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May 18, 2023

Town of Oro Valley
Design Review Committee
11000 N La Canada Dr
Oro Valley, Arizona 85737
Ph: (520) 229-4800

RE: Project Narrative- Tropical Smoothie Café, 10335 N La Canada Dr

Dear Committee members,

The proposed development on this parcel is a Tropical Smoothie Café (The Project). Below, is an overview of some of the key aspects of the project.

Parcel information
The project site is APN 224-39-001d, located at 10335 N La Canada Dr. (The Property), a 0.76-acre portion of the Canada Crossroads Shopping Center (The Center). The site is a vacant building pad previously prepared during the initial development of The Center. See Development Plan OV12-98-12.

History
The development of the Canada Crossroads Shopping Center was first contemplated by the Master Developer, Peregrine Investments LLC (Peregrine) in the late 1990s. At that time, approximately 10 acres of land was held by Peregrine, bounded by Lambert Lane on the north side, La Canada Drive on the east side and the Rancho Feliz residential subdivision to the south and west.

In 1997, a conditional rezoning of the 10-acres, from R1-144 to C-N (Zoning case OV9-96-7) was approved and adopted by Ordinance (O)97-12.

In 1998, in need of a grading regulation waiver from the Town, Peregrine entered into a Development Agreement with the Town, executed by Resolution 98-80. Among other things, the Agreement included preserving approximately 4-acres on the west side of the overall 10 acres as perpetual Natural Open Space, and required conveyance of the 4-acres to the Town's ownership. Peregrine also agreed to enhance the buffer between The Center and the residential lots along the east side of the south boundary by using a combination of the natural terrain, berms and retained earth, and a 6 feet high masonry screen wall and landscaping. The agreement stated Peregrine's willingness to enter into such an agreement, and to convey the 4-acres of land to the Town for preservation, provided the lost development potential could be recovered "through timely and economic development of freestanding commercial buildings at the southwest corner of La Canada and Lambert Lane and along the La Canada frontage", referring to what is now The Center. The Development Agreement and Development Plan contemplated that The Property would have a 5,950 SF commercial building. The agreement noted that the uses Peregrine believed would be attracted to occupy The Center would be uses requiring Conditional Use Permits in the C-N zone, "particularly restaurant or café, convenience uses, or banks or financial institutions".

Zoning and Use:
There are no applicable overlay zones.

The Zoning is C-N. The proposed use is a Convenience Use (Drive-thru Restaurant). As such, a Conditional Use Permit is required.

The proposed use, being a Convenience Use, is subject to the standards for Convenience Uses listed in OVZCR 25.1.B.6.a, sub-sections i thru iv. Compliance with those sub-sections is as follows:

OVZCR 25.1.B.6- Convenience Uses

- *OVZCR 25.1.B.6.a.i – Locational Requirements*
    a. The standard requires Convenience Uses to be a minimum of 250 feet from any property used or intended for residential purposed. A reduction of the required 250-feet setback to 195-feet is proposed. The setback area includes the portion of enhanced buffering that occurred pursuant to the 1998 Development Agreement.
    b. The standard requires Convenience Uses to be a minimum of 500 feet from any public park or school. The nearest public park is West Lambert Lane Park, which is situated approximately 1,117 feet to the northwest of the subject parcel. The nearest school is Casa Christian School at N Cross Road and La Cholla Blvd, which is located approximately 1.10 miles to the northwest of the subject parcel.
    c. The standard specifies that the distances in 'a' and 'b' above are measured from the abutting edge of the residential district to the closest property line of lease line of the convenience use. The limit of the property line of lease line shall include all required parking, landscaping, and setbacks of the specific convenience use. All measurements presented herein follow the standard of measurement.
    d. The standard allows the distances in 'a' and 'b' above to be reduced by Town Council when major barriers exist to mitigate impacts on adjacent residential, park and school properties. The existing mitigating barriers are discussed in detail herein, under the heading "Use-Specific Setback Reduction Required", below.
    e. The standard specifies that Convenience Uses shall be ancillary to and located in Shopping Center, Office Parks, or a combination of a shopping center and office park. The subject parcel location conforms to the standard as it is located within the Canada Crossroads Shopping Center.
- *OVZCR 25.1.B.6.a.ii – Number of Convenience Uses per Center*
    The standard specifies that the total number of Convenience Uses shall not exceed one per each 4.5 acres of shopping center or office park. The total land area of Canada Crossroads is 10.16 acres including the westerly 4.09 acres of land that was conveyed to the Town of Oro Valley for perpetual natural open space pursuant to The Development Agreement. The inclusion of the 4.09 acres in such calculations is permissible according to Section 4.4 of The Development Agreement. Therefore, two Convenience Uses within Canada Crossroads is the maximum that will conform to the standard and The Project will conform. The standard also specifies that no more than one drive-in, drive-through, gas station, or convenience use shall be permitted for every 9 acres of office park. That part of the standard is not applicable since Canada Crossroads is a shopping center, not an office park.
- *OVZCR 25.1.B.6.a.iii – Access*
    a. The standard states that no convenience use shall have direct vehicular access onto any street which provided a lower level of service than a collector street. The access to The

Project is internal to the Canada Crossroads Center. The access points into The Center are from Lambert Lane and La Canada Drive, both of which are arterial streets.

b. The standard specifies that all convenience uses shall be accessed through a common driveway serving the center or office park. The Canada Crossroads Center has three driveways, one from Lambert Lane, and two from La Canada Drive, all of which are common driveways into The Center. The Project will not propose any new direct access driveways to the public roadways.
c. The standard requires that convenience uses provide access points to the internal circulation driveways and parking areas of the center. The Project proposed conforms to the standard since it is situated interior to the parking lot of The Center without any access restrictions to the parking area access lanes within The Center. The drive-through lane entry and exit points proposed will also be directed connected to the travel ways within The Center.

- *OVZCR 25.1.B.6.a.iv –Timing of Development*
  The standard prohibits a convenience use from opening for business until a minimum of 50% of the net floor area for the non-convenience use structures within the shopping center have been constructed. In the case of Canada Crossroads, the standard is met. There are two building pads currently vacant, the one on Pad #1 and the one on Pad #2- the subject lot. If future development of Pad #1 consists of another convenience use, the existing buildings in The Center would constitute 100% of the non-convenience use structures. If instