

LEGEND
RMV = Remove
DIAM = Diameter (trunk)
CAN = Canopy spread (average)

5.2 Proposed Removals

The 19 trees proposed for removal include #4-6, 8 and 11-25. Trees #4 thru 6 are street trees aligning University Avenue, and will be removed due to their poor condition and low suitability for preservation. Trees #4 and 5 are small privets with advanced and extensive decline and decay. Tree #6 is a London plane which has partially uprooted; leans towards the street; and opposite the lean, has formed a pronounced buttress root causing extensive and somewhat dramatic hardscape damage. Removing #4 thru 6 provides the opportunity to significantly improve the future, long-term tree landscape and site/public safety.

Tree #8 is a street tree of moderate suitability for preservation, and requires removal to accommodate the future drive aisle off Byron Street.

Trees #11 thru 25 are located onsite and within the proposed building and parking garage footprint. Each represents a relatively small, non-native assigned either a low or moderate suitability for preservation.

For replacement sizes, amounts and species, refer to the CPA's recommendations.

5.3 Retained Trees

The six trees planned for retention include #1-3, 7, 9 and 10. Of these, #1-3, 7 and 9 are street trees, and #10 is the neighboring oak. This section provides my analysis for those exposed to impacts, to include all but #9, and discusses general recommendations to minimize described impacts.

Additional and more detailed mitigation measures are presented within the next section of this report. They should be incorporated into project plans, carefully followed throughout the entire demolition, grading and construction processes, and are subject to revision upon reviewing any revised project plans.

Trees #1-3 and 7

For street trees aligning the project site, namely #1-3 and 7, consider their protection zones as being from their trunks up to the existing back of sidewalks and street curbs, and 10 feet in all other directions. Each tree will sustain an estimated 15- to 20-percent of canopy loss to accommodate clearances for building construction. Shoring installation for the parking garage may require an additional 5- to 10-percent of additional canopy removal.

Overall, I find the trees will not be adversely impacted, provided the following: pruning is judiciously performed through limited and highly-selective cuts by a California State licensed tree-service company approved by the CPA; scaffolding is minimized in width, and manlifts are utilized, where needed, to avoid unnecessary limb removal; and the shoring methodology is carefully studied and locations for drilling or driving piles are strategically placed to minimize canopy loss.

Protection for these trees should include what the CPA defines as Type III Protection (aka trunk wrap), plus plywood to cover unpaved ground (i.e. planters) within their TPZ. Chain link panels could also be utilized in lieu, or in combination of, plywood.

Tree #10

For #10, the architectural design substantially conforms to my recommendations provided in January 2021, which stipulates a minimum 30-foot setback from oak's trunk for the future building and parking garage, and a minimum setback of 20 feet for all ground disturbance beneath the existing asphalt surface.

The 30-foot setback from #10's trunk considers an additional 5 to 6 feet towards the tree where pruning would occur to establish clearances from the building, scaffolding, manlifts, and any shoring equipment. The proposed balconies do encroach inside the 30-foot setback by 5 to 6 feet, but provided construction scaffolding does not need to be erected beyond the balconies' edges (i.e. between the balconies and tree's trunk), then the building remains in conformance with the setback. For shoring to construct the parking garage, strategic placement of piles or I-beams and highly-selective pruning can limit impacts.

The estimated total canopy loss resulting from building construction is only 15-percent. and will not adversely affect the oak's existing form. This considers the required removal of a low, 17-inch diameter limb overhanging the lot; an 8-inch diameter branch emerging from a 14-inch diameter limb growing mostly upright at a slight westerly angle; and roughly a dozen smaller branches ranging in size from 1 to 6 inches in diameter.

Additional, minor sections of canopy may also require removal to facilitate shoring installation to build the underground parking garage; based on my site analysis, I estimate only 5- to 10-percent, provided the shoring methodology is carefully studied and locations for drilling or driving piles are strategically placed.

The 20-foot setback from #10's trunk for ground disturbance applies to any soil compaction, grading, subexcavation, overexcavation, trenching, drilling/auguring, storm drains, swales, etc. My review of proposed plans reveals this has been achieved, and a large section of existing asphalt within this area will be retained and a wood deck built on top. Based on my site analysis and plan review, I estimate only 15- to 20-percent of its root zone will be impacted through implementing the proposed design, a level considered highly tolerable, particularly for coast live oaks.

Protection for #10 would consist of CPA Type I Protection (aka chain link mounted on driven posts).

6.0 TREE PROTECTION MEASURES

Recommendations presented within this section are based on my review of the 10/31/23 plan set, and serve as measures to help mitigate or avoid impacts to trees anticipated for retention. I (hereinafter, "project arborist") should be consulted in the event any cannot be feasibly implemented. Please note, unless otherwise stated, all referenced distances from trunks are intended to be from the closest edge, face of, their outer perimeter at soil grade.

6.1 Design Guidelines

1. Consider each Tree Protection Zone (TPZ) as those minimum distances specified within Section 5.0 of this report. The TPZ is the area where the following minimum activities should be avoided: trenching, soil scraping, compaction, mass and finish-grading, overexcavation, subexcavation, tilling, ripping, swales, bioswales, storm drains, dissipaters, equipment cleaning, removal of underground utilities and vaults, altering existing water/drainage flows, stockpiling and dumping of materials, and equipment and vehicle operation. Where an impact encroaches slightly within a setback, it can be reviewed on a case-by-case basis by the project arborist to determine appropriate mitigation measures.

2. The CPA requires all design changes occurring near retained trees are reviewed by the project arborist prior to resubmitting plans, for purposes of identifying potential impacts and any possible mitigation measures.

3. Per City requirements, incorporate this report into the project plan set, following the CPA T-1 sheet, and copying onto T-2, T-3, etc. until its entirety is shown (and in a manner which all report text can be clearly read on the plan sheets).

4. On all architectural, civil, landscape and electrical site-related plans, show the trunk locations, trunk diameters (as circles to scale), and assigned numbers of all inventoried trees (see map in Exhibit B). Also, add notes instructing contractors to comply with recommendations presented in this report and on Sheet T-1, and to contact the project arborist prior to permitted work being performed within a TPZ.

5. On L4.1 and SD1.0, include the following: the notes mentioned in item 4 (second sentence), identify which trees are proposed for removal by placing an "X" across their trunks, and identify the Tree Protection Zones and protection fencing types as shown on the map in Exhibit B.

6. On SD1.0, add a note specifying to abandon any underground portions of existing and unused lines, pipes and manholes, etc. within a TPZ (prescribe they are cut off at existing soil grade versus being dug up and causing root damage). Also, to comply with this, modify the utility demolition currently prescribed within #1's TPZ.

7. Route underground utilities and services beyond TPZs, and per CPA guidelines for street trees, establish at least 10 feet from their trunks. Where this is not feasible, consider the following alternative trenching or installation methods (listed in order of least to most impactful): directionally bore by at least 3.5 to 4 feet below grade, tunnel using a pneumatic air device (e.g. an AirSpade®), or manually dig with a shovel (i.e. no jackhammer); these assume pipe bursting, an optimal method, does not apply to this project. For boring, establish access pits and above-ground infrastructure (e.g. splice boxes, meters and vaults) beyond TPZs.

8. Where within 30 feet from #10's trunk, ensure specifications by the geotechnical, soils and structural engineers do not require compaction, overexcavation, subexcavation or fill beyond 2 feet from the parking garage wall (towards the tree) and 5 feet beyond the building's foundation. Shoring utilized to achieve these setbacks, such as a pile driver or drill rig, shall not be used where significant damage to a tree's canopy would occur (can be determined on a case-by-case basis).

9. The proposed sidewalks within the trees' TPZs should be designed and built entirely above existing soil grade and surface roots (i.e. a no-dig design), including for base material, edging and forms. Also, direct compaction of soil shall be avoided (levels comparable to foot-tamping are acceptable), and soil fill used to bevel the top of walk to existing grade should not exceed 18 to 24 inches from a walk's edge, not be compacted, nor placed closer than 10 feet from a tree's trunk. Tensar® BX Geogrid *(www.tensarcorp.com)* is a material which can help address these limited excavation and compaction requirements.

10. For any retaining or landscape wall within a TPZ, utilize a pier and above-grade beam system, establish the beam spanning between footings to be above-grade (i.e. a no-dig design except for footings), and avoid fill and compaction between footings.

11. Design any new bioswales, storm drains and swales well-beyond TPZs.

12. The permanent and temporary drainage design, including downspouts, should not require water being discharged beneath #10's canopy.

13. All electrical routes should be designed and represented on the electrical site plan to be beyond TPZs.

14. Any new light poles should be established beyond tree canopies, or at a minimum, only where minor branch clearance is needed. The proximity of tree trunks should also be considered, and placed as far from them as possible.

15. The future staging area and route(s) of access should be shown on the final site plan and avoided on unpaved areas beneath or near canopies.

16. The erosion control design should represent silt fence and/or straw rolls at locations beyond TPZs, and at a minimum, not against a tree's trunk. Where within a TPZ, the material should not be embedded into the ground by more than 2 inches, nor require the severance of surface or shallow roots.

17. Avoid specifying the use of herbicides use within a TPZ; where used on site, they should be labeled for safe use near trees. Also, liming shall not occur or be prescribed within 50 feet from a tree.

18. The landscape design should conform to the following additional guidelines:
    a. Tilling, ripping, surface scraping and compaction within TPZs should be avoided.
    b. Irrigation should not strike within 12 inches from trunks of existing trees, nor applied against trunks of new trees.
    c. Plant material installed beneath tree canopies should be >12 to 24 inches from their trunks.

d. New street tree(s) should be designed to be at least 10 feet from any existing or new utility (per CPA guidelines).
e. All new trees should be installed, including necessary irrigation, by an experienced California state-licensed landscape contractor (C-27) or tree service company (D-49), and performed to professional industry standards. Only if necessary to stand upright, they should be double-staked (no cross-brace) with rubber tree ties or equivalent, and the support stakes cut below the first main lateral branch. All nursery stakes shall be removed. Root crowns of new trees shall be visible and absent of encircling roots.
f. Irrigation and lighting features (e.g. main line, laterals, valve boxes, wiring and controllers) should not require trenching inside TPZs, including header/lateral lines. In the event this is not feasible, they may require being installed in a radial direction to, and terminate a specific distance from a trunk (versus crossing past it). In certain instances, a pneumatic air device may be needed to avoid root damage, and any Netafim tubing placed on grade.
g. Irrigation for new trees should be supplied through an automatic timer, separate from other plant material, and supplied by one to two bubblers (minimum two for a 48-inch box). The bubblers should be placed and staked on the rootball's surface (not against a trunk, in a sleeve or on mulch), at around 1/2 to 1/3 the distance between the trunk and rootball edge. Additionally, an 8-inch tall circular berm formed by soil should established around a rootball's perimeter, and a 3-inch layer of mulch spread over their tops, kept 1-inch from the trunks' bases.
h. Ground cover beneath canopies of existing trees should be comprised of a 3-inch layer of coarse wood chips or other high-quality mulch (gorilla hair, rock, stone, gravel, black plastic or other synthetic ground cover should be avoided). Mulch should kept off the trees' trunks or visible root collars.
i. Bender board or other edging material proposed beneath the canopies should be established on top of existing soil grade (such as by using vertical stakes).
j. Herbicides should be avoided within a TPZ, and where used on site, labeled for safe use near trees. Liming shall not occur within 50 feet from a trunk.

6.2 Before Demolition, Grading and Construction

19. Several weeks prior to mobilizing equipment for demolition, and again, prior to shoring, grading and utility work, conduct a site meeting between the general contractor, applicable subcontractors, and project arborist. The purpose for these meetings is to review tree protection, demolition procedures, shoring methodology and vertical clearances needed for the pile driver or drill rig, and excavation for the underground garage, trench routes, limits of grading, supplemental watering, mulching, pruning, routes of access, staging, and other items and protection measures presented in this report.

20. The project arborist must also regularly inspect the project site as outlined on page 2-14 of the *Tree Technical Manual* (Section 2.30 Inspection Schedule), and verify conformance to tree protection measures. Inspections shall occur at least once per month and continue through final inspection, and additional site visits are necessary to observe/advise regarding tree care and/or services. A summary of pertinent observations and recommendations shall coincide with each inspection.

21. Avoid interrupting any existing irrigation. In the event interruption does occur, supplemental with potable water, and discuss the methodology, frequency and amount with the project arborist beforehand.

22. Prior to mobilizing equipment to the site, install tree protection to enclose all unpaved sections of the TPZs. For tree #10, utilize Type I Protection, which include affixing 5- to 6-foot tall chain link onto 2-inch diameter steel posts spaced apart as needed to remain upright. For all street trees, utilize Modified Type III Protection, which consists of wrapping a single straw wattle horizontally around the trunk at roughly 10 feet high and another around its base (loosely); placing boards (2"x4") vertically around the outside, from ground to 10 feet high; then wrapping orange-plastic fencing around the boards two to three times and tying together. Additionally, lay 3/4- to 1-inch thick plywood over unpaved sections of the planters within the TPZs, or if better, chain link panels mounted on concrete blocks or metal stands. All protection shall remain in place until otherwise instructed by the project arborist, and Sheet T-1 for additional information. Note that should fencing for #10 require being temporarily opened, conduct work under supervision by the project arborist.

23. Affix warning signs every 10± feet of #10's fencing, and one onto the trunk wrap of each street tree. The signs shall be at least 8-½ by 11 inches in size, and refer to Sheet T-1 for a CPA template.

24. Prior to utility installation and grading, review the staked locations with the project arborist where within or near a TPZ. Also, identify the precise locations of where underground utilities within TPZs will be capped (i.e. where being abandoned).

25. All pruning shall be performed under direction of the project arborist, conducted in accordance with the most recent ANSI A300 standards, and performed by a California licensed tree-service contractor (D-49) with an ISA certified arborist in a supervisory role.

6.3 During Demolition, Grading and Construction

26. Where within the assigned TPZs, all work must performed under the presence of and direct supervision by the project arborist; by foot-traffic only without the travel or operation of heavy equipment, including small tractors; and any approved excavation manually conducted using hand tools only (no jackhammers) and/or utilizing a pneumatic air device operated by a tree service.

27. Great care is needed during demolition and construction to avoid excavating into the ground and disturbing roots within TPZs, and equipment shall not travel over newly exposed ground/roots during the process. Additionally, equipment and truck operators must also be aware of existing trees (both along the street and onsite) to avoid damaging limbs, branches and trunks, as well as the scorching of foliage. Contact the project arborist well in advance of a potential conflict (wrap protection around limbs may be necessary before potential damage occurs).

28. The prescribed removal of any existing plant material within a TPZ must be manually performed, and the work reviewed with the project arborist beforehand.

29. Digging for any bollards or permanent fencing within a TPZ, such as for #10, shall be manually performed using a shovel or post-hole digger. For any root encountered during the process with a diameter ≥2 inches, shift the hole over by 12 inches and repeat the process.

30. Spoils generated during demolition, excavation and trenching must not be piled or spread over unpaved ground within a TPZ. If necessary, temporarily pile on existing concrete, plywood or a tarp.

31. Any authorized digging within a TPZ should retain and protect roots encountered with diameters of ≥2 inches. Once exposed, cover with wet burlap and keep continually moist until they can be assessed by the project arborist; note that roots of street trees must be evaluated by the CPA arborist prior to severing. If authorized by the project arborist and/or CPA arborist for cutting, cleanly severe at 90° to the angle of root growth against the cut line using sharp tools (e.g. loppers or handsaw), and then immediately after, the cut end shall be either buried with soil or kept continually moist by burlap until the dug area is backfilled. Roots encountered with diameters less than the 2-inch threshold can be cleanly severed at a 90° angle to the direction of root growth.

32. All electrical and irrigation routes shall be staked, reviewed and approved by the project arborist prior to trenching occurring within a TPZ.

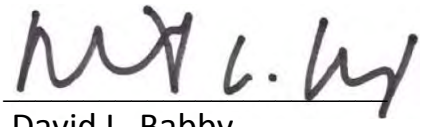
33. Avoid using tree trunks as winch supports for moving or lifting heavy loads, or for tying rope, cables, chains, signs or other items around.

34. Dust accumulating on trunks and canopies during dry weather periods may need to be periodically washed away (e.g. every three to four months).

35. Where beneath canopies, avoid disposing harmful products (such as cement, paint, chemicals, oil and gasoline) anywhere on site that allows drainage within or near TPZs; do not wash any equipment; and avoid applying herbicides (if applied, they should be labeled for safe use near trees). Liming shall not occur within 50 feet from a trunk.

7.0 ASSUMPTIONS AND LIMITING CONDITIONS

- All information presented herein covers only the inventoried trees listed in Exhibit A, and reflects their size, condition, and areas viewed from the project site, as well as adjoining streets and sidewalks on 1/16/21 and 12/12/23. I hold no opinion towards other trees on or surrounding the project area.
- The documented condition and suitability ratings of dormant trees are subject to change once they can be observed following their annual regrowth of leaves.
- Observations were performed visually from the ground without probing, coring, dissecting or excavating.
- I cannot provide a guarantee or warranty, expressed or implied, that deficiencies or problems of any trees or property in question may not arise in the future.
- No assurance can be offered that if all my recommendations and precautionary measures (verbal or in writing) are accepted and followed, that the desired results may be achieved.
- I cannot guarantee or be responsible for the accuracy of information provided by others.
- I assume no responsibility for the means and methods used by any person or company implementing the recommendations provided in this report.
- The information provided herein represents my opinion. Accordingly, my fee is in no way contingent upon the reporting of a specified finding, conclusion or value.
- Numbers shown on the site map in Exhibit B are solely intended to represent a tree's roughly approximate location and should not be construed as surveyed points.
- This report is proprietary to me and may not be copied or reproduced in whole or part without prior written consent. It has been prepared for the sole and exclusive use of the parties to who submitted for the purpose of contracting services provided by David L. Babby.
- If any part of this report or copy thereof be lost or altered, the entire evaluation shall be invalid.

Prepared By:  Date: December 20, 2023

David L. Babby
Registered Consulting Arborist® #399
Board-Certified Master Arborist® #WE-4001B
CA Licensed Tree Service Contractor #796763 (C61/D49)

ASCA RCA #399 Registered Consulting Arborist®

EXHIBIT A:

TREE INVENTORY TABLE

(four sheets)

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE			CONDITION				Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED	
		Trunk Diameter (in.)	Height (ft.)	Canopy Spread (ft.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Form (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)			Protected Tree	Street Tree
1	European hackberry (*Celtis australis*)	20	35	40	60%	40%	80%	Fair	Moderate	-	-	X

Comments: Within a 4' wide planter strip between street and sidewalk. Trunk's base abuts curb. Highly elevated canopy. Sidewalk is slightly raised, now and historically. Codominant leaders emerge at 8' high. Has three large, partial girdling roots, one of which grows over a buttress root and can be pruned away.

2	London plane tree (*Platanus × hispanica*)	15	55	50	60%	70%	60%	Fair	Moderate	-	-	X

Comments: Dormant. W/in a narrow, 3' wide by 4.5' long planter. Adjacent sidewalk is raised now and historically, and adjacent curb is cracked. Asymmetrical canopy with excessive limb weight, and lowest limb is elongated and grows towards the building. Surface root in lawn adjoining sidewalk.

3	London plane tree (*Platanus × hispanica*)	14	50	40	60%	70%	80%	Fair	Moderate	-	-	X

Comments: Dormant. Within a 3' wide by 15' long planter. Adjacent sidewalk is cracked at E corner of planter. Surface root in lawn adjoining sidewalk. Vertical form.

4	Glossy privet (*Ligustrum lucidum*)	6	15	15	30%	30%	30%	Poor	Low	X	-	X

Comments: Within a 2' wide by 3.5' long planter. Leans slightly NW. Significant decline, and top section is dead. Prior leader cut at 6' cut - the resulting wound is decaying. At light pole and adjacent concrete is raised.

5	Glossy privet (*Ligustrum lucidum*)	13	20	20	20%	20%	20%	Poor	Low	X	-	X

Comments: Within a 2' wide by 4' long planter. Adjacent curb is buckled and raised, and adjacent sidewalk has been historically raised at multiple locations. Significant decline, w/ 50%+ being dead. Large decaying wounds at 6' and 9' high. Asymmetrical canopy with multiple large dead limbs.

6	London plane tree (*Platanus × hispanica*)	10	45	35	70%	30%	60%	Poor	Low	X	-	X

Comments: Dormant. Within a 2.5' wide by 3.5' long planter. Has a 16° NW lean, and opposite the lean is a large buttress root. Sidewalk and curb have been historically raised at multiple locations. Codominant top. Asymmetrical canopy with an extended limb over street, as well as a low branch lying on top of #22. Deadwood, including a small dead branch suspended in canopy.

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE			CONDITION				Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED	
		Trunk Diameter (in.)	Height (ft.)	Canopy Spread (ft.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Form (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)			Protected Tree	Street Tree
7	Southern magnolia (*Magnolia grandiflora*)	21	30	35	40%	50%	50%	Poor	Moderate	-	-	X

Comments: Within a 3.5' wide by 15' long planter. Root crown occupies entire planter width. Adjacent curb is buckled at multiple locations, including historically. Advanced and extensive decline. Canopy has been reduced sometime ago.

8	Chinese pistache (*Pistacia chinensis*)	14	30	35	60%	60%	70%	Fair	Moderate	X	-	X

Comments: At NW edge of a 2' wide by 9' long planter. Adjacent sidewalk historically raised at multiple locations. Large old wound at canopy's bottom. Low canopy over street and roof. Buried root collar.

9	Southern magnolia (*Magnolia grandiflora*)	20	35	35	30%	30%	30%	Poor	Low	-	-	X

Comments: Along frontage of adjoining SE property (offsite), its trunk being nearly 22' from the property's fence. Within a narrow 2.5' wide planter. Trunk is 4' from CPA electrical and PacBell vaults. Sidewalk bulbs out near trunk. Asymmetrical, highly elevated canopy, and a large amount of foliage within its lower canopy consists of watersprouts (rapidly-growing, weakly-attached shoots). Has several large girdling roots over a buttress root. Advanced, extensive decline, and prior deadwood from 2021 was removed.

10	Coast live oak (*Quercus agrifolia*)	50	60	90	70%	40%	50%	Fair	High	-	X	-

Comments: Offsite on the adjoining SE property. Its base is ~6" from a 2' tall wall and buried by leaf litter. Trunk divides into 5 leaders at 10' high and are favorably spaced apart. Canopy is highly elevated over the site (existing parking lot). Low branches overhang neighbor's roof. Dead branches in canopy's upper S side is very minor and from squirrel damage.

11	Olive tree (*Olea europaea*)	8, 8	15	10	70%	50%	40%	Poor	Moderate	X	-	-

Comments: Canopy is rounded. Sucker growth has creatively been formed into a shrub surrounding the lower trunk. Trunk bifurcates at 2.5' high and forms a narrow attachment.

12	Raywood ash (*Fraxinus a*. 'Raywood')	2	15	10	70%	30%	20%	Poor	Low	X	-	-

Comments: Dormant. Within a square planter in parking lot. Trunk curves, and has a mostly one-sided canopy due to being suppressed and growing out from beneath #10.

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE			CONDITION				Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED	
		Trunk Diameter (in.)	Height (ft.)	Canopy Spread (ft.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Form (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)			Protected Tree	Street Tree
13	Raywood ash (*Fraxinus a* . 'Raywood')	12	25	20	30%	30%	30%	Poor	Low	X	-	-
	Comments: Within a square planter. Trunk bifurcates at 6' high. Significant dieback with deadwood. Adjacent asphalt is cracked and forms a short mound. Asymmetrical canopy an multiple tops.											
14	Raywood ash (*Fraxinus a* . 'Raywood')	11	20	20	40%	30%	30%	Poor	Low	X	-	-
	Comments: Within a square planter. Has many large decaying cuts. Deadwood. Adjacent asphalt is cracked and slightly raised. Has multiple tops.											
15	Raywood ash (*Fraxinus a* . 'Raywood')	6	15	10	20%	10%	20%	Poor	Low	X	-	-
	Comments: Small tree within a square planter. Has a large decay column along entire trunk, as well as a large decaying wound at 6' high where a prior leader was cut away. Advanced levels of dieback and deadwood. Asymmetrical canopy and multiple tops.											
16	Raywood ash (*Fraxinus a* . 'Raywood')	15	25	20	30%	20%	20%	Poor	Low	X	-	-
	Comments: Within a square planter. Has a pronounced E lean. Low limb overhangs adjacent parking space. Significant decay throughout. Deadwood. Adjacent asphalt forms a mound. Has multiple tops.											
17	Purple Robe locust (*Robinia* 'Purple Robe')	6	35	20	60%	40%	70%	Fair	Moderate	X	-	-
	Comments: Dormant. Single support stake should be removed. Overhangs adjacent building.											
18	Purple Robe locust (*Robinia* 'Purple Robe')	5	25	20	60%	40%	40%	Poor	Moderate	X	-	-
	Comments: Dormant. Excessive limb weight overhangs parking lot. Asymmetrical form away from #17 and the adjacent building.											
19	Crape myrtle (*Lagerstroemia indica*)	5	10	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Is of Tuscarora variety (as well as #20 thru 24). Within a 2' raised planter. Dormant. Multiple trunks originate 8" high. Canopy is slightly asymmetrical.											

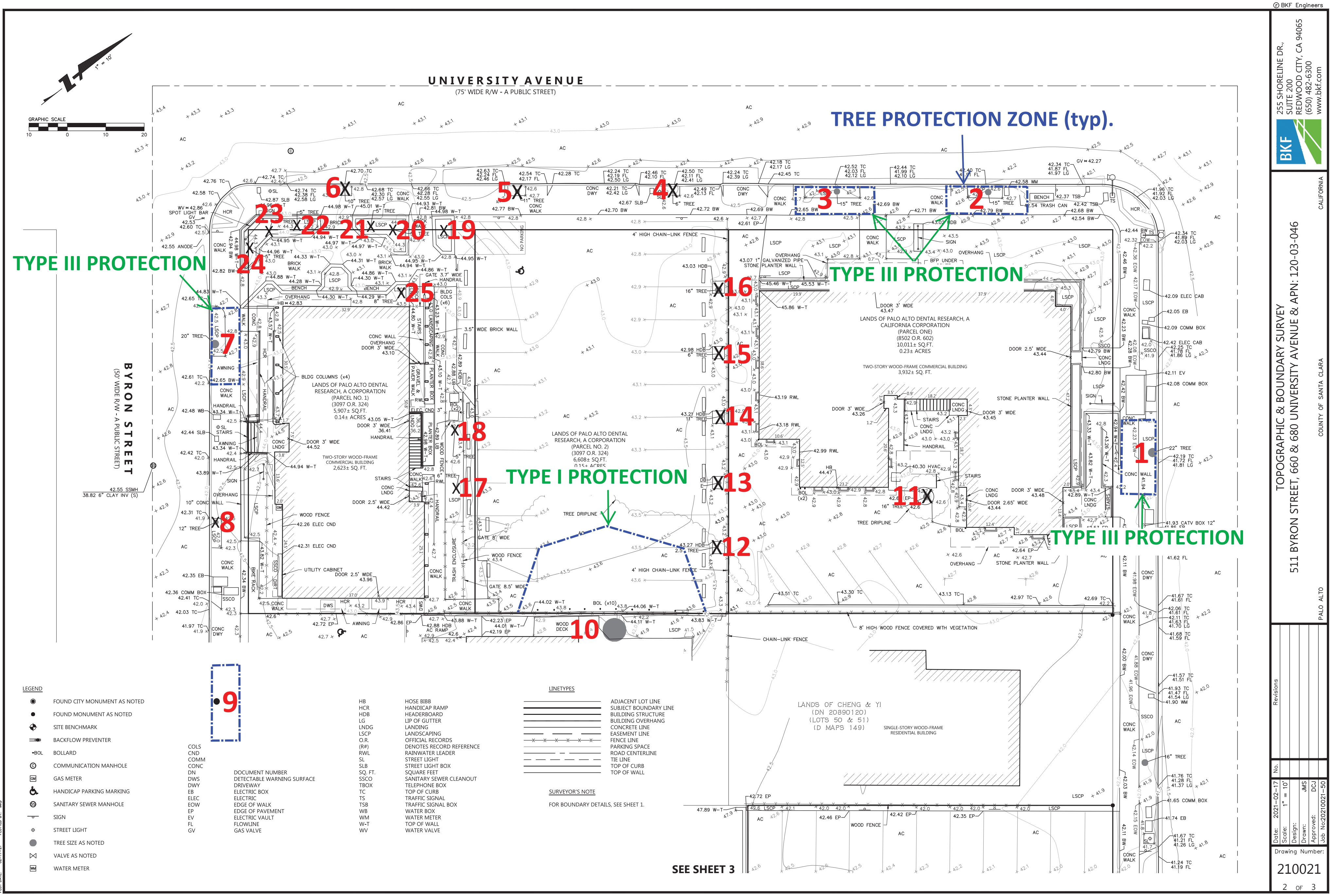
TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE			CONDITION				Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED	
		Trunk Diameter (in.)	Height (ft.)	Canopy Spread (ft.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Form (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)			Protected Tree	Street Tree
20	Crape myrtle (*Lagerstroemia indica*)	3, 3, 2	10	5	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks emerge at grade. Canopy is asymmetrical.											
21	Crape myrtle (*Lagerstroemia indica*)	6	15	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 6" high. Canopy is slightly asymmetrical.											
22	Crape myrtle (*Lagerstroemia indica*)	6	15	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 5" high. Canopy is slightly asymmetrical. A low limb of #6 is on top of its canopy.											
23	Crape myrtle (*Lagerstroemia indica*)	6	15	15	60%	40%	60%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 5" high. Canopy is slightly asymmetrical.											
24	Crape myrtle (*Lagerstroemia indica*)	4, 3, 2	15	10	60%	40%	60%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks emerge at grade. Canopy is asymmetrical.											
25	Yew pine (*Podocarpus macrophyllus*)	8	10	10	70%	40%	30%	Poor	Moderate	X	-	-
	Comments: Adjacent to building. Shrub form and shaped into a cube. Trunk bifurcates at 3' high.											

EXHIBIT B:

SITE MAP

(one sheet)



© BKF Engineers
UNIVERSITY AVENUE
(75' WIDE R/W - A PUBLIC STREET)
BYRON STREET
(50' WIDE R/W - A PUBLIC STREET)
GRAPHIC SCALE
1" = 10'
TREE PROTECTION ZONE (typ).
TYPE III PROTECTION
TYPE III PROTECTION
TYPE III PROTECTION
TYPE I PROTECTION
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
LANDS OF PALO ALTO DENTAL RESEARCH, A CORPORATION
(PARCEL NO. 1)
(3097 O.R. 324)
5,907± SQ.FT.
0.14± ACRES
TWO-STORY WOOD-FRAME COMMERCIAL BUILDING
2,623± SQ. FT.
LANDS OF PALO ALTO DENTAL RESEARCH, A CORPORATION
(PARCEL NO. 2)
(3097 O.R. 324)
6,608± SQ.FT.
0.15± ACRES
LANDS OF PALO ALTO DENTAL RESEARCH, A CALIFORNIA CORPORATION
(PARCEL ONE)
(8502 O.R. 602)
10,011± SQ.FT.
0.23± ACRES
TWO-STORY WOOD-FRAME COMMERCIAL BUILDING
3,932± SQ. FT.
LANDS OF CHENG & YI
(DN 20890120)
(LOTS 50 & 51)
(D MAPS 149)
SINGLE-STORY WOOD-FRAME RESIDENTIAL BUILDING
TREE DRIPLINE
4' HIGH CHAIN-LINK FENCE
8' HIGH WOOD FENCE COVERED WITH VEGETATION
CHAIN-LINK FENCE
SEE SHEET 3
LEGEND
FOUND CITY MONUMENT AS NOTED
FOUND MONUMENT AS NOTED
SITE BENCHMARK
BACKFLOW PREVENTER
BOLLARD
COMMUNICATION MANHOLE
GAS METER
HANDICAP PARKING MARKING
SANITARY SEWER MANHOLE
SIGN
STREET LIGHT
TREE SIZE AS NOTED
VALVE AS NOTED
WATER METER
COLS
CND
COMM
CONC
DN DOCUMENT NUMBER
DWS DETECTABLE WARNING SURFACE
DWY DRIVEWAY
EB ELECTRIC BOX
ELEC ELECTRIC
EOW EDGE OF WALK
EP EDGE OF PAVEMENT
EV ELECTRIC VAULT
FL FLOWLINE
GV GAS VALVE
HB HOSE BIBB
HCR HANDICAP RAMP
HDB HEADERBOARD
LG LIP OF GUTTER
LNDG LANDING
LSCP LANDSCAPING
O.R. OFFICIAL RECORDS
(R#) DENOTES RECORD REFERENCE
RWL RAINWATER LEADER
SL STREET LIGHT
SLB STREET LIGHT BOX
SQ. FT. SQUARE FEET
SSCO SANITARY SEWER CLEANOUT
TBOX TELEPHONE BOX
TC TOP OF CURB
TS TRAFFIC SIGNAL
TSB TRAFFIC SIGNAL BOX
WB WATER BOX
WM WATER METER
W-T TOP OF WALL
WV WATER VALVE
LINETYPES
ADJACENT LOT LINE
SUBJECT BOUNDARY LINE
BUILDING STRUCTURE
BUILDING OVERHANG
CONCRETE LINE
EASEMENT LINE
FENCE LINE
PARKING SPACE
ROAD CENTERLINE
TIE LINE
TOP OF CURB
TOP OF WALL
SURVEYOR'S NOTE
FOR BOUNDARY DETAILS, SEE SHEET 1.
255 SHORELINE DR., SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com
BKF
TOPOGRAPHIC & BOUNDARY SURVEY
511 BYRON STREET, 660 & 680 UNIVERSITY AVENUE & APN: 120-03-046
PALO ALTO
COUNTY OF SANTA CLARA
CALIFORNIA
Revisions
No.
Date: 2021-02-17
Scale: 1" = 10'
Design:
Drawn: JMS
Approved: DCJ
Job No: 20210021-50
Drawing Number:
210021
2 OF 3

EXHIBIT C:

PHOTOGRAPHS

(five sheets)

Photo Index


#1
SPEED LIMIT
25


#2


#3
PATIENTS ONLY


#4


#5


#6


#7


#7


#8


#9


#10


#10


#10


#10


#11


#12


#13


#14


#15


#16


#17
#18


#19
#20
#21


#23
#22
#24


#25

660 UNIVERSITY AVE

Palo Alto, CA

Transportation Demand Management Plan

TDM SPECIALISTS, INC.
A Transportation Demand Management Company

November 22, 2021

Updated: December 20, 2023

660 University Avenue

Transportation Demand Management

Prepared for:

SMITH DEVELOPMENT

Prepared by:

TDM SPECIALISTS, INC.
A Transportation Demand Management Company

(408) 420-2411

November 22, 2021
Updated: October 17, 2023
Updated: December 20, 2023

TABLE OF CONTENTS

ATTACHMENTS

TDM SPECIALISTS, INC. QUALIFICATIONS

EXECUTIVE SUMMARY

The proposed project at 660 University Avenue has prepared a Transportation Demand Management (TDM) Plan for its proposed Palo Alto office and residential mixed-use development. Locational advantages make the 660 University Avenue project well-suited for residential and commercial use. It has access to transit, bicycle, and pedestrian facilities and robust Palo Alto Transportation Management Association (TMA) resources. The project's design meets commute-sustainable standards and justifies a parking reduction by incorporating TDM elements. Planned project-wide parking is 25 percent less than code requirements.

Project-wide Parking	Required	Provided	Reduced	Percent
Residential - studio	48	36	-12	25.00%
Residential - 1-bedroom	12	8	-4	33.33%
Residential - 2-bedroom	6	6	0	0.00%
Residential - ADA	2	4	2	-100.00%
Office (reg. & ADA)	37	25	-12	32.43%
Totals	**105**	**79**	**-26**	**25%**

Combining affordable housing units near housing facilities and site-wide TDM strategies will reduce parking demand, encourage alternative transportation options, and eliminate potential spillover parking in the neighborhood. Chapter 18.52.050 of Palo Alto's Zoning Code allows the Director to make parking reduction adjustments. Allowable parking adjustments include Affordable Housing Units, Housing near Transit Facilities, and Transportation and Parking Alternatives, allowing a Combined Parking Adjustment for a 25 percent parking reduction. Provided as an attachment are excerpts from Allowable Parking Adjustments in Chapter 18.52.050, Table 4, met by the project.

> "Automobile parking requirements prescribed by this chapter may be adjusted by the director in the following instances and in accord with the prescribed limitations in Table 4, when in his/her opinion such adjustment will be consistent with the purposes of this chapter, will not create undue impact on existing or potential uses adjoining the site or in the general vicinity, and will be commensurate with the reduced parking demand created by the development, including for visitors and accessory facilities where appropriate."

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction [2]
Combined Parking Adjustments	Parking reductions may be granted for any combination of the above circumstances as prescribed by this chapter, subject to limitations on the combined total reduction allowed.	a. 30% reduction of the total parking demand otherwise required b. 40% reduction for affordable housing projects

The project's green development approach reduces parking demand, vehicle trips, air pollution, and traffic congestion, contributing to a successful carbon footprint and greenhouse gas reductions for long-term operations. This TDM plan identifies measures and programs to reduce weekday, PM peak-hour vehicle trips by a minimum of 20 percent, consistent with the City of Palo Alto's trip reduction goals.

1.0 INTRODUCTION AND PURPOSE

The comprehensive plan of commute options and on-site measures identified in this report are essential to realizing the project's vehicle trip and parking reduction benefits. These factors will provide the momentum to achieve the desired trip reduction needs for the project.

TDM combines services, incentives, facilities, and actions that reduce single-occupant vehicle (SOV) trips to help relieve traffic congestion, parking demand, and air pollution. The TDM measures outlined herein will result in a reduction in commuter and daytime trips.

2.0 PROJECT DESCRIPTION

The 660 University Avenue project proposes a new four-story, mixed-use building with two levels of below-grade parking.

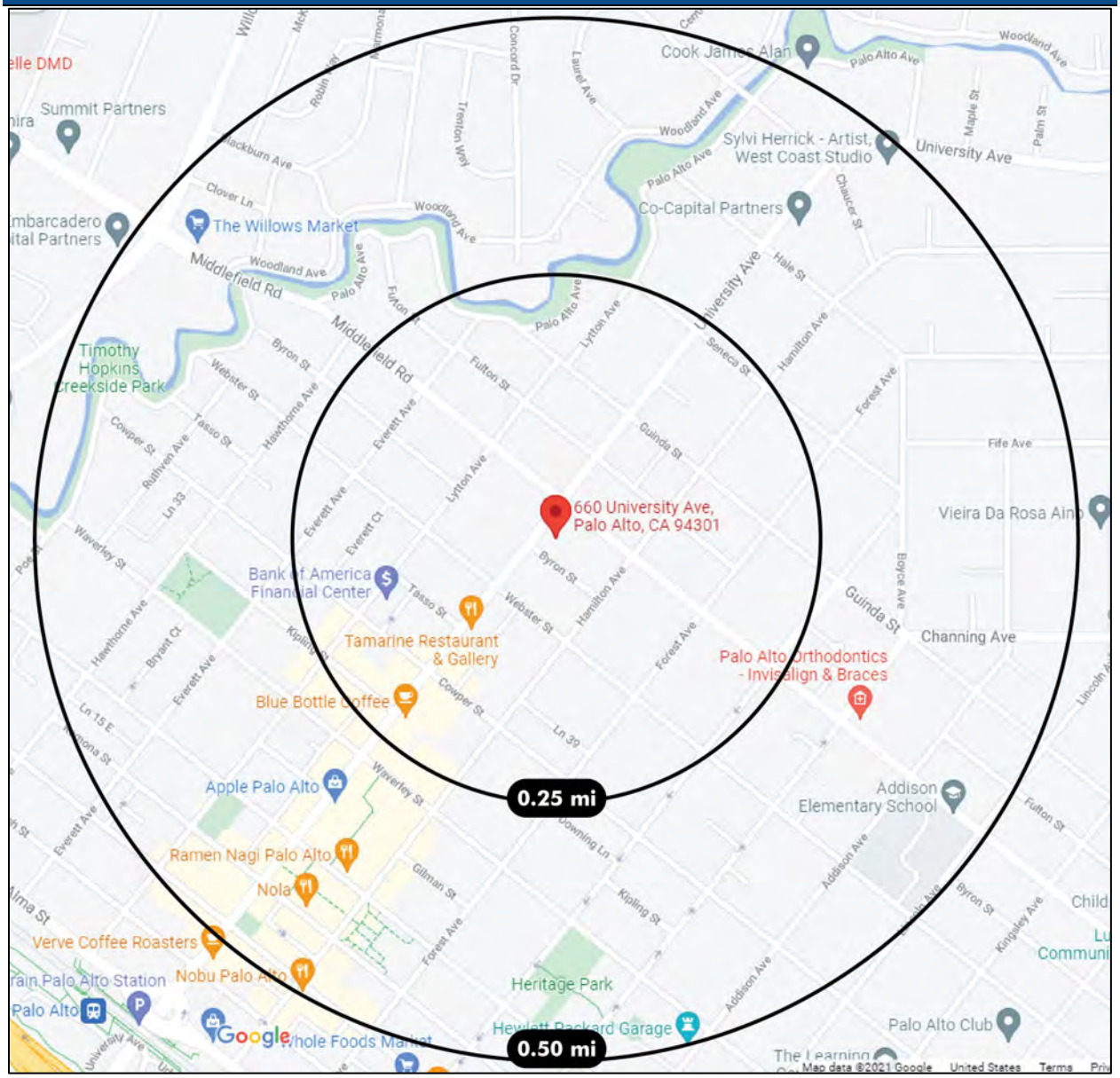
Ground floor office space includes 9,115 square feet. There are 63 planned residential units, of which 20 percent (13) units will be affordable and inclusionary across three income levels. The project incorporates 13 below-market-rate units: four very-low-income, four low-income, and five moderate-income affordable housing units.

The 660 University Avenue project will incorporate urban design features close to transit, shopping, recreation, and air quality, including electric charging units.

The project location map is shown on page 2. The quarter-mile radius map shows transit resources, retail, personal services, and restaurants near the project site.

This TDM Plan mitigates office employee and resident vehicle trips associated with a mixed-use project and contains the appropriate measures and elements consistent with other Palo Alto commute programs. The following document summarizes the project's trip reduction efforts to support a 25 percent parking reduction. It also contains an overview of existing local and regional transportation services, programs, and project-specific transportation measures.

660 University Avenue Project Location Map



A comprehensive array of alternative transportation mode-use strategies is presented in the remaining report, as outlined in four sections:

I. Existing Transportation Conditions
II. TDM Infrastructure and Physical Measures
III. Programmatic TDM Measures
IV. Residential TDM Measures

SECTION I – EXISTING TRANSPORTATION CONDITIONS

3.0 COMMUNITY CONNECTIVITY

660 University Avenue project is a transit, pedestrian, and bike-friendly mixed-use project that embraces Palo Alto's goals and policies. Some design features include orienting the building toward adjacent bicycle and pedestrian circulation facilities.

Infill Development

The proposed project will develop underused parcels within the existing urban area. The area surrounding this project is mainly built. Under these conditions, the project will be considered infill development, contributing to trip reduction outcomes. Trip reduction benefits from infill development are an acceptable TDM measure (based on the research of TDM best practices around the nation) [1], reducing nearly two percent of all peak-hour trips.

Pedestrian Systems

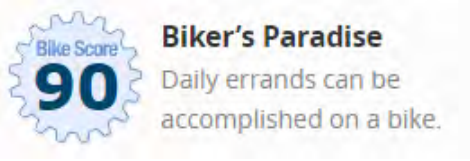
WalkScore.com says the 660 University Avenue project is a "Very Walkable" site, scoring 92 out of 100. This score means that daily errands do not require a car.

Creating a pedestrian-oriented environment ensures access between public areas and private development while strengthening pedestrian and bicycle connections.

[1] City/County Association of Governments (CCAG) of San Mateo County's Congestion Management Program.

Bicycle Systems

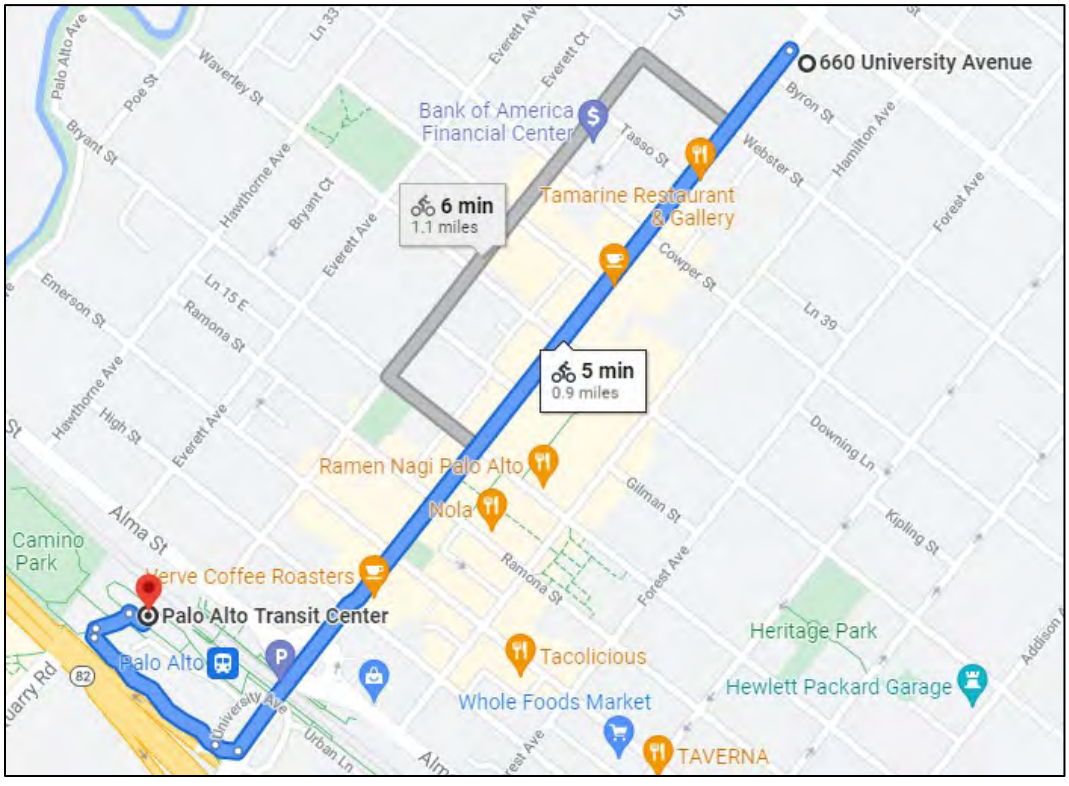
Surrounding the project are significant bicycle facilities in the City of Palo Alto. WalkScore.com says the project is a "Biker's Paradise" site, scoring 90 out of 100. This score means that daily errands can be accomplished on a bike.



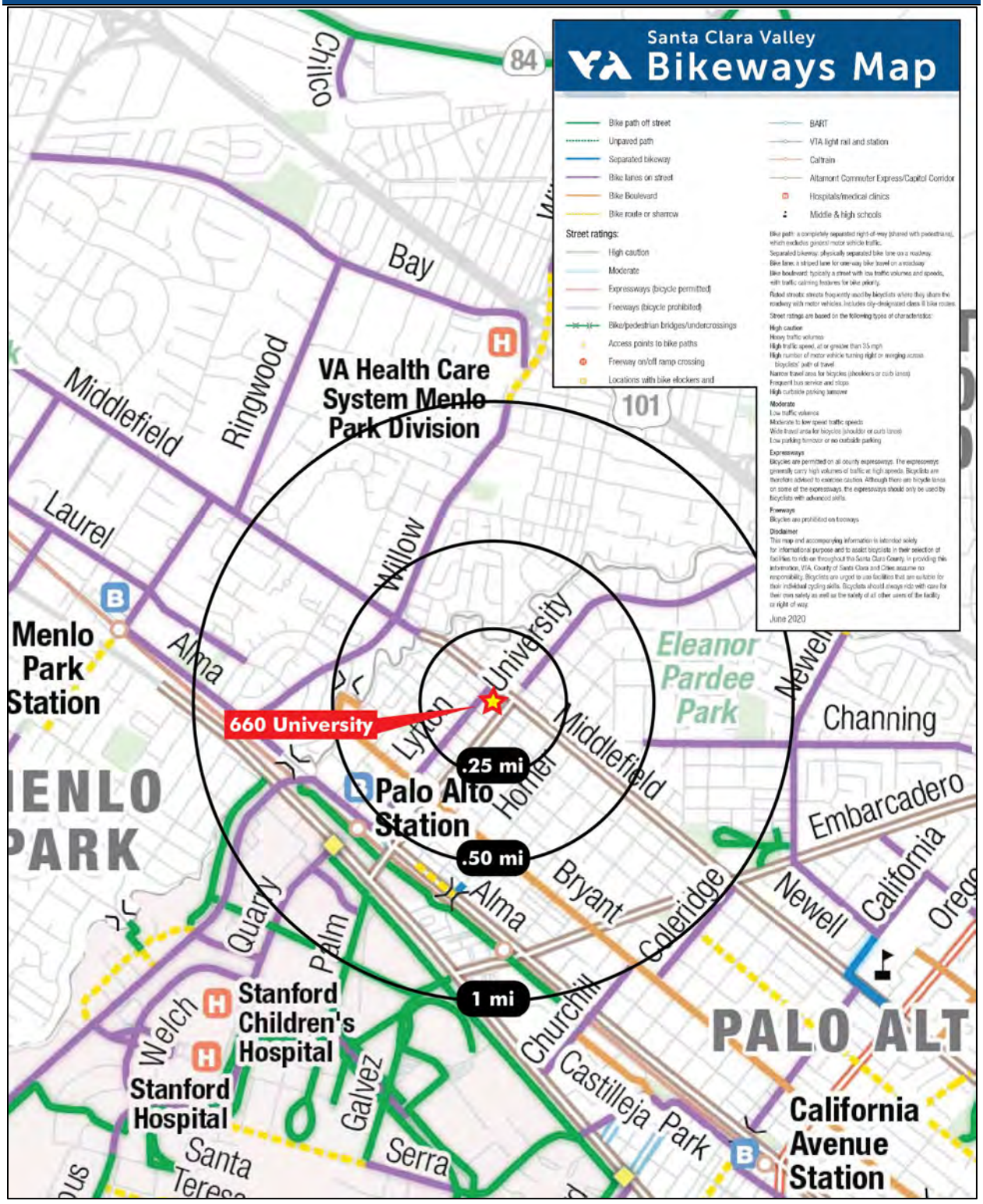
The City of Palo Alto is a Gold-Level Bicycle Friendly Community (BFC) designated by the League of American Bicyclists. The city has been a Gold-Level BFC since 2003 in recognition of Palo Alto's commitment to creating transportation and recreational resources that benefit residents of all ages and abilities by encouraging healthier and more sustainable transportation choices.

The project enjoys bicycle connections to regional bicycle facilities along Bryant Street, El Camino Real, and California Avenue. University Avenue is a shared bicycle roadway that provides access to the Palo Alto Transit Center. Portions of Lytton Avenue and Bryant Street are rated Class II Bike Lanes marked on-site and with signage.

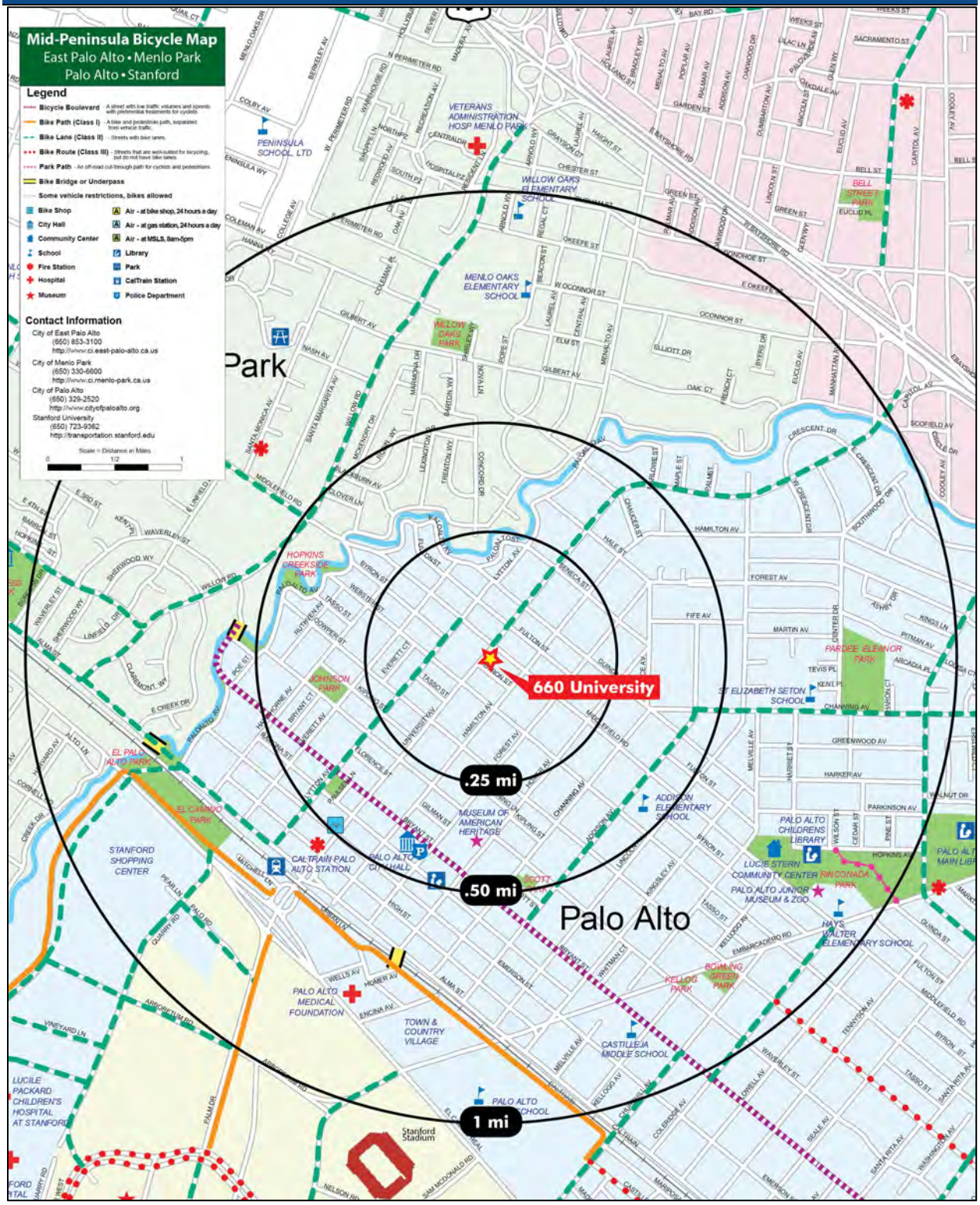
The Palo Alto Transit Center is a six-minute, one-mile bicycle ride from the project. The City of Palo Alto supports many bicycle facilities; however, some sections of University Avenue are rated as extremely cautious. Shown on page 5 is the Santa Clara County Bikeways Map. Displayed on page 6 is the Mid-Peninsula Bicycle Map.



Santa Clara County Bikeways Map



Mid-Peninsula Bicycle Map



Transit Systems

SamTrans transit services total more than 261 daily trips, providing functional transit connectivity for future employees and residents at the project site. All SamTrans buses serve the Palo Alto Transit Center, as does the Dumbarton Express.

A transit access resource table, shown below, identifies the number of transit trips provided for this project. At the end of the document are transit bus maps showing where the project's location connects with the transit resources.

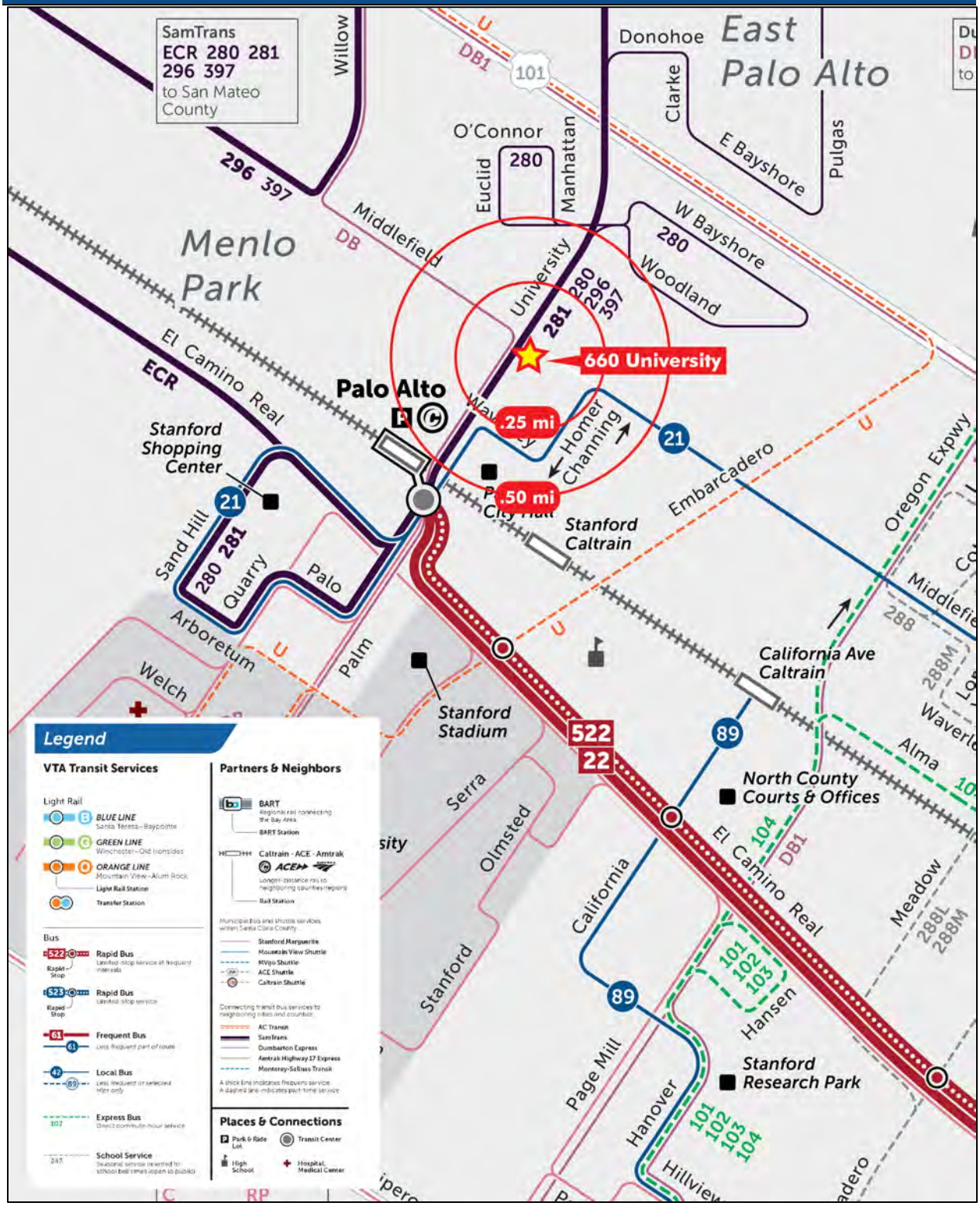
660 University Avenue Transit Resources

Route	Span of Service	Trips per Weekday	Communities Served
280 Samtrans	7 Days/Week 5:45 a.m. - 9:57 p.m.	33	Stanford Shopping Center, Palo Alto Transit Center, **University/ Middlefield**, Manhattan/O'Connor, Bayshore/ Newell, Pulgas/ O'Connor, and Purdue/Fordham
281 Samtrans	7 Days/Week 6:06 a.m. - 10:24 p.m.	70	Stanford Shopping Center, Palo Alto Transit Center, **University/ Middlefield**, University/Donohoe, Bay/University, and Onetta Harris Community Center
296 Samtrans	7 Days/Week 3:54 a.m. - 1:57 a.m.	107	Bayshore/Donohoe, Palo Alto Transit Center, Bay/University, **University/Middlefield**, Middlefield/Ringwood, Merrill/Santa Cruz, Middlefield/5th, and Redwood City Transit Center
397 Samtrans	7 Days/Week 12:59 a.m. - 6:01 a.m.	7	Palo Alto Transit Center, Bay/University, **University/ Middlefield**, Middlefield/5th, Redwood City Transit Center, El Camino/ Hillsdale, El Camino/Burlingame, Millbrae Transit Center, SF Airport Courtyard A, Airport/ Baden, Bayshore/Old County, 11th/Market, Mission/1st, and Folsom/Beale
DB Dumbarton Express	5 Days/Week 5:53 a.m. - 8:13 p.m.	44	Union City BART, Ardenwood Park & Ride, Willow/ Middlefield, **University/Middlefield**, Palo Alto Caltrain, and Stanford Oval
Total Bus Trips/Weekday		**261**	

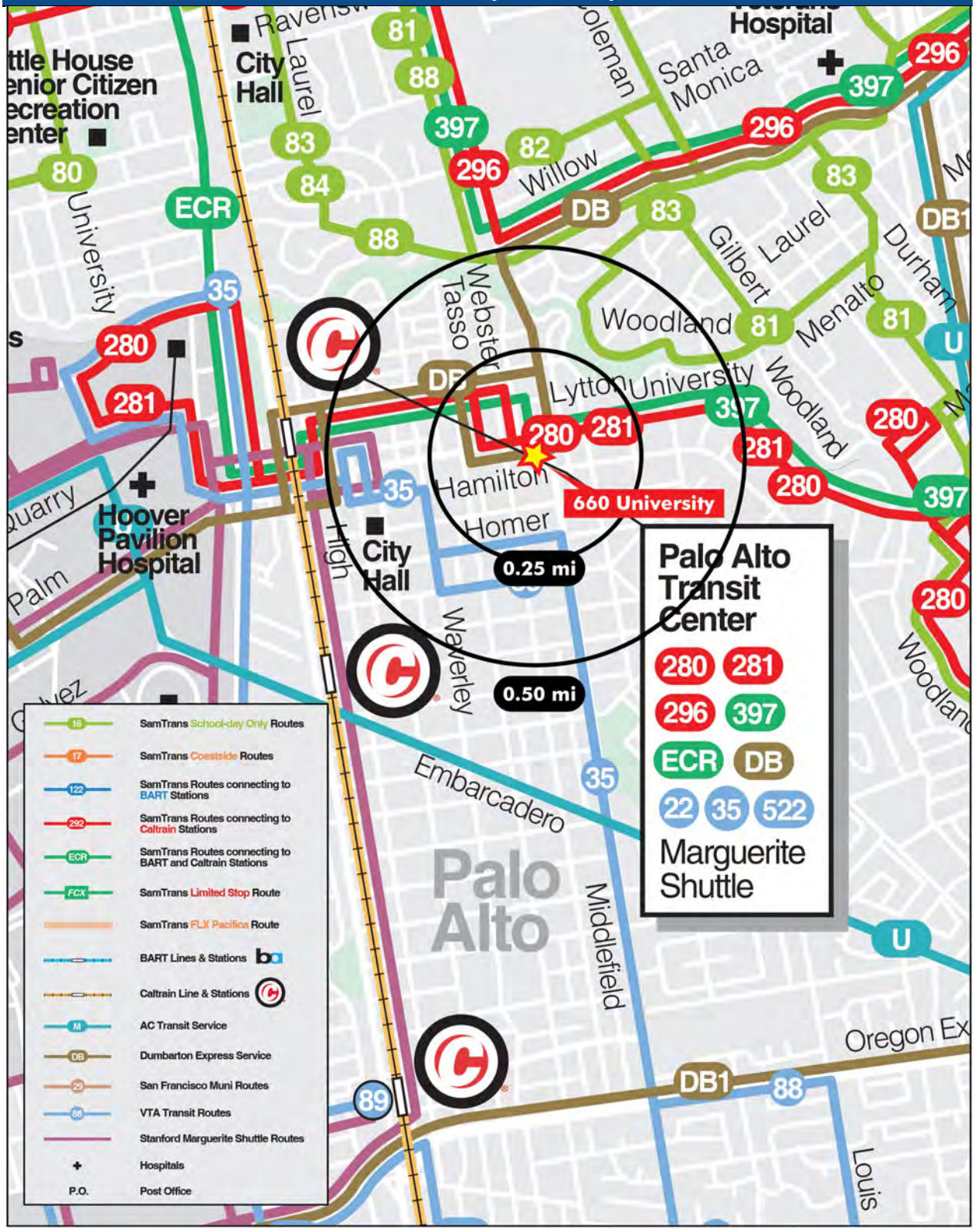
* All buses and trains are lift equipped for handicapped, elderly, or those in need.

Page 8 shows the Santa Clara VTA Transit map. The SamTrans Systems Map is shown on page 9. Displayed on page 10 is a map of the Dumbarton Express route.

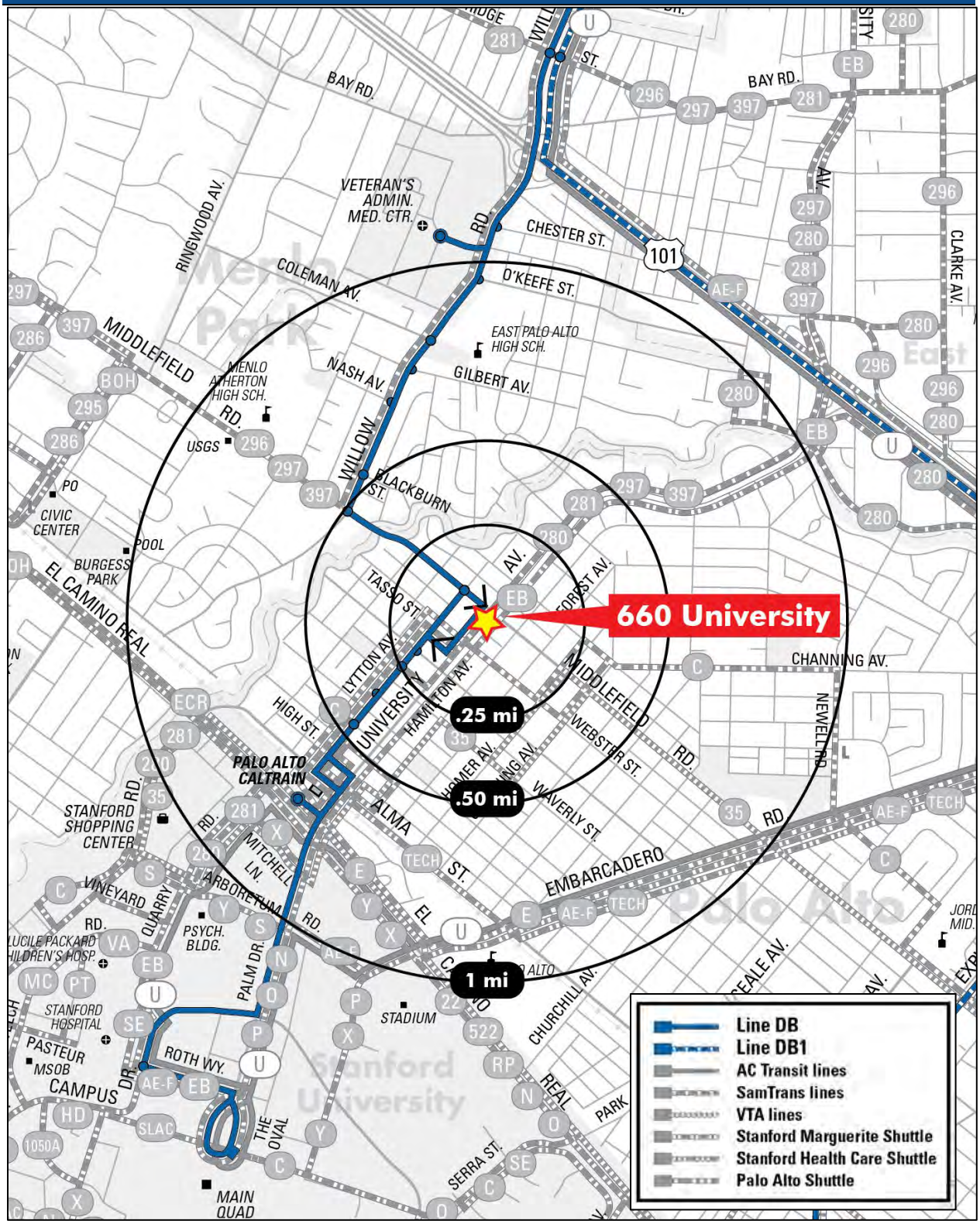
Santa Clara VTA Transit Map



SamTrans System Map



Dumbarton Express Map



SECTION II – TDM INFRASTRUCTURE & PHYSICAL MEASURES

The following physical infrastructure measures support alternative transportation commuters. These measures are TDM components that will be installed or built during the project's construction.

4.0 PEDESTRIAN AMENITIES

Safe, convenient, and well-lit pedestrian paths surround the project and provide the most direct route to the nearest shuttle or transit connection.

Lighting, landscaping, and building orientation will enhance pedestrian safety.
Pedestrian continuity will also be enhanced by:

- Locating the parking below grade.
- Garden terrace for the office at grade
- Residential terrace on the roof
- Recessing door and window features of the building to further the walkable area of the sidewalks.
- Constructing new curb, gutter, driveway approach, and planter strip in the public right-of-way along the property frontage.
- Provide "in-ground" plantings and sidewalks.
- Planting new street trees, decorative paving, planter pots, and improved lighting.

5.0 BICYCLE AMENITIES

Bicycle Storage – Long-Term and Short-Term

Provided on-site will be free Class I and II bicycle parking facilities for residents, employees, and building guests.

Long-Term Bicycle Parking

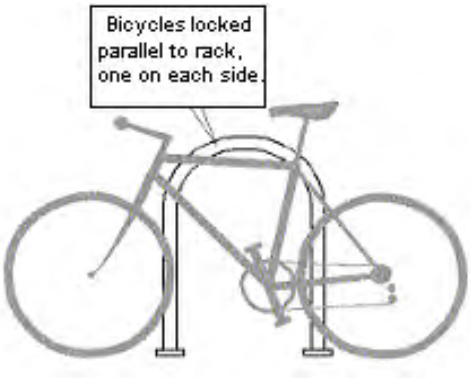
Class I (long-term) secure and covered bicycle parking will include bicycle lockers or a bicycle room. Current plans indicate 63 Class I parking facilities for residents.

There will be 20 Class I parking facilities for office commuters, representing a 400 percent increase from code requirements.

Short-Term Bicycle Parking

Three (one at the office and two at the residential entrance) Class II bicycle racks will be provided, providing short-term parking facilities for six bicycles.

The bike racks will be within constant visual range near the building entrance. On the right is an example of Class II (short-term) racks. Class II bicycle racks will be "U racks," or equivalent, and must secure the frame and both wheels.



Fix-it Bicycle Repair Station

The applicant will install at least two bicycle Fix-it stations (one for office commuters and one for residents) to allow cyclists to conduct minor maintenance on their bikes. The Fix-it includes all the tools necessary to perform basic repairs and maintenance, from changing a flat to adjusting brakes and derailleurs. The tools and air pump are securely attached to the stand with stainless steel cables and tamper-proof fasteners. Hanging the bike from the hanger arms allows the pedals and wheels to spin while adjusting.

6.0 PARKING MANAGEMENT

The willingness to participate and the actual level of employee ridesharing are directly linked to parking convenience, availability, and parking cost.

Reduced Parking Supply

The required number of office parking stalls is 37. There will be 25 office parking spaces at the 660 University Avenue project site, representing a 32.4 percent, 12-space reduction. Incorporating TDM programs lets the City of Palo Alto consider allowances via the Zoning Ordinance Chapter 18.52.050.

Project-wide Parking	Required	Provided	Reduced	Percent
Residential - studio	48	36	-12	25.00%
Residential - 1-bedroom	12	8	-4	33.33%
Residential - 2-bedroom	6	6	0	0.00%
Residential - ADA	2	4	2	-100.00%
Office (reg. & ADA)	37	25	-12	32.43%
Totals	**105**	**79**	**-26**	**25%**

Also, reduced or constrained parking supports trip reduction and TDM efforts and discourages single-occupant vehicle (SOV) commuting by limiting an abundance of convenient parking options. Reduced parking availability enhances other alternative transportation mode options. The project proposes reduced on-site parking to enhance its TDM efforts further.

Allowable parking adjustments for the project include Joint Use (shared parking) with Affordable Housing Units, Housing near Transit Facilities, Transportation, and Parking Alternatives, allowing a Combined Parking Adjustment for a 25 percent parking reduction.

> "Automobile parking requirements prescribed by this chapter may be adjusted by the director in the following instances and in accord with the prescribed limitations in Table 4, when in his/her opinion such adjustment will be consistent with the purposes of this chapter, will not create undue impact on existing or potential uses adjoining the site or in the general vicinity, and will be commensurate with the reduced parking demand created by the development, including for visitors and accessory facilities where appropriate."

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction [2]
Combined Parking Adjustments	Parking reductions may be granted for any combination of the above circumstances as prescribed by this chapter, subject to limitations on the combined total reduction allowed.	a. 30% reduction of the total parking demand otherwise required b. 40% reduction for affordable housing projects

Carpool/Vanpool Designations

The project anticipates providing for carpool/vanpool parking.

The applicant will designate carpool and vanpool parking vehicles for the exclusive use of ridesharing employees. The carpool/vanpool spaces will be in parking areas closest to a building's entrance or a prime location. Below is more information about preferred parking

The carpool parking spaces may require policy development, employee registration, and permitting. Registered vanpools may receive a specially designated parking space.

Clean Air, Clean-Fuel Vehicle Facilities

The project will also include two clean-air parking spaces. The applicant will be responsible for the specialty parking space's construction, striping, and signage. A description of the designated parking space includes:

- The clean-air vehicle parking space will accommodate carpool and vanpool striping and signage.
- Space will be in the parking areas closest to the building's employee entrances or prime locations in the garage.

The applicant will allocate seven spaces for clean air vehicles, electric vehicles, EV charging, and carpool/ vanpool parking. The designed parking space satisfies CalGreen standards.

7.0 TRANSPORTATION AND COMMUTE INFORMATION KIOSK

An information board or kiosk will provide transportation information, such as transit schedules for VTA, Caltrain, shuttles, bike maps, Palo Alto TMA resources, and 511 ride-matching. Information will be updated periodically by the project Commute Coordinator. The kiosk may be a counter stand, wall-mounted or freestanding. The office tenants will be counter stand units, and a floor or wall-mounted kiosk will be installed for residents.

8.0 NEARBY AMENITIES

Amenities provide employees with a full-service work environment, and eliminating or reducing the need for an automobile to make midday trips increases non-drive-alone rates. Employees and residents may perceive their dependence on the drive-alone mode because of errands and activities they must carry out in different locations. By providing services and facilities at the worksite, reducing this dependence can increase alternative mode usage for commute-based trips. A list of nearby amenities for the 660 University Avenue project includes:

- Restaurants, cafes/delis, coffee
- Shipping and postal services
- Retail, grocery, personal services, and gifts
- Fitness, entertainment, health, and beauty
- Banks and ATMs

Attached is a more detailed list of nearby amenities and personal services within a ¼-mile walk from the project site.

SECTION III – PROGRAMMATIC TDM MEASURES

9.0 PALO ALTO TRANSPORTATION MANAGEMENT ASSOCIATION

Palo Alto TMA Membership & Resources

Project tenants, employees, and residents will participate in TMA programs and resources. The applicant or employer(s) will join the Palo Alto Transportation Management Association (TMA) as an affiliate member. The applicant or future tenant shall be responsible for all fees or costs related to TMA memberships. TMA membership will show community engagement and support the TMA as it develops to serve the city's employers, employees, and residents.

"…the project will join the Palo Alto Transportation Management Association (TMA) as an affiliate member."

Palo Alto TMA commuter resources include:

- Customized Commute Planning
- Income-qualified Free Transit Passes
- Income-qualified Free Lyft for Late-night Trips program
- Bike Love Program - $5 daily incentive
- Low-wage worker, Palo Alto, discounted parking permits
- Employer Assistance – no/low-cost ways to help employees.

10.0 TENANT SERVICES AND COMMUTER OUTREACH

Tenants/employers will present commuter programs and benefits to the employees comprehensively and proactively, along with other employee programs. Employee commuter outreach can include employee orientation forums, transportation kiosk materials, website postings, employee newsletters, management bulletins, emails, etc.

TDM Program Manager

Before occupancy, the project will designate a TDM Program Manager who will primarily implement alternative commute programs and the elements outlined in this plan. The TDM Program Manager may be a property manager or an outsourced TDM coordinator who manages the TDM programs and annual reporting. The TDM Program Manager will provide commute program assistance to employees, conduct promotional events, collaborate with rideshare organizations to maximize on-site resources, run the annual survey, and produce the annual summary report. Commute industry data supports that a TDM Program Manager positively impacts increasing and maintaining alternative mode use.

The TDM Program Manager will provide the following services:

- Promote trip reduction and air quality strategies to employees at the project site.
- Conduct new resident and tenant commuter orientation training.
- Maintain membership in the TMA (if required).
- Work with local agencies such as Caltrain, VTA, SamTrans, Palo Alto TMA, VTA, 511 Rideshare, Silicon Valley Bicycle Coalition, and the Bay Area Air Quality Management District (BAAQMD).
- Develop and manage employee transportation and commute information, resources, links, promotions, incentives, prizes, or awards, spare the air notices, transit links, 511 ride-matching, and other related information.
- Participate in the BAAQMD Spare the Air program to encourage employees and residents not to drive to work alone.
- Coordinate various aspects of the program that require periodic updating or monitoring, like carpool registration and bike locker assignment, and produce the yearly commuter survey.

Transportation Promotions

Other community promotions may include Bike-to-Work Day, Earth Day, or the October No-Car, Low-Car Challenge. During the year, transit and rideshare organizations may set up a marketing booth on-site at a central location on an evening or weekend to promote the alternative commute options available to residents. Periodic on-site tabling will occur throughout the year with other local or community events (e.g., resident appreciation BBQ or brunch).

Office Tenant Performance and Lease Language – TDM Requirements

The applicant will draft the lease language or side agreements for all tenants. The language will require identifying a designated employer contact responsible for compliance and implementation of the TDM program (including offering transit subsidies to all employees, annual surveys, reporting, and providing an emergency ride home program).

The applicant will require tenants to provide one point of contact for implementing this plan. The tenant/employer designated contact will coordinate closely with the project Commute Coordinator; maintain on-site TDM programs, employee education, and marketing; administer the annual surveys; and provide information continuity for the building owner/landlord and the City of Palo Alto. Features identified in the lease will also include the following TDM components:

- Tenant-driven TDM measures – required per lease
  - Transit subsidies are made available to all employees.

- Participation in the annual commute survey
- Provide an emergency ride home program for commuters.
- Designate an Employee Commute Coordinator
- Promote Palo Alto
- TMA programs

The lease agreement language may also identify the tenant's share of potential penalties for failure to achieve an acceptable alternative mode-use rate, inability to participate in the annual employee commute survey, or failure to submit the annual report. The building management will be responsible for project-wide tenant performance. The lease language wording may include the following:

> ***Transportation Management.*** *Tenant shall fully comply with all current or future programs mandated by the City of Palo Alto to manage parking, transportation, or traffic in and around the Project and/or the Building. In addition, the Tenant shall take responsible action for the transportation planning and management of all employees at the Premises by working directly with the Landlord, any governmental transportation management organization, or any other transportation-related committees or entities. Such programs may include, without limitation: (i) restrictions on the number of peak-hour vehicle trips generated by tenants; (ii) increased vehicle occupancy; (iii) implementation of an in-house ridesharing program, transit subsidies, and designation of an employee transportation coordinator; (iv) working with employees and any Project, Building or area-wide ridesharing program manager to conduct annual commuter surveys; (v) instituting employer-sponsored incentives (financial or in-kind) to encourage employees to rideshare; promoting Palo Alto TMA programs, and (vi) utilizing telework and flexible work shifts for employees.; and be responsible for any financial penalties for non-attainment of vehicle trip reduction requirements.*

The tenant(s) will ultimately control peak-hour trip reduction performance under the TDM plan, as contracted in the lease.

Guaranteed Ride Home Program

Office tenants of the 660 University Avenue project will participate in the VTA-free guaranteed emergency ride home (GRH) program. The GRH program is e available for employees who use alternative transportation (do not drive alone to work). Employees who commute to work using transit, bicycle, walking, carpool, or vanpool will be guaranteed a free ride home in case of a personal emergency or when they unexpectedly must work late, thereby missing the last bus or their regular carpool home. Guidelines for GRH use include the following valid reasons:

- sudden illness of self, immediate family members, or carpool partner
- at home emergency
- eldercare or daycare emergency

- theft of a bicycle, bicycle damage, or severe weather (applies to cyclists and walkers only)
- unscheduled, supervisor-required overtime

VTA provides a free Guaranteed Ride Home (GRH) program to encourage commuters to use a sustainable mode of transportation to work, college, or adult education classes in Santa Clara County by providing reimbursement on the cost of getting home in an emergency. Participants can receive up to six refunds a year or $500 in total repayments, whichever comes first. Each qualified GRH trip may be reimbursed up to $125. The tenant GRH program will provide commuters with peace of mind by knowing that if a child or loved one becomes ill or injured during the day, the employee can get to them quickly.

GRH programs have proven very successful, as they remove one of the obstacles residents may face for giving up their private automobiles, especially those with young families. Attached is a GRH flier and an overview of the program and how to utilize it.

Initial Tenant/Employer Commute Program Training

The applicant or property management will provide their tenants with the 660 University Avenue TDM Plan, commute program training, and start-up assistance. A TDM resource representative will provide tenant training and commute program planning assistance.

The overarching goals of this support function are to reduce commute trips for employees, formalize tenant commute programs, and assist with employee marketing and outreach. The TDM resource representative may help prepare tenant materials for new employee orientation, produce marketing events, develop commuter e-news articles, and support employee assistance.

Employee Commuter Flier

All future employees will receive an employee commuter flier. This flier will include (but is not limited to) information about carpool subsidies, transit opportunities, bicycle routes, and on-site amenities and resources. Leaflets will be available at the commute resources kiosks and integrated with tenant/employer information. Provided below is a sample flyer.

660 University Avenue Commuter Resources

TRANSIT & SHUTTLES

VTA
Caltrain
SamTrans
Transit Planner Tool
Free Transit Passes

VTA Bus Routes

Route 22
Route 89
Route 104
Route 522

Additional Service Routes

Stanford Marguerite RP
Dumbarton Express DB

SERVICES & INCENTIVES

Free Guaranteed Ride Home program
Free Lyft for Late-Night trips
Commute Planning
Bay Area Spare the Air Alert Notices

CARPOOL & VANPOOL

Palo Alto Link – rideshare
Preferential Carpool Parking
Carpool Savings Calculator
511 Merge – online carpool matching
$500 monthly 511 Vanpool Group Subsidy
$400 monthly VTA Vanpool Group Subsidy
(combine 511 and VTA vanpool subsidies and receive a $900 monthly group benefit.)

BICYCLE

Secure bicycle storage in the garage
Bicycle Resources
Bike Love Program - $5 per day
Bike to Work
Bikes on Transit
Palo Alto Bike Map
Santa Clara County Bikeways Map
San Mateo County Bike Map
San Francisco Bay Trail
Silicon Valley Bicycle Coalition

11.0 CARPOOL AND VANPOOL RIDE-MATCHING PROMOTIONS

Carpooling and vanpooling will be strongly encouraged at the project.

Regional Ridematching Resources

Tenants will promote free ride-matching services. The San Francisco 511.org site works with private ride-matching companies to provide commuters with alternative ridematching resources. A sample of a ridematching app includes the following:

Merge

The best way to find a long-term carpool partner is with Merge. You will be matched with someone along your route, agree on days to carpool, and keep that same partner as long as you like. There are no built-in charges to use the service or carpool. Register here.

Palo Alto Link Rideshare Service

The new Palo Alto Link is the city's new rideshare service. The service is like a minibus that comes when and where you want. Users provide pick-up and drop-off addresses and receive a few options. Users choose the best ride option and get directions to a nearby intersection where the driver will pick them up.

Rides are available Monday-Friday between 8 am and 6 pm in Palo Alto. The service area includes Stanford Shopping Mall, Stanford Hospital, and Stanford Research Park. Excluded areas are Stanford University, areas north of Bayshore, and south of the 280 Freeway. See the map of locations here.

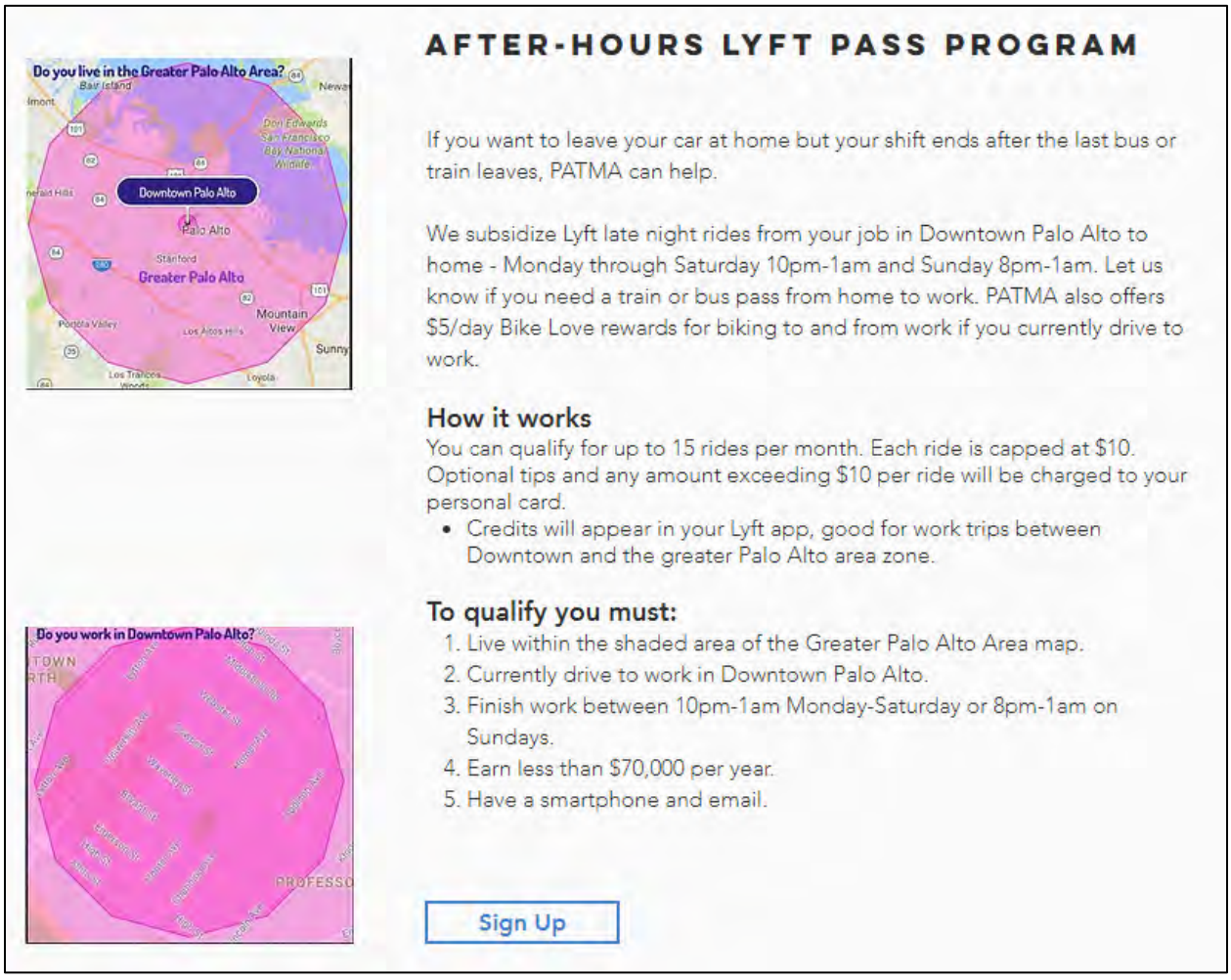
Ten vehicles serve most of Palo Alto, including Teslas and minivans (with two bikes per bike rack). Wheelchair-accessible vans are available upon request.

- Student, senior, disabled, and low-income riders only pay $1.00 (cash or mobile pay accepted).
- Standard fares are $3.50 per trip (cash or mobile pay accepted). Add additional passengers to your ride for $1.75 each.

12.0 AFTER-HOURS LYFT PASS PROGRAM

The Palo Alto TMA offers a Lyft late-night rides subsidy for commuters from their job in Downtown Palo Alto to home – Monday through Saturday between 10:00 pm and 1:00 am and Sunday between 8:00 pm and 1:00 am.

The goal is to provide mobility for those without vehicles who work late shifts and encourage commuters to leave parked cars. This program is only available to residents living in and working in Palo Alto and earning less than $70,000 annually. More information is available at https://www.paloaltotma.org/programs.



Qualification for this program includes:

- You live in the shaded area of the Greater Palo Alto Area map.
- You currently drive to work in Palo Alto.
- Finish work between 10:00 pm and 1:00 am Mon-Sat, or 8:00 pm to 1:00 am on Sun.
- You earn less than $70,000 per year.

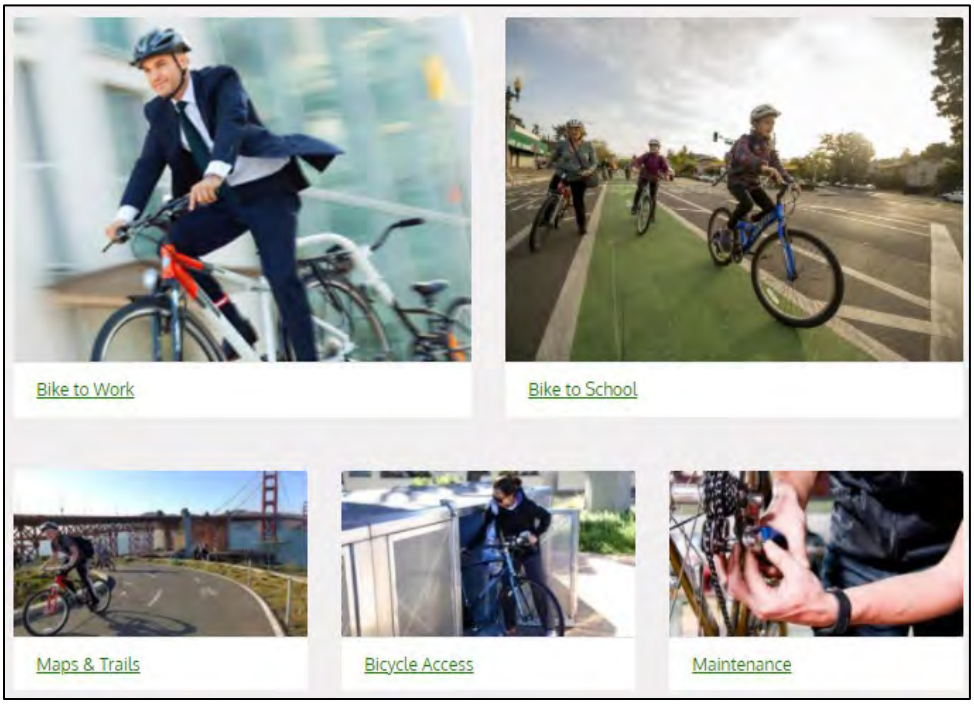
- You have a smartphone and email.

The program offers 15 rides per month, and funding for each ride will cap at $10. Optional tips and costs over $10 per ride are not covered, and the commuter may fund these expenditures from their private account.

13.0 BICYCLE RESOURCES

Bicycle commuters looking for a riding partner can log on to bicycling.511.org/ for more information. The 511 system provides significant resources for bicycle commuters, including:

- Free Bike Buddy matching
- Bicycle maps
- Safe bicycle route mapping
- Location of lockers
- How to take your bike on public transit
- How to take your bicycle across Bay Area toll bridges
- How to ride safely in traffic
- Tips on commuting
- Tips for bike selection
- Links to bicycle organizations
- Bike to Work Day

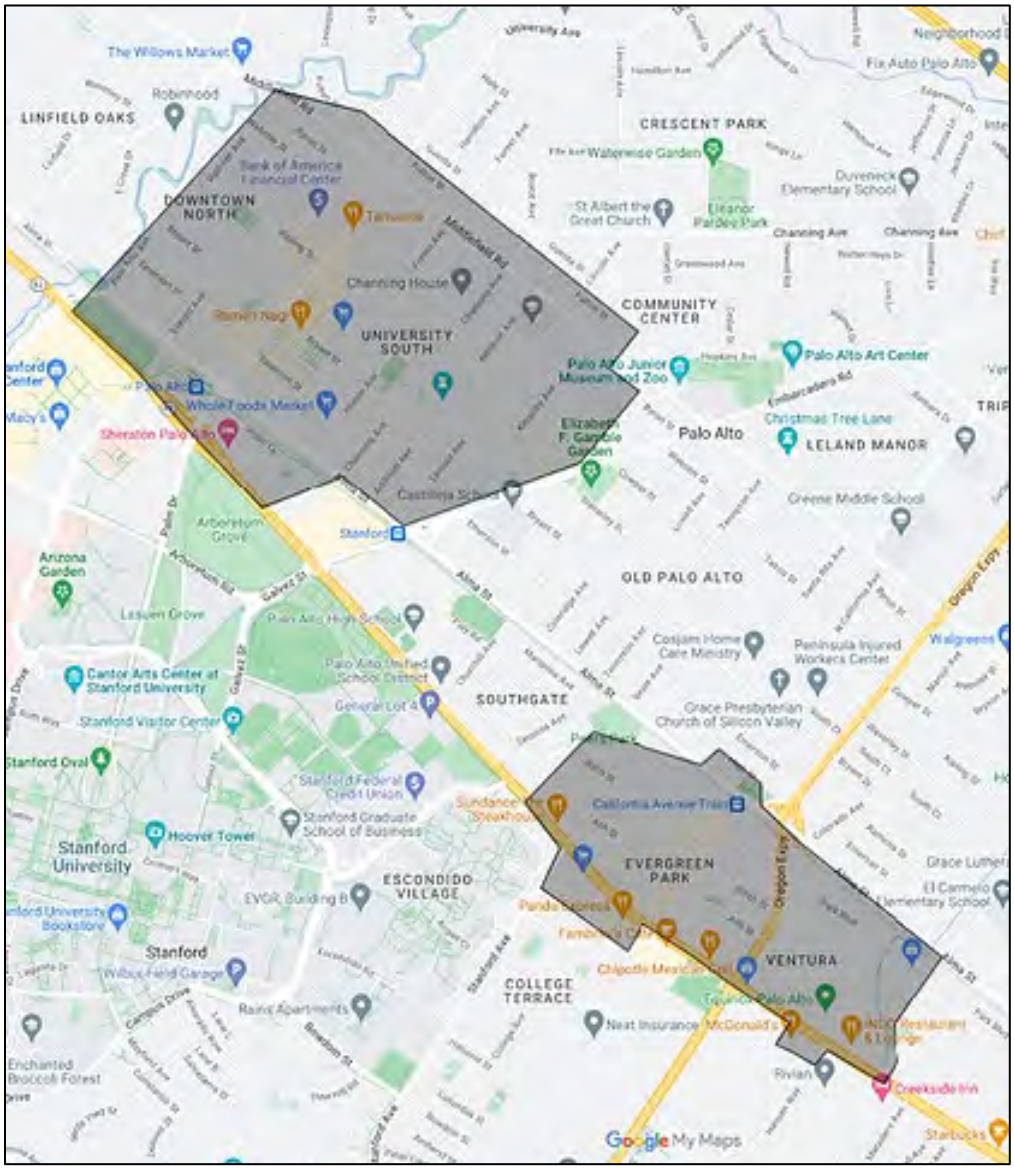


Palo Alto TMA Bike Love Program

The Palo Alto TMA partners with Bike Love and its Motion mobility app to incentivize active commuting to and from work. Participants in the Bike Love program can receive $5 per day, up to $600 per year, and a $10 incentive to set up a Bike Love account. The Bike Love program is available to all commuters and is not income-restricted.

The Mobility app confirms eligible bike, e-bike, e-scooter, and e-skateboard trips to Downtown Palo Alto, California Ave, or one of 30 Caltrain stations.

Within minutes of completing the ride to work, incentive dollars will be available on the participant's Visa® Rewards Card and can be redeemed at local merchants. Below is a map showing the Bike Love program areas.



14.0 TRANSIT RESOURCES

Employer-provided Transit Subsidies

Future tenants shall provide free transit passes to all office employees. Property management shall offer transit passes to employees at 660 University Avenue residential properties.

Employers can use an online platform like Clipper Direct, Edenred, or WageWorks to manage employee transit subsidy requests and fulfillment.

Palo Alto TMA Free Transit Passes

If employer memberships become available, the tenant will join the Palo Alto Transportation Management Association (TMA) as an affiliate.

The TMA offers free transit passes to employees earning less than $70,000 annually. This free transit program offers commuters a monthly pass on Caltrain, SamTrans, VTA, or the Dumbarton Express. More information is available at https://www.paloaltotma.org/programs.

To be eligible, commuters must:

- Make less than $70,000/year
- Presently drive to work alone (or be a new employee)
- Commit to commuting by transit 3+ days per week
- Work within the downtown and California Ave. area.

Clipper START Discounted Transit Pass

The Metropolitan Transportation Commission (MTC) initiated a new means-based fare discount program for eligible low-income adults. Discounts range between 20 (for Muni and BART) and 50 percent (for Caltrain) for those whose annual earnings are up to 200 percent of the federal poverty level.

The MTC discounted fare 18-month pilot program intends to make transit affordable for low-income residents and move toward a more consistent regional standard for fare discounts. More information is available at this link.

Clipper Card Grants up to $7,500

The Bay Area Air Quality Management District offers income-qualified Bay Area residents a grant to retire their older car and replace it with a Clipper Card for public transit containing $7,500. The vehicle must be 15 years or older to qualify, and income limitations determine the grant amount. Bay Area residents must complete an application to verify eligibility. More information is available on the Air District's Clean Cars for All webpage. [2]

CLEAN CARS FOR ALL

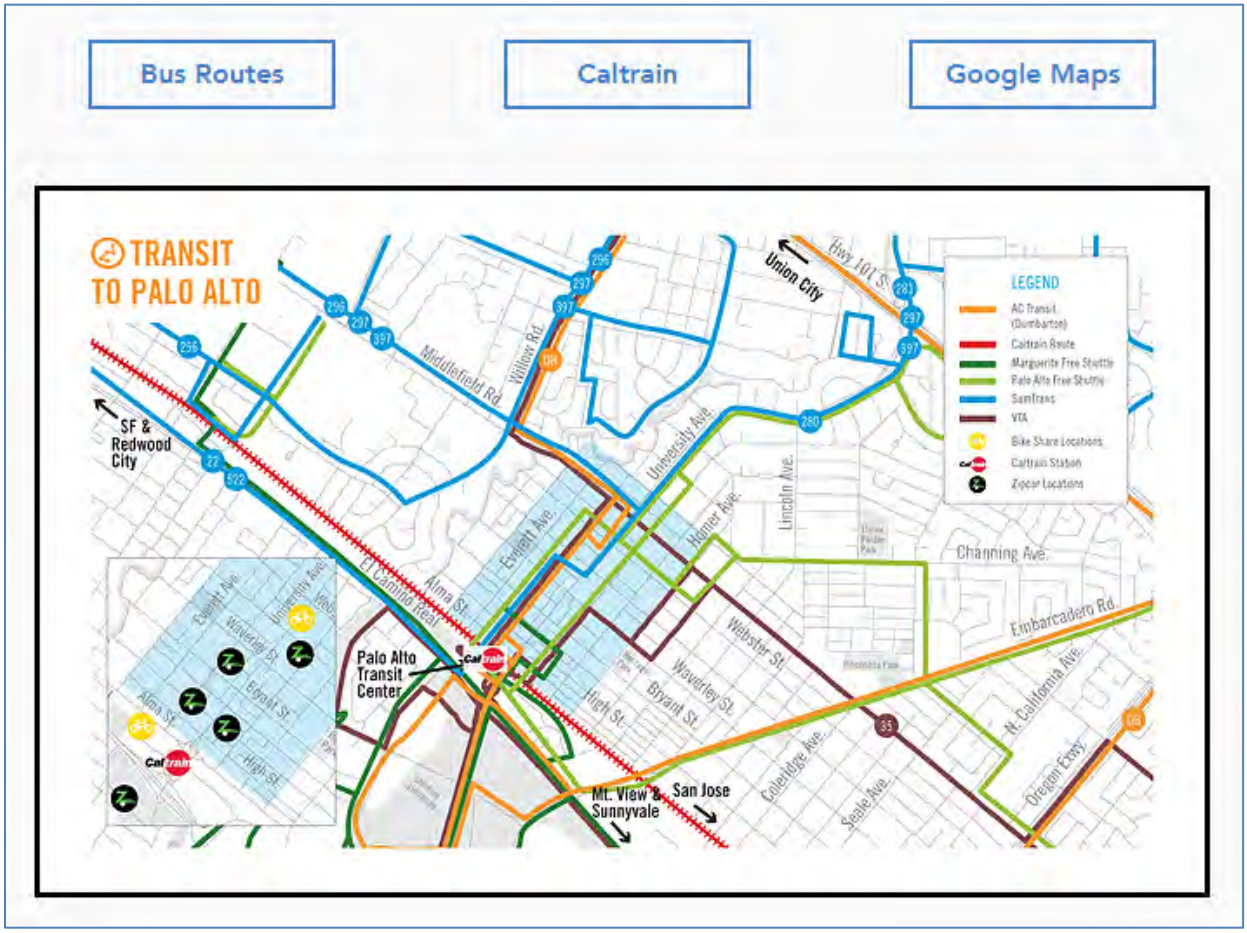
Future enhancements may include receiving an electric bicycle to replace an older vehicle.

Commuter Trip Planning

The Palo Alto TMA offers residents and employees trip-planning support. The TMA's online commute planning webpage links to local bus routes, the Caltrain schedule, and Google trip planning options for pedestrians, bicyclists, transit riders, and carpoolers.

palo alto TMA

[2] In addition to the Clipper Card, other grant options are available.



Adaptive Management

If the Annual Commute Survey Report shows the site is not meeting the 20 percent peak-hour trip reduction goal or the parking demands are exceeding the available supply, the TDM Program Manager will conduct the following:

- review the strategies in place,
- adjust the TDM strategies,
- implement additional TDM elements, and
- conduct monitoring as deemed appropriate in coordination with the City of Palo Alto.

No Expiration of TDM Document or Programs

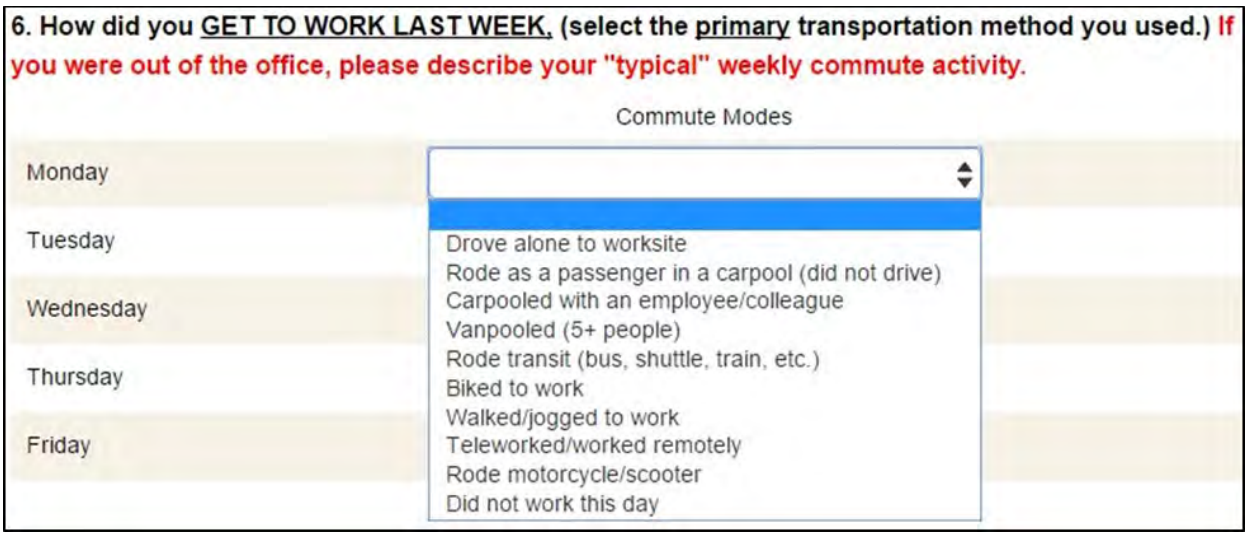
All measures in this TDM document will continue with no plan expiration.

SECTION IV – MONITORING AND REPORTING

This TDM plan identifies measures and programs to achieve the target of reducing weekday PM peak-period vehicle trips to the site by a minimum of 20 percent, consistent with the City of Palo Alto's Comprehensive Plan trip reduction goals.

Annual Commute Survey and Monitoring Reports

Each year, a five-day commute survey will evaluate the success of the TDM measures. Survey data will inform where to focus ongoing TDM marketing on maintaining the project's commitment to reduce vehicle trips at the site. Below is a survey sample that questions employees about their daily commute activities.



The TDM survey report will determine employee commuting methods using information from a survey of all employees. The summarized results from the employee survey will provide quantitative data (e.g., mode split) and qualitative data (e.g., employee perception of alternative transportation programs). The initial annual employee and resident survey (and subsequent surveys) will be conducted in each year's second or fourth quarter.

Submitted to the Director two years after building occupancy and every year after that will be the commuter survey monitoring reports noting the proposed measures' effectiveness compared to the initial performance targets and implementing modifications if necessary to enhance parking and trip reductions.

If the trip reduction rate is unmet, the report will explain how and why the goal was not reached and specify additional measures and activities implemented in the coming year to improve the mode-use rate. The TDM program could be re-tooled to improve the project's alternative commute mode-use engagement.

If identified trip reduction deficiencies are not addressed within six months, the Director may impose administrative penalties.

Annual Driveway Hose Count

The project may be required to conduct driveway counts, which must be prepared by an independent consultant or qualified third party and paid for by the property owner or tenant.

The Chief Transportation Official will receive driveway count data two years after building occupancy and every year after that. The driveway data will identify the effectiveness of the TDM measures compared to initial targets and, if necessary, modify the plan to meet the required 20 percent peak-hour trip reduction performance target (approximately 17 peak-hour trips).

At a minimum, the monitoring activities shall include driveway tube counts to determine project daily and peak hour vehicle trips by methods described in the current edition of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE).

The report should be compared to the baseline ITE estimated trips to determine if the project achieved the 20 percent reduction in evening peak-hour vehicle trips. Where monitoring reports indicate the target was unmet, the Director may require modifications or impose penalties if the deficiencies remain within six months (PAMC 18.52.050(d)(4)).

Shown below are the project trip generation estimates for 660 University Avenue. The estimated project trips include 37 during the AM peak hour and 38 during the PM peak hour. With the 20 percent peak-hour reduction, AM trips would be 30, and PM trips would be 30.

						AM Peak Hour				PM Peak Hour			
				Daily	Daily	Pk-Hr	Trips			Pk-Hr	Trips		
Land Use	ITE Code	Size	Unit	Trip Rate	Trips	Rate	In	Out	Total	Rate	In	Out	Total
Multi-Family Apartment	221	63	dwl	4.54	286	0.37	5	18	23	0.39	15	10	25
Office	710	9	ksf	10.84	99	1.52	12	2	14	1.44	2	11	13
Subtotal of proposed trips less existing					**385**		**18**	**20**	**37**		**17**	**20**	**38**
Less 20% Peak-hour trip reduction goal				20%			-4	-4	-7		-3	-4	-8
Estimated Net Project Trips							**14**	**16**	**30**		**14**	**16**	**30**

Notes:

All rates are from: Institute of Transportation Engineers, *Trip Generation, 11th Edition*

1. Land Use Code 221: Apartment (average rates, expressed in trips per dwelling unit)
2. Land Use Code 710: Office (average rates, expressed in trips per dwelling unit)

SECTION V – RESIDENTIAL TDM MEASURES

15.0 RESIDENTIAL TDM MEASURES

The project's residential component includes 70 rental units, including 20 percent (14) affordable units.

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction [2]
Affordable Housing Units and Single Room Occupancy (SRO) Units [(3)]	The total number of spaces required may be reduced for affordable housing and single room occupancy (SRO) units, commensurate with the reduced parking demand created by the housing facility, including for visitors and accessory facilities. The reduction shall consider proximity to transit and support services and the director may require traffic demand management measures[1] in conjunction with any approval.	a. 40% for Extremely Low Income and SRO Units b. 30% for Very Low Income Units c. 20% for Low Income Units

The location and features of the residential units are well-suited to meet the changing needs of today's commuters. The project is within walking distance (one-quarter mile) of several SamTrans and Dumbarton Express buses. Combined, these transit resources provide more than 261 daily trips.

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction [2]
Housing Near Transit Facilities	The total number of spaces required may be reduced for housing located within a designated Pedestrian/Transit Oriented area or elsewhere in immediate proximity to public transportation facilities serving a significant portion of residents, employees, or customers, when such reduction will be commensurate with the reduced parking demand created by the housing facility, including for visitors and accessory facilities, and subject to submittal and approval of a TDM program.[1]	20% of the total spaces required for the site.

Allowable parking adjustments for the project include Affordable Housing Units and Joint Use (shared parking) with office use, Housing near Transit Facilities, Transportation and Parking Alternatives, and Combined Parking Adjustments.

"Automobile parking requirements prescribed by this chapter may be adjusted by the director in the following instances and in accord with the prescribed limitations in Table 4, when in his/her opinion such adjustment will be consistent with the purposes of this chapter, will not create undue impact on existing or potential uses adjoining the site or in the general vicinity, and will be commensurate with the reduced parking demand created by the development, including for visitors and accessory facilities where appropriate."

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction [2]
Combined Parking Adjustments	Parking reductions may be granted for any combination of the above circumstances as prescribed by this chapter, subject to limitations on the combined total reduction allowed.	a. 30% reduction of the total parking demand otherwise required b. 40% reduction for affordable housing projects

Secure on-site bicycle parking will encourage bike commuting to and from the site. There are also significant on-site and nearby amenities (e.g., carshare resources, fitness center, restaurants, retail shopping, recreation, ATM/banking) within an easy walk. Easily accessible amenities provide residents and employees with many conveniences, alleviating the need to own or use a vehicle.

Residents of this project will enjoy access to commuter and transportation resources within the lobby areas of the building. Residents may take advantage of the same commuter features offered to office employees at the site. Before occupancy, the leasing agent will provide alternative transportation information to homeowners. After occupancy, property management (or an outsourced TDM practitioner) will maintain resident communications and information about transportation and alternative resources.

Resident benefits include:

- Resident commuter resource welcome packet
- Secure on-site bicycle parking
- Bicycle repair Fix-it station
- Resident electronic commuter resource flier
- Clipper START Discounted Transit Pass
- Clipper Card Grants up to $7,500.
- Access to Palo Alto TMA commuter resources
    - Customized Commute Planning
    - Income-qualified Free Transit Passes
    - Bike Love program
    - Income-qualified Free Lyft for Late Night Trips program
- Access to Carshare/Zipcar with ¼ mile at Lot H – Hamilton Avenue and Cowper Street
- Private terraces on the 4th floor

Below are the details of various residential TDM measures.

Reduced Parking Supply

Fifty-four residential parking spaces will be at the project site, representing a 20.6 percent, 14-space reduction. The required number of parking stalls is 68. Incorporating TDM programs into projects lets the City of Palo Alto, via Zoning Ordinance Chapter 18.52.050, allow reduced parking for the project.

Residential Parking	Required	Provided	Reduced	Percent
Residential - studio	48	36	-12	25.00%
Residential - 1-bedroom	12	8	-4	33.33%
Residential - 2-bedroom	6	6	0	0.00%
Residential - ADA	2	4	2	-100.00%
Totals	**68**	**54**	**-14**	**20.59%**

Unbundled Paid Parking

The project will separate the cost of a parking space from the lease or rental price of housing in the process of "unbundling parking." Parking free of charge encourages higher rates of car ownership and use, which undermines TDM efforts. Consumers who receive the correct parking price are more likely to consider living without a car or a second car.

TDM Disclosure in Rental Materials

Leasing agents for the residential units will disclose the project's various trip reduction and green features to prospective residents while touring the facility. Lease contracts will include disclosures regarding the TDM Plan and the project's goals for occupants to use alternative transportation modes.

Sample resident lease language may read as follows:

> *The resident, at this moment, agrees to consider participating in commuter programs and alternative transportation options. The resident understands that government agencies may require such programs to reduce the traffic generated by the project, as required by the City of Palo Alto, as part of the approval conditions and to encourage public transportation and ridesharing bicycling and participating in the annual commuter survey.*

Sample Language

Resident Acknowledgement Commuter Programs and Sustainability Goals

At leasing, new residents will acknowledge the project's commuter and trip reduction goals and sustainability goals. Shown on page 32 is a sample resident acknowledgment form.

660 University Avenue
Resident Acknowledgement
Commuter Programs and Sustainability Goals

I understand 660 University Avenue apartments are required by the City of Palo Alto to implement green transportation, mobility, and commuter programs.

Residents are asked to reduce single-vehicle occupant commuter trips (SOV) by 45 percent. The goal for 660 University Avenue is to reduce tenant-wide, peak-hour vehicle trips by 45 percent.

I am aware that this program's goal is to reduce our peak period (commute) vehicular trips and maximize the use of public transit, shuttles, carpooling, car-sharing, bicycles, and walking options.

I have been provided with the 660 University Avenue Commuter Resource Flier and Palo Alto Transportation Management Association (TMA) commuter incentives. The flier includes transportation and commuter information and links to local and regional transportation services and benefits.

I promise to participate in the annual online commuter survey required to report my transportation options used for commuting to and from work. The online commute survey is brief and identifies what types of transportation options are used. The survey is confidential, and only the commuter information results will be presented to the City.

_____
Tenant Name

_____
Apartment Number

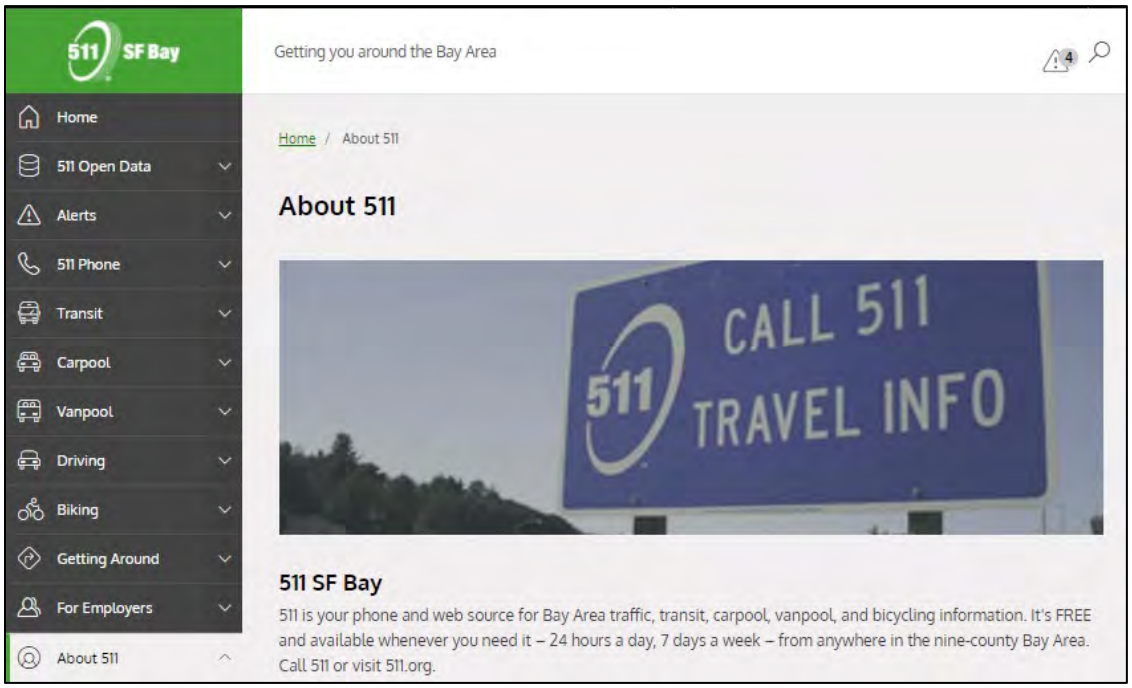
_____
Phone Number

_____
Email Address

_____
DATE

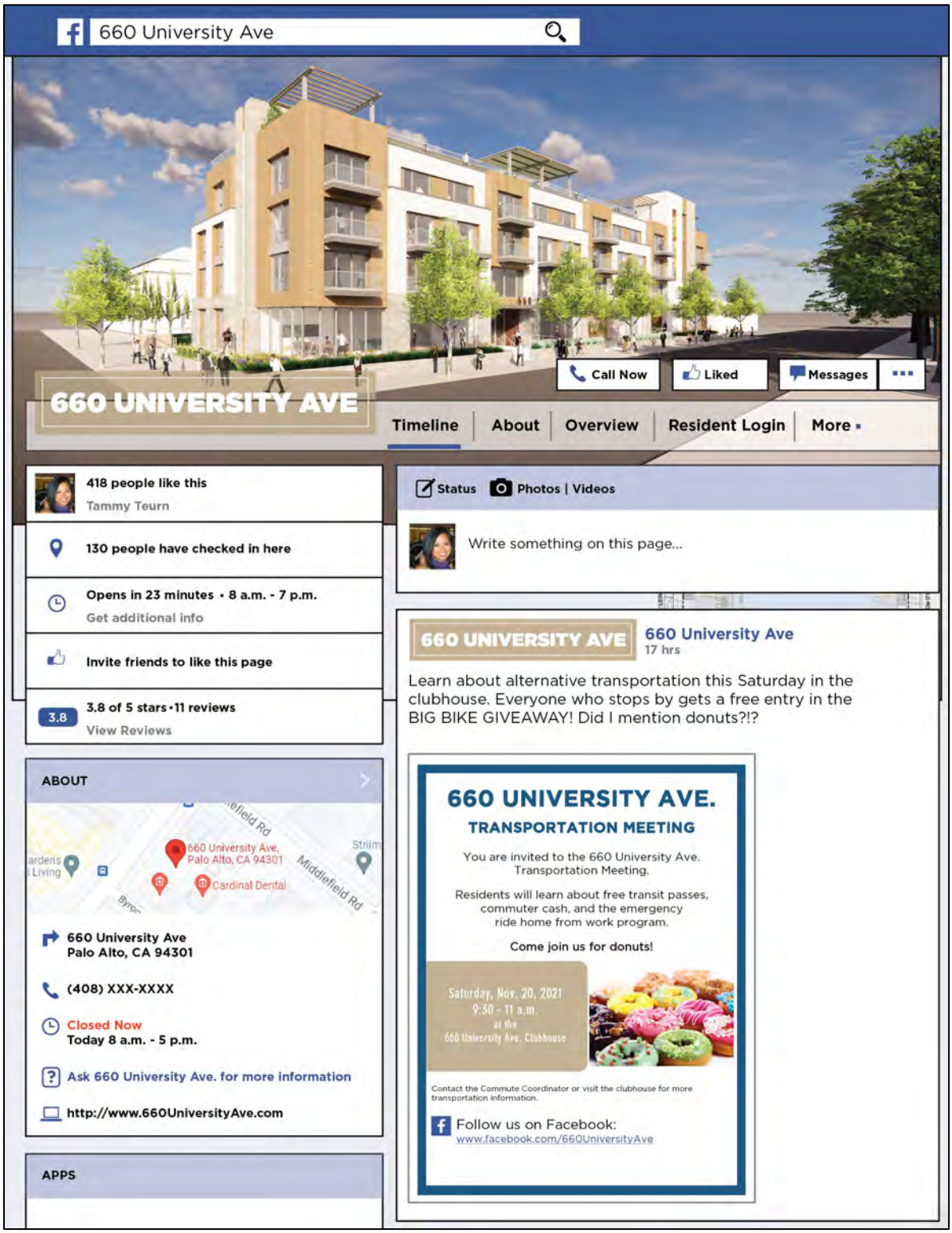
Resident Commute Website and Resources

The resident dashboard will link with the Palo Alto TMA and 511.org information websites. The websites contain additional transportation information, resources, and links, including promotions, incentives, Bay Area Spare the Air notices, transit schedules, ride-matching, and other related information.



Alternatively, the project may incorporate resident commuter information on its social media page. Page 34 shows a mock social media page of resident commute program information.

Mock Social Media Webpage



Resident Welcome Commuter Resource Packet

Before occupancy, all residents will receive an information packet containing on-site commuter amenities (electric vehicle parking spaces, bicycle parking, transit Clipper Card, commuter kiosk, etc.) and alternative transportation opportunities. The Resident Commuter Packet will include transit and local shuttle maps and schedules, bicycle maps, and trip planning resources.

Secure Resident Bicycle Parking

On the second parking level, resident bicycle parking will use the garage's secure, covered, and caged area. There will be sixteen bicycle parking facilities for residents.

Bicycle Repair Fix-it Station

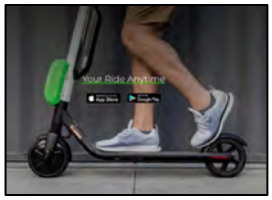
Inside the secure bike cage will be a bicycle repair fix-it station. Residents may use the tools, work stand, and tire pump to adjust and do minor bike repairs.

Electronic Resident Transportation Resource Flier

Like the employee flier, residents will receive an electronic resident commuter resource flier highlighting nearby transit opportunities and resource links to ridesharing, bicycle, commuter, and carsharing resources. The property manager will email residents the electronic transportation flier for easy access to commuter links.

Future City Scooter and Bikeshare – Conceptual

If the city establishes a public e-scooter and e-bikeshare program, 660 University Avenue may host a parking hub for bikes and scooters. Bikeshare and scooter programs encourage people to use bikes and scooters as options for first- and last-mile trips while minimizing traffic and parking congestion.



Transportation and Commute Kiosk

Residents/occupants will have access to the commuter kiosk in the building lobbies of the project. Access to rideshare, transit, and bicycle materials are outreach resources for residents.

Palo Alto TMA – Employee Commuter Resources

All residents will have access to many resources offered by the TMA. For eligible participants, TMA resources include:

- Free transit passes
- Free Lyft for late-night trips
- Bike Love program
- Parking resources
- Customized commuter trip planning

Annual Resident Commuter Survey

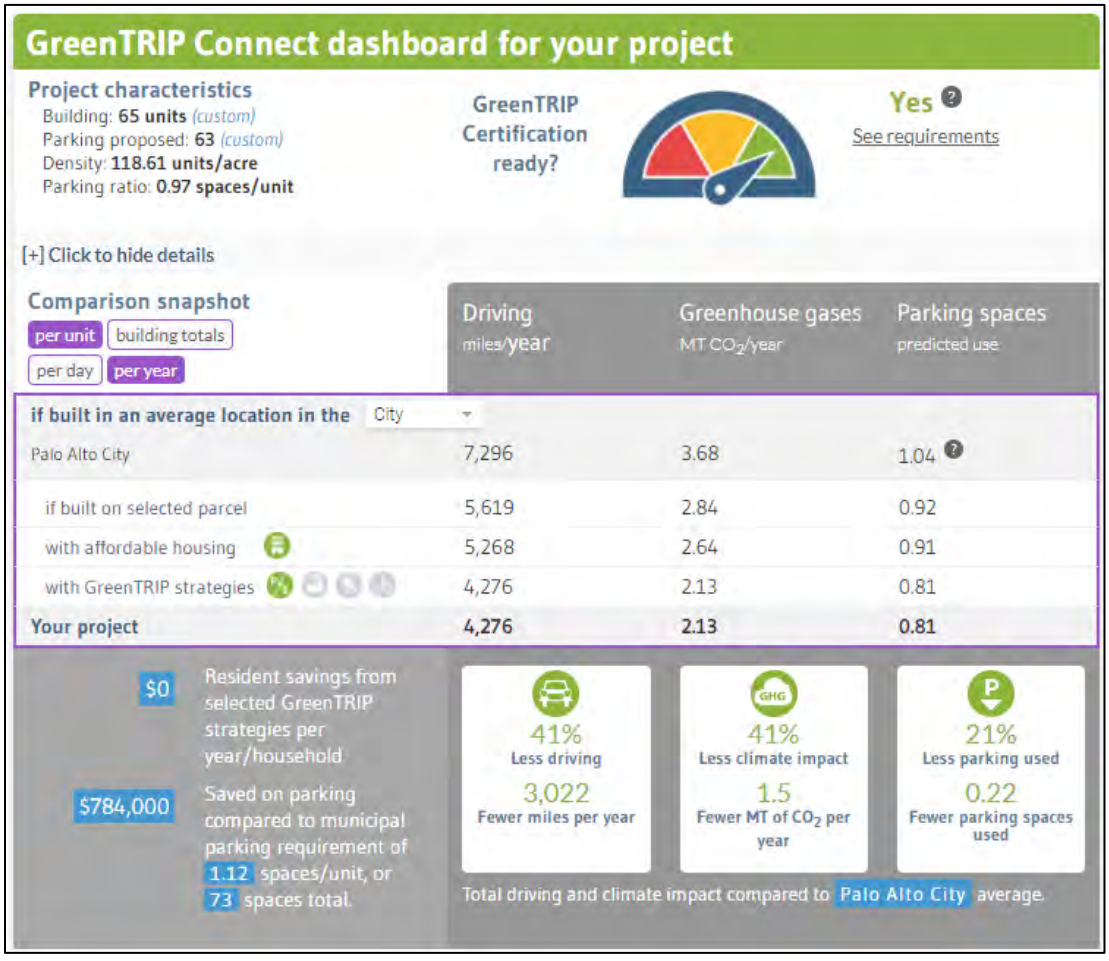
Residents will be asked to participate in the yearly parking, commuter, and transportation survey.

GreenTRIP Connect Dashboard

Transform is a regional organization that provides a tool for residential developments to estimate site-specific trip generation statistics such as miles driven per day, greenhouse gas impact, and more. The GreenTRIP dashboard includes regional and citywide statistics for comparison to this project. Based on the project's location, unit count, unit mix, rent, parking supply, and traffic reduction strategies, this project will result in the following:

- 196,326 fewer miles driven every year compared to the Palo Alto City average.
- 43,1% fewer GHG impacts yearly compared to the Palo Alto City average.
- 25,1% less parking use every year compared to the Palo Alto City average.

Below is a screenshot of the 660 University Avenue project's estimated GreenTRIP dashboard analysis. Below is a summary of estimated outcomes.



16.0 CONCLUSION

The applicant developed the 660 University Avenue TDM Plan to meet the project's specific needs, considering logistical resources and opportunities of the site. The applicant has been committed to an integrated project design that enhances pedestrian, bicycle, and community opportunities from conception.

This project's orientation of TDM features will increase opportunities for pedestrian, bicycle, carpool, and transit use.

The applicant is committed to reducing 20 percent of evening peak-hour vehicle trips and increasing alternative transportation modes. This TDM Plan details the applicant's commitment to the City of Palo Alto to support a 25 percent reduction in parking.

The 660 University Avenue project supports the City of Palo Alto's focus on clustered development along major transportation corridors. It reinforces the City of Palo Alto's Green goals and practices. The 660 University Avenue project will help Palo Alto thrive by balancing air quality with economic growth, and projects like these will contribute to the City of Palo Alto's future livelihood.

ATTACHMENTS

Excerpts from Chapter 18.52.050 Table 4 Allowable Parking Adjustments
SamTrans Route 280 Map
SamTrans Route 281 Map
SamTrans Route 296 Map
SamTrans Route 397 Map

List of Nearby Amenities – 0.25 miles or less from 660 University Avenue (personal services, restaurants, coffee, retail/sundry, banking, etc.)

Guaranteed Ride Home program flier

Excerpts from Chapter 18.52.050 Table 4 Allowable Parking Adjustments

18.52.050 Adjustments by the Director

Automobile parking requirements prescribed by this chapter may be adjusted by the director in the following instances and in accord with the prescribed limitations in Table 4, when in his/her opinion such adjustment will be consistent with the purposes of this chapter, will not create undue impact on existing or potential uses adjoining the site or in the general vicinity, and will be commensurate with the reduced parking demand created by the development, including for visitors and accessory facilities where appropriate. No reductions may be granted that would result in provision of less than ten (10) spaces on a site. The following are adjustments that apply to developments not located within a parking assessment district. Adjustments within the parking assessment districts are contained in Section 18.52.080. The decision of the regarding parking adjustments may be appealed as set forth in Chapter 18.78 (Appeals).

Table 4
Allowable Parking Adjustments

Purpose of Adjustment	Amount of Adjustment	Maximum Reduction 2
Purpose of Adjustment	Amount of Adjustment	Maximum Reduction 2
On-Site Employee Amenities	Square footage of commercial or industrial uses to be used for an on-site cafeteria, recreational facility, and/or day care facility, to be provided to employees or their children and not open to the general public, may be exempted from the parking requirements	100% of requirement for on-site employee amenities
Joint Use (Shared) Parking Facilities	For any site or sites with multiple uses where the application of this chapter requires a total of or more than ten (10) spaces, the total number of spaces otherwise required by application of Table 1 may be reduced when the joint facility will serve all existing, proposed, and potential uses as effectively and conveniently as would separate parking facilities for each use or site. In making such a determination, the director shall consider a parking analysis using criteria developed by the Urban Land Institute (ULI) or similar methodology to estimate the shared parking characteristics of the proposed land uses. The analysis shall employ the city's parking ratios as the basis for the calculation of the base parking requirement and for the determination of parking requirements for	20% of total spaces required for the site

	individual land uses. The director may also require submittal and approval of a TDM program 1 to further assure parking reductions are achieved.	
100% Affordable Housing (4)	Based on maximum anticipated demand; applicant may request up to a 100% reduction in parking.	
Affordable Housing Units and Single Room Occupancy (SRO) Units (3)	The total number of spaces required may be reduced for affordable housing and single room occupancy (SRO) units, commensurate with the reduced parking demand created by the housing facility, including for visitors and accessory facilities. The reduction shall consider proximity to transit and support services and the director may require traffic demand management measures 1 in conjunction with any approval.	a. 40% for Extremely Low Income and SRO Units b. 30% for Very Low Income Units c. 20% for Low Income Units
Housing Near Transit Facilities	The total number of spaces required may be reduced for housing located within a designated Pedestrian/Transit Oriented area or elsewhere in immediate proximity to public transportation facilities serving a significant portion of residents, employees, or customers, when such reduction will be commensurate with the reduced parking demand created by the housing facility, including for visitors and accessory facilities, and subject to submittal and approval of a TDM program.1	20% of the total spaces required for the site.
Transportation and Parking Alternatives	Where effective alternatives to automobile access are provided, other than those listed above, parking requirements may be reduced to an extent commensurate with the permanence, effectiveness, and the demonstrated reduction of off-street parking demand effectuated by such alternative programs. Examples of such programs may include, but are not limited to, transportation demand management (TDM) programs or innovative parking pricing or design solutions.1 (note: landscape reserve requirement is deleted).	20% of the total spaces required for the site
Combined Parking Adjustments	Parking reductions may be granted for any combination of the above circumstances as	a. 30% reduction of the total

	prescribed by this chapter, subject to limitations on the combined total reduction allowed.	parking demand otherwise required b. 40% reduction for affordable housing projects
Modification to Off-Street Loading Requirements	The director may modify the quantity or dimensions of off-street loading requirements for non-residential development based on existing or proposed site conditions; availability of alternative means to address loading and unloading activity; and, upon finding that: 1) the off-street loading requirement may conflict with Comprehensive Plan goals and policies related to site design planning, circulation and access, or urban design principles; and 2) the use of shared on-street loading would not conflict with Comprehensive Plan goals and policies related to site design planning, circulation and access or urban design principles; maximum reduction in one loading space.	One loading space may be waived
Restriping Existing Parking Facilities	Existing parking facilities may be restriped in accordance with applicable provisions of the municipal code. The Director may approve a reduction in the number of required on-site parking spaces to achieve the City's waste management objectives, make improvements to on-site circulation that would reduce or eliminate a hazard, or bring substandard parking stalls into compliance with current design requirements. This provision applies only to sites with existing structures and existing parking facilities that are intended to remain in substantially the same form after re-striping of the facility.	10% of the total spaces required for the site, or 2 spaces, whichever is greater.

1. See Section 18.52.050(d) below regarding requirements for TDM programs.

2. No parking reductions may be granted that would result in provision of less than ten (10) parking spaces on site.

3. No parking reductions may be granted for projects that are entitled to the reduced parking standards in Table 1 of Section 18.52.040 for senior housing.

4. Applies to 100% affordable housing projects and the residential component of 100% affordable housing mixed-use projects. "100% affordable housing" as used herein means a multiple-family housing project consisting entirely of affordable units, as defined in Section 16.65.020 of this code, available only to households with income levels at or below 120% of the area median income, as defined in Chapter 16.65, except for a building manager's unit.

(a) Combining Parking Adjustments

Parking reductions may be granted for any combination of circumstances, prescribed by this chapter, so long as in total no more than a 30% reduction of the total parking demand otherwise required occurs, or no less than a 40% reduction for affordable housing projects (including Single Room Occupancy (SRO) units).

(b) Deferral of Meeting Full Requirement by Landscape Reserve

Where the expected need for off-street parking or bicycle facilities for a particular use is uncertain, due to unknown or unusual operating characteristics of the use and unavailability of comparable data to establish need, the director, upon recommendation of the architectural review board, may authorize that construction and provision of not more than fifty percent of the required off-street parking stalls and not more than twenty-five percent of the bicycle parking spaces be deferred. The number of bicycle parking spaces deferred shall be apportioned by construction type (long term or short term) in the same percentages as indicated in Table 1 of Section 18.52.040. The director may set such conditions as necessary to guarantee provision of such deferred spaces whenever the director determines the need to exist. Land area required for provision of deferred parking or bicycle spaces shall be maintained in reserve and shall be landscaped pursuant to a plan approved by the architectural review board demonstrating that ultimate provision of the deferred spaces will meet all requirements of this chapter. Upon use of the parking area at near build-out (at least 90% occupancy) over a period of at least ten years, the director may allow the reserve area to be used for other uses that do not generate parking demand, subject to restrictions and conditions to prevent conversion to a more intense use unless sufficient additional on-site parking is provided.

(c) Off-Site Parking

Except in parking assessment areas, the director may authorize all or a portion of the required parking for a use to be located on the site not more than 500 feet from the site of the use for which such parking is required, where in the director's judgment, such authorization will be in accord with the purposes of this chapter. The distance to the off-site parking shall be measured from the nearest corner of the parking facility to the nearest public entrance to the building via the shortest pedestrian route.

(d) Transportation Demand Management (TDM)

(1) A Transportation Demand Management (TDM) program may be (a) proposed by an applicant, or may be (b) required by the director for any project requesting a reduction in

parking or generating 50 or more net new weekday (AM or PM peak hour) or weekend peak hour trips, or (c) may be required as CEQA mitigation for identified potential significant parking impacts.

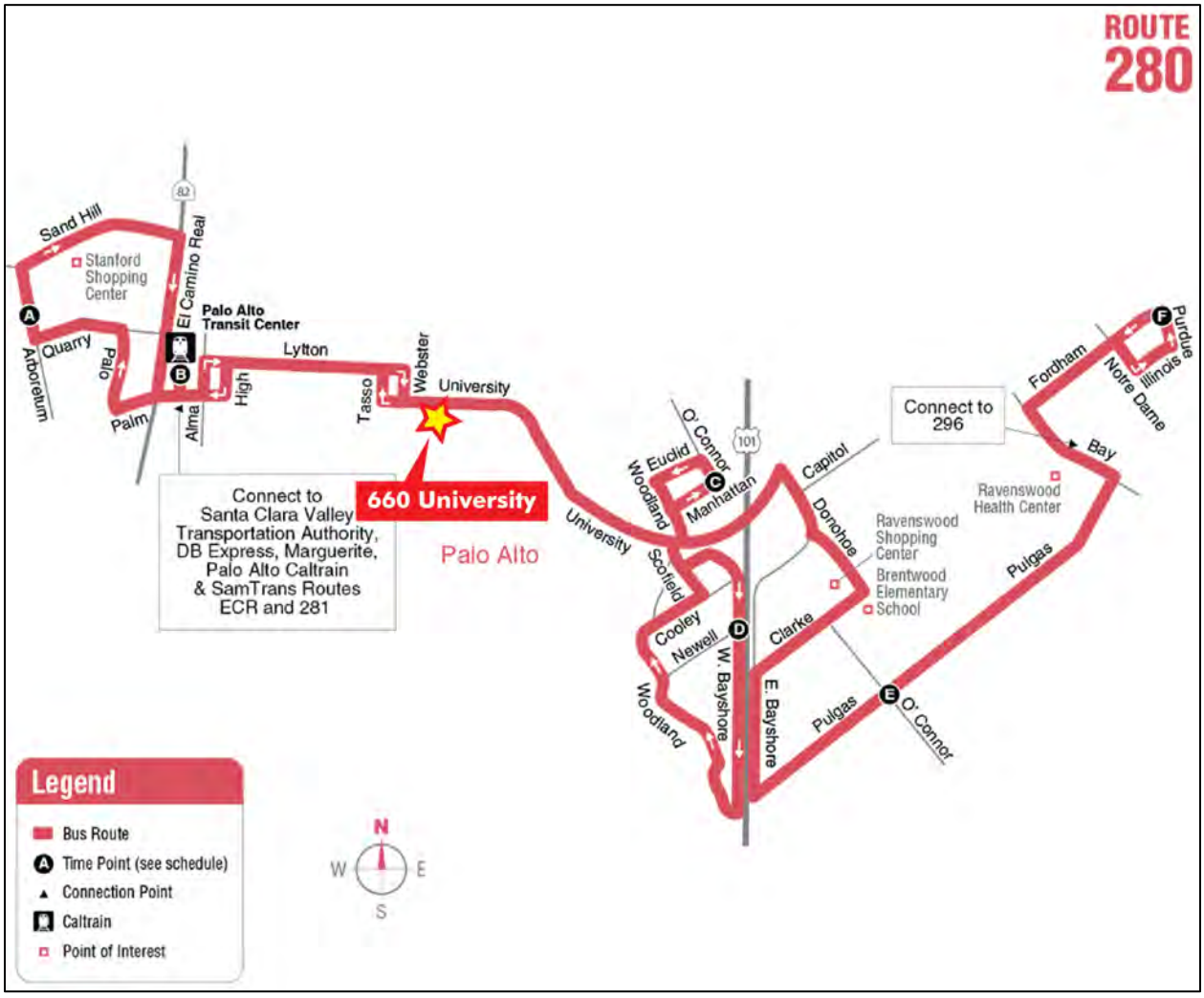
(2) Where a Transportation Demand Management (TDM) program is proposed or required, the TDM program shall outline parking and/or traffic demand measures to be implemented to reduce parking need and trip generation. The Director shall have the authority to adopt guidelines for preparing TDM plans. Required measures may include, but are not limited to: participation in the Transportation Management Association or similar organization, limiting "assigned" parking to one space per residential unit, providing for transit passes, parking cash-out, enhanced shuttle service (or contributions to extend or enhance existing shuttle service or to create new shared or public shuttle service), car-sharing, traffic-reducing housing, providing priority parking spaces for carpools/vanpools or "green" vehicles (zero emission vehicles, inherently low emission vehicles, or plug-in hybrids, etc.), vehicle charging stations, additional bicycle parking facilities, or other measures to encourage transit use or to reduce parking needs. The program shall be proposed to the satisfaction of the director, shall include proposed performance targets for parking and/or trip reduction and indicate the basis for such estimates, and shall designate a single entity (property owner, homeowners association, etc.) to implement the proposed measures.

(3) Monitoring reports shall be submitted to the director two years after building occupancy and again every year thereafter, noting the effectiveness of the proposed measures as compared to the initial performance targets, and implementing modifications if necessary to enhance parking and/or trip reductions.

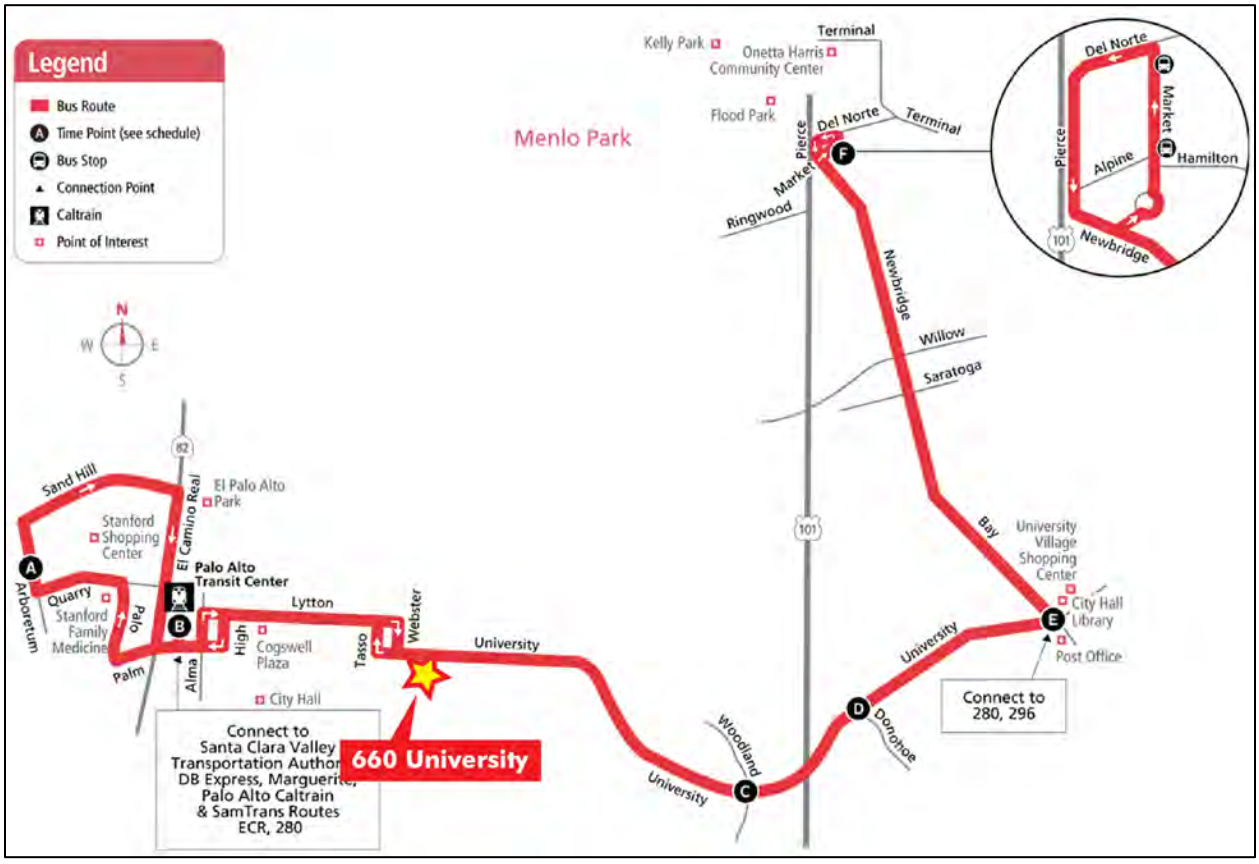
(4) Where the monitoring reports indicate that performance measures are not met, the director may require program modifications and may impose administrative penalties if identified deficiencies are not addressed within six months.

(Ord. 5504 § 6, 2020: Ord. 5460 § 12, 2019: Ord. 5432 § 13 (part), 2018: Ord. 5406 §§ 7 and 12, 2017: Ord. 4964 § 3 (part), 2007)

SamTrans Route 280 Map

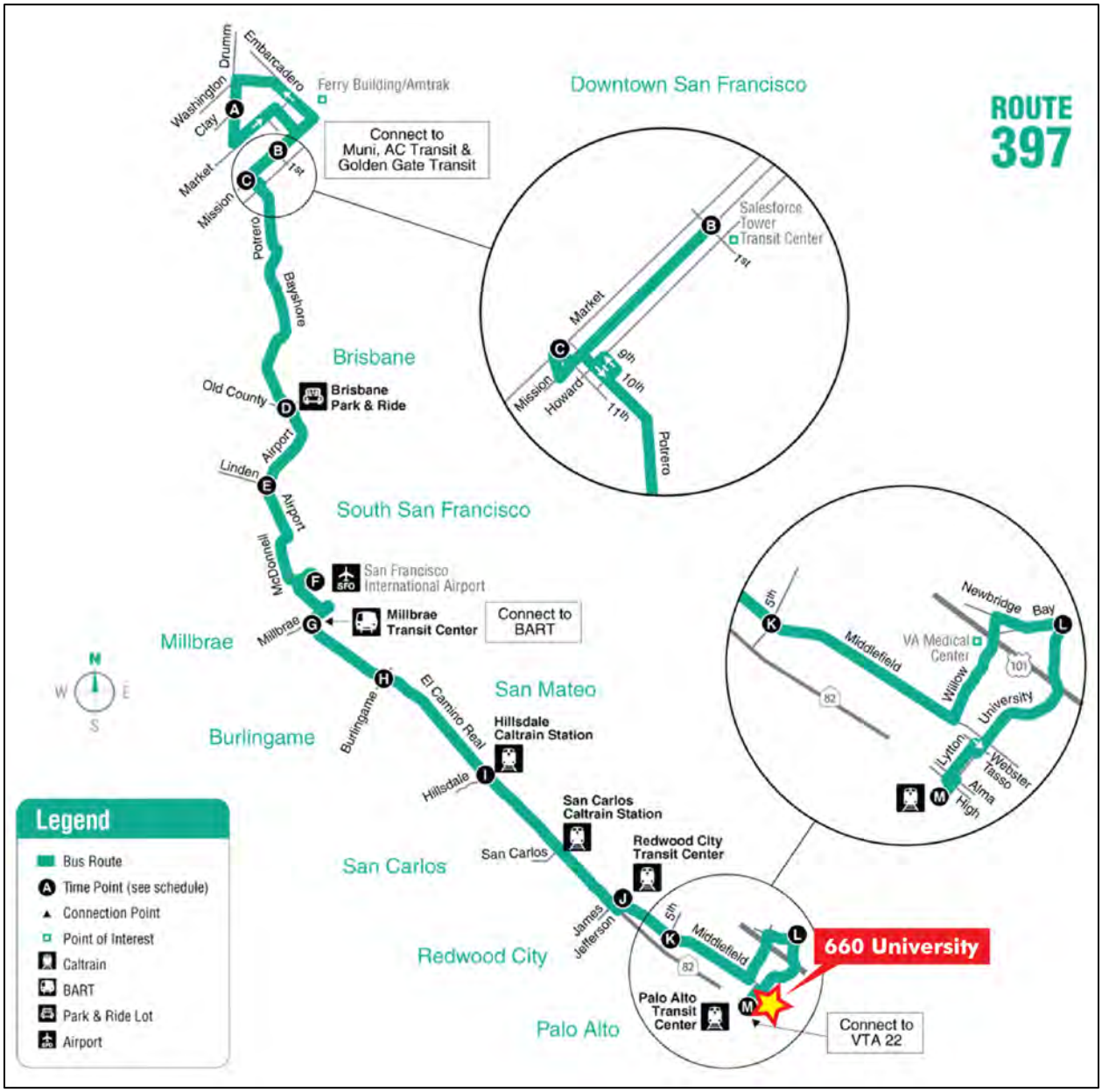


SamTrans Route 281 Map



SamTrans Route 296 Map

SamTrans Route 397 Map



List of Nearby Amenities

Within 0.30 or fewer miles

660 University Avenue, Palo Alto, CA

Restaurants, Cafes/Delis, Coffee, and Bakeries	Phone #	Distance Away
Tamarine Restaurant & Gallery 546 University Ave, Palo Alto, CA	650-325-8500	0.10 mi.
Il Fornaio 520 Cowper St, Palo Alto, CA	650-853-3888	0.20 mi.
Ollison Jewish Restaurant 452 University Ave, Palo Alto, CA		0.20 mi.
Blue Bottle Coffee 456 University Ave, Palo Alto, CA		0.20 mi.
Chantal Guillon 444 University Ave, Palo Alto, CA	650-322-2220	0.20 mi.
ROOH 473 University Ave, Palo Alto, CA	650-800-7090	0.20 mi.
Joe & The Juice 508 University Ave, Palo Alto, CA		0.20 mi.
Taste 423 University Ave, Palo Alto, CA	650-323-6488	0.30 mi.
Sancho's Taqueria 491 Lytton Ave, Palo Alto, CA	650-322-8226	0.30 mi.
Mademoiselle Colette 499 Lytton Ave, Palo Alto, CA	650-272-6873	0.30 mi.
Vino Locale 431 Kipling St, Palo Alto, CA	650-328-0450	0.30 mi.
Retail	**Phone #**	**Distance Away**
Anatolia Gallery 429 University Ave, Palo Alto, CA	650-670-5825	0.20 mi.
Relonch 441 University Ave, Palo Alto, CA	646-652-8600	0.20 mi.
Footwear etc. 463 University Ave, Palo Alto, CA	650-328-1122	0.20 mi.
Cielo 477 University Ave, Palo Alto, CA	650-329-8833	0.20 mi.
Hemingway Cigars & Tobacco (Temporarily Closed) 480 University Ave, Palo Alto, CA	650-328-7473	0.20 mi.
Blu (Temporarily Closed) 475 University Ave, Palo Alto, CA	650-322-2510	0.20 mi.
Leafy 482 Hamilton Ave, Palo Alto, CA	650-618-6678	0.30 mi.
Lululemon 432 University Ave, Palo Alto, CA	650-566-1617	0.30 mi.
Health, Beauty & Fitness	**Phone #**	**Distance Away**
Palo Alto Dental Group 511 Byron St, Palo Alto, CA	650-323-1381	207 ft.
Cardinal Health 517 Byron St, Palo Alto, CA	650-328-6684	259 ft.
Simply Be Beautiful 530A University Ave, Palo Alto, CA	650-323-1009	0.10 mi.

Michael Lucich Salon & Spa (Temporarily Closed) 460 University Ave, Palo Alto, CA	650-326-8021	0.20 mi.
Internal Spa 734 Middlefield Rd, Palo Alto, CA	650-468-1365	0.30 mi.
Fishman Vision 706 Webster St, Palo Alto, CA	650-322-4393	0.30 mi.
Parasol Beauty Atelier 470 Hamilton Ave, Palo Alto, CA	650-321-9800	0.30 mi.
President BarberShop 486 Hamilton Ave, Palo Alto, CA	650-325-5229	0.30 mi.
Like! Hair Salon 444 Kipling St, Palo Alto, CA	408-646-1925	0.30 mi.
Sam's Barber Styling Shop 495 Lytton Ave, Palo Alto, CA	650-328-4744	0.30 mi.
Services	**Phone #**	**Distance Away**
Smart Repair 476 University Ave, Palo Alto, CA	650-384-6676	0.20 mi.
Elite Cleaners & Tailors 468 University Ave, Palo Alto, CA	650-323-7400	0.20 mi.
Insurance by Allied Brokers 630 Cowper St, Palo Alto, CA	650-328-1000	0.30 mi.
Gate Cleaners 439 Hamilton Ave, Palo Alto, CA	650-326-7896	0.30 mi.
Transportation, Gas, Shipping & Storage	**Phone #**	**Distance Away**
Zipcar 554 Cowper St, Palo Alto, CA		0.20 mi.
ChargePoint Charging Station 533 Cowper St, Palo Alto, CA		0.20 mi.
Banks & ATM	**Phone #**	**Distance Away**
Stanford Federal Credit Union 525 University Ave #21, Palo Alto, CA	650-723-2509	0.10 mi.
HSBC Bank 567 University Ave, Palo Alto, CA	650-321-8005	0.10 mi.
Boston Private 420 Cowper St, Palo Alto, CA	650-463-8700	0.20 mi.
California Bank & Trust 525 University Ave, Suite 23, Palo Alto, CA	650-422-7900	0.20 mi.
Bank of the West 531 Cowper St, Palo Alto, CA	800-488-2265	0.20 mi.
Bank of America Financial Center 530 Lytton Ave, Palo Alto, CA	650-566-8331	0.30 mi.
Daycare	**Phone #**	**Distance Away**
Imagina Daycare 726 Everett Ave, Palo Alto, CA	650-739-5962	0.20 mi.
Downtown Children's Center 555 Waverly St, Palo Alto, CA	650-321-9578	0.40 mi.
Palo Alto Comm Child Care PCCC 650 Addison Ave, Palo Alto, CA	650-323-4007	0.50 mi.
Downtown Palo Alto KinderCare 848 Ramona St, Palo Alto, CA	650-473-1100	0.80 mi.

Guaranteed Ride Home Program Flier

Guaranteed RIDE HOME

DURING AN EMERGENCY*—
IT'S ON US!

Bay Area Air Quality Transportation Fund for Clean Air

Commute with confidence when traveling to work or school using a sustainable transportation mode knowing you have a guaranteed back-up ride during unexpected times. You choose the best way to get home in an emergency and we reimburse your trip.

*Visit ***vta.org/grh*** for program rules and limitations.

What is the Guaranteed Ride Home program?

The Guaranteed Ride Home Program (GRH) is provided by VTA to encourage commuters to use a sustainable mode of transportation to work, college, or adult education classes in Santa Clara County by providing a reimbursement ($$$) on the cost to get home in the event of an emergency. Participants may request a GRH reimbursement due to qualifying events such as: personal injury/illness, home emergency, childcare/eldercare emergency, vanpool vehicle breaks down, bike/scooter breaks down, bike/scooter is stolen, participant is required to work unexpected overtime, or if the last transit trip of the day is cancelled. The GRH program reimburses commuters who choose public transportation, an employer-provided shuttle, carpool, vanpool, micro-transit, bicycle or walk to work or college in Santa Clara County.

Visit ***vta.org/grh*** for more information.

Who is eligible for a GRH reimbursement?

- Must be 18 years or older
- Must work in Santa Clara County or attend a post-secondary school/college in Santa Clara County
- Must have used a sustainable transportation mode to get to work or school on day GRH is needed
- Must have a VTA GRH account at the GRH portal

What types of emergencies are eligible for a qualified GRH trip?

- Personal or family illness, injury or emergency
- Home emergency
- Eldercare or daycare emergency
- Bicycle/e-scooter theft or breakdown
- Unforeseen change of work schedule (supervisor verification will be required)
- Carpool/shuttle partner emergency/cancellation resulted in loss of ride home
- Local air quality index exceeds 300

What types of trips or reasons are not covered?

- Typical transit delays
- Worker strikes
- Personal errands or appointments
- Ride to work or school
- Carpool app provider cannot find a match to get the commuter home
- Non-emergency side trips
- Business-related travel
- Transportation to a doctor or hospital resulting from an on-the job injury

What mode of transportation can I use for my GRH trip?

- Taxis
- Rental cars (including insurance and tolls)
- Carshare vehicles (including insurance and tolls)
- Transportation network companies (Lyft, Uber, etc.)
- Public transportation
- Shared bicycle or e-scooter provider (micro-transit)

Fuel and gratuity are not eligible for reimbursement.

How do I request a reimbursement?

VTA GRH participants may redeem a GRH reimbursement request via the GRH participant portal. Participants must complete the questionnaire provided in the reimbursement request and provide GRH trip receipt(s) and accompanying information to receive reimbursement. Reimbursement requests must be submitted within 30 days of GRH trip. Visit ***vta.org/grh*** for program rules and limitations.

TDM SPECIALISTS, INC. QUALIFICATIONS

TDM SPECIALISTS, INC.

A Transportation Demand Management Company

We are planners and technical experts *focused on development projects and improving employee mobility options. Our Transportation Demand Management (TDM) planning solutions reduce vehicle traffic, parking demand, greenhouse gases, and air pollution impacts. We work successfully with developers, employers, and government agencies to get TDM Plans approved and projects entitled. We also implement and manage on-site commuter programs and achieve required TDM goals.*

"We have finished the review of the Draft TDM. First let me say, that was the best TDM I have ever seen! The best by a large margin...a fantastic TDM Plan. Thank you so much."

Steve Lynch, AICP, Senior Planner, City of Santa Clara, California

Our TDM practitioners provide full-service commute and traffic mitigation, sustainable LEED planning, and air quality conformity. Serving as an extension of client staff, we provide a broad range of services to get the job done efficiently while meeting the unique needs of the client and specific jurisdiction.

Transportation Demand Management

TDM Specialists develop Transportation Demand Management plans, traffic mitigation plans, and sustainable programs that address green commuting, mobility, and constrained parking issues. The purpose of TDM is to promote more efficient utilization of existing transportation facilities, reduce traffic congestion and mobile source emissions, and ensure that projects are designed in ways to maximize the potential for alternative transportation use.

Commute Program Implementation

We have a proven track record of getting employees out of their cars. As projects are built and occupied, TDM Specialists can develop the structure, outreach and promotions necessary to implement and manage employee Commute Programs. The initial start-up, implementation, and ongoing management of the Commute Program are designed to meet TDM or trip reduction objectives and requirements. The overarching goal of a Commute Program is to enhance the quality of life and reduce commute trips for project employees.

Quality of life improvements can enhance employee recruitment, morale and retention, and increase productivity that create positive benefits for businesses.

Sustainable Air Quality and Greenhouse Gas (GHG) Solutions

TDM Specialists successfully implements trip reduction programs tailored to fit the project, and can typically reduce employee trips to the site by 30 percent. This results in reduced drive-alone trips and complies with requirements to reduce project GHG impacts. We coordinate the mechanisms to calculate and report these results to appropriate agencies.

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TDM SPECIALISTS, INC.

A Transportation Demand Management Company

Areas of Expertise

Traffic Mitigation

TDM/TSM Mitigation Plans
TDM Employer Training
Commute Program Development
Commute Program Management
Commute Program Audits
Commuter Surveys
Transportation Fairs and Events
Car Management Strategies
Shuttle Programs
TMA Management

Parking Mitigation

Parking Demand Reduction
Parking Management Strategies
Parking Constraints Solutions

Entitlement

Project Support
Strategic Counsel
Critical Response Support
Environmental (EIR) Mitigation
(Air Quality and Transportation)

Sustainability

Greenhouse Gas Emission Reductions
Supporting LEED Components
Air Quality Mitigation Plans

TDM Applications

- Office or R&D buildings
- Corporate Headquarters/Campus
- Master Plan projects
- Specific Plans
- Business Parks
- Hospitals/Medical Offices
- Retail/Shopping Centers
- Residential (multi family, single family, hi-rise, etc.)
- Special Events
- Recreation
- Universities and Colleges
- Warehouse and Manufacturing
- Airports and Transit Stations

Development, Property Management and Employer Projects

- Facebook
- Genentech
- NVIDIA
- SAP Labs
- Intel Folsom
- Intel Santa Clara
- Nokia
- Yahoo! Inc.
- NetApp
- VMware
- McClellan Business Park
- Juniper Networks
- Sunnyvale City Center
- Marvell
- Access/Palm Source
- Alexandria Real Estate Equities
- Oyster Point Business Park
- Metro Air Park
- Raley Field
- Moffett Park Business and Transportation Association
- Intuitive Surgical
- The Allen Group
- Spieker Properties
- HCP, Inc.
- Granite Regional Park
- Hyatt Place Hotel – So. San Francisco
- So. San Francisco Business Center
- Masonic Homes of California
- Fairview River Landing
- Donahue Schriber
- BioMed Realty Trust
- Panattoni Development
- Taylor Properties Development Co.
- SKS Investments, LLC
- Shorenstein
- LBA Realty
- Jones Lang LaSalle
- California Farm Bureau
- California Highway Patrol
- Separovich • Domich
- Newell Real Estate Advisors
- Linkedin
- Menlo Equities, LLC
- TMG Partners
- The Minkoff Group
- Arnell Enterprises, Inc.
- The Pollock Financial Group
- Wolff Enterprises

Municipal & Agency Locations

- Sacramento Area Council of Governments
- California Highway Patrol
- County of Sacramento, Dept. of Human Services
- City of South San Francisco
- City of Mountain View
- City of Santa Clara
- City of Sunnyvale
- State of California, Dept. of General Services
- San Mateo City/County Association of Governments
- City of Union City
- Cal PERS
- Cal STRS
- Ogden City, UT
- City of Brisbane
- Grand Rapids Interurban Transit, MI
- City of Citrus Heights
- University of California San Diego West Campus
- Sacramento County International Airport

Biotech, Pharmaceutical and Hospital Projects

- Genentech
- Amgen
- Rigel
- Takeda
- Onyx Pharmaceutical
- University of California San Diego, East Campus Medical Center
- Sutter Medical Center, Sacramento
- Mercy General Hospital
- Mercy San Juan Medical Center
- Enloe Medical Center
- Intuitive Surgical
- Blood Source
- Eclipsys, MA
- Counsyl, Inc.
- Theravance, Inc.

FEHR PEERS

Memorandum

Date: December 21, 2023

To: Alysa Orton, Smith Development Group Inc.

From: Alexandra Lee-Gardner, Daniel Rubins, and Matt Haynes, Fehr & Peers

Subject: Parking Supply Justification for Mixed-Use Development at 660 University Avenue in Palo Alto, California

SJ23-2262

To address a request from the City of Palo Alto, this memorandum provides supporting parking justification for the development of 660 University Avenue (the Project) in Palo Alto, California. The Project proposes to construct 79 parking spaces for a development of 9,115 square feet of office space and 63 residential units. This memorandum provides justification for the following three elements of the parking supply:

- Review of the parking supply rates of recent local developments with similar land uses in the Bay Area, including developments near transit and not near transit;
- Comparison of Palo Alto's parking minimums to industry parking demand rates converted to parking supply rates; and
- Shared parking analysis using the Urban Land Institute's (ULI) shared parking model.

Key Findings

Based on the parking supply data we reviewed, the proposed parking supply rates are within the range of ITE parking rates and parking supply rates of similar developments in the South Bay. The results of the shared parking model indicate that the proposed parking supply with parking management is sufficient to meet the project's parking needs.

Project Description

The Project is located in Palo Alto, California about two thirds of a mile from the Palo Alto Caltrain Station and just north of Palo Alto's downtown. The project site is bounded by Byron Street to the south, University Avenue to the west, Middlefield Road to the north, and Hamilton Avenue to the east. The project proposes to replace the existing offices at 660 University Avenue, 680 University Avenue, 511 Byron Street, Avenue, and 500 Middlefield Road. A new four-story mixed-use office

and residential development with 9,115 square feet of office, 63 residential units, and 79 parking spaces is proposed. Of the 79 total spaces, 54 stalls will be designated for residents. These spaces will be stacked and will be operated using an independent parking system. Consistent with California Assembly Bill 1317, the residential parking spaces will be unbundled from the cost of rent.[1] The project proposes an additional 25 self-park spaces for shared office and residential use.

Local Development Parking Supply Rates

Based on a Fehr & Peers survey of local developments approved or constructed over the past two years, new residential and mixed-use projects in the South Bay have provided about 1.2 parking spaces per dwelling unit on average (refer to **Table 1**). This review of recent development plans and the associated parking supply helps indicate market demand for vehicle parking at new residential developments. The parking supply ratios vary from 0.24 to 2.00 spaces per dwelling unit depending on the number of dwelling units, geographic context (suburban versus urban), and development land use (mixed-use versus single-use residential). For mixed-use residential and retail developments, the residential parking supply rate was 1.27, and for single-use residential developments the parking rate was slightly lower at 1.07. The proposed project will have a reserved residential parking ratio of 0.86 parking spaces per dwelling unit. This is slightly lower than the average parking supply rate surveyed, but is within the range of surveyed rates. Additionally, during non-business hours, the residents may also use the 25 self-park spaces for shared office and residential use. The greatest residential parking demand occurs at night and on the weekends when the reserved residential parking and self-parked spaces would be available at a combined parking supply of 1.25 parking spaces per dwelling unit.

Table 1: Residential Parking Supply Ratios for South Bay Developments

Project Type	Local Development Supply Rates		Proposed Project Parking Supply Rate
	Count of Projects Surveyed	Parking Supply Rate[1]	
Mixed-Use	16	1.27	-
Single-Use Residential	11	1.07	-
Total	**27**	**1.19**	**0.86 for reserved residential** **1.25 for reserved residential + self-park spaces**

Notes:
1. Represents the number of parking spaces per dwelling unit.

[1] Per Assembly Bill 1317 (signed October 2023), all developments in Santa Clara County with 16 or more residential units that receive a certificate of occupancy on or after January 1, 2025, will be required to unbundle residential parking from the price of the unit.

Source: Project Development Plans collected by Fehr & Peers, 2023.

National Parking Supply Rates

The *Parking General Manual* (6th *Edition)* by the Institute of Transportation Engineers (ITE) summarizes modern parking demand rates throughout North America. Rates can be adjusted to desired supply rates by multiplying by a circulation factor of 1.1 (a circulation factor is for space turnover). Generally, drivers feel like a parking lot is full when 90% of the parking supply is occupied.

Table 2 below shows the City's parking rates compared to ITE supply rates. As shown in **Table 2**, the proposed parking supply is within the range of ITE parking supply rates.

Table 2: Comparison of Local and ITE Parking Demand Rates

Land Use	Palo Alto Parking Minimum Requirements	Range of ITE Parking Supply Rate		Proposed Project Parking Supply Rate
		Low	High	
Residential				
Studio[1]	1 per dwelling unit	0.60	0.91	0.75 per dwelling unit
1 Bedroom Unit[1]	1 per dwelling unit	0.60	0.91	0.67 per dwelling unit
2 Bedroom Unit[2]	2 per dwelling unit	0.39	1.75	2.00 per dwelling unit
Office				
Office <10,000 sf[3,4]	1 per 250 sf	0.125 per 250 sf	0.9 per 250 sf	0.69 per 250 sf

Notes:
1. ITE Code 218
2. ITE Code 221
3. ITE Code 710
4. SF stands for square feet

Source: City of Palo Alto, Municipal Code Chapter 18.52; Fehr & Peers, 2023; ITE Parking Generation Manual 6th Edition, 2023.

Shared Parking Needed Supply

While the 54 stacked residential parking spaces will be assigned to residents, there are 25 self-park spaces that will be shared by office employees and residents. These parking spaces will be used by office employees and visitors during the day and residents during the evening. The Urban

Land Institute (ULI) sponsored a national study in 1984 that established basic methods for analyzing parking demand in mixed-use developments and developed average parking rates by land use. Fehr & Peers staff were involved in the 2004 update to the study. The analysis presented in this memorandum utilizes data from the updated *Shared Parking, Third Edition* report to evaluate the parking supply needed for 54 reserved spaces and 25 shared parking spaces.

In the shared parking methods, the base parking rate and daily/hourly/seasonal patterns for each land use are established, and then the overall parking demand is calculated by considering the unique travel characteristics of the project being analyzed. We adjusted the driving rates in the model to better reflect the number of residents, visitors, and employees that arrive by vehicle based on the proximity to downtown and Caltrain, proposed Transportation Demand Management Plan, and travel characteristics in Palo Alto as shown in **Table 3**.

Table 3: Shared Parking Model Driving Adjustments

Land Use	Weekday Driving Adjustment[1]
Residents	85% vehicle ownership
Office employees	65% drive-alone

Notes:
1. Driving adjustments based on American Community Survey 2022 5-Year Estimate, Table S0802.

Source: American Community Survey 2022 5-Year Estimate, Table S0802; Fehr & Peers, 2023.

Table 4 shows the reserved and shared parking spaces needed compared to what is proposed by the project. The full results of the shared parking analysis are included in **Appendix A**. Utilizing the shared parking model, the necessary parking supply for the project is estimated to be 79 spaces; this includes 54 reserved spaces for residents and 25 shared parking spaces for the office and residential. This estimate includes a 10 percent circulation factor to account for parking inefficiencies, a-typical surges, and circulation. The results of the shared parking model indicate that the proposed parking supply with parking management is sufficient to meet the project's parking needs.

Table 4: Shared Parking Comparison

Land Use	ULI Share Parking Model: Estimated Parking Supply Need	Proposed Project Parking Supply
Residential (reserved)	54	54
Shares Spaces	25	25
Total Spaces	**79**	**79**

Source: Fehr & Peers, 2023.

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Appendix A:
ULI Shared Parking Analysis Results

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Shared Parking Demand Summary																		
Peak Month: JANUARY -- Peak Period: 10 AM, WEEKDAY																		
Land Use	Project Data		Weekday					Weekend					Weekday			Weekend		
	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 10 AM	Peak Mo Adj January	Estimated Parking Demand	Peak Hr Adj 7 PM	Peak Mo Adj January	Estimated Parking Demand
Hotel and Residential																		
Residential, Urban																0%		
Studio Efficiency	48	units	0.00	85%	100%	0.00	unit	0.00	80%	100%	0.00	unit	60%	100%	-	55%	100%	-
1 Bedroom	12	units	0.00	85%	100%	0.00	unit	0.00	80%	100%	0.00	unit	60%	100%	-	55%	100%	-
2 Bedrooms	3	units	0.00	85%	100%	0.00	unit	0.00	80%	100%	0.00	unit	60%	100%	-	55%	100%	-
3+ Bedrooms		units	0.00	85%	100%	0.00	unit	0.00	80%	100%	0.00	unit	60%	100%	-	55%	100%	-
Reserved	1	res spaces	0.90	85%	100%	0.76	unit	0.90	80%	100%	0.72	unit	100%	100%	49	100%	100%	49
Visitor	63	units	0.10	100%	100%	0.10	unit	0.15	100%	100%	0.15	unit	20%	100%	1	100%	100%	10
Office																		
Office <25 ksf	9,115	sf GFA	0.30	100%	100%	0.30	ksf GFA	0.03	100%	100%	0.03	ksf GFA	100%	100%	3	0%	100%	-
Reserved		empl	0.00	65%	100%	0.00		0.00	80%	100%	0.00		100%	100%	-	100%	100%	-
Employee			3.50	65%	91%	2.07		0.35	80%	91%	0.25		100%	100%	19	0%	100%	-

Customer/Visitor	4	Customer	10
Employee/Resident	19	Employee/Resident	-
Reserved	49	Reserved	49
Total Demand	**72**	**Total Demand**	**58**
Parking Supply			
Reserved with 10% Circulation Factor	54	Reserved with 10% Circulation Factor	54
Shared Spaces with 10% Circulation Factor	25	Shared Spaces with 10% Circulation Factor	11
Total with 10% Circulation Factor	**79**	**Total with 10% Circulation Factor**	**64**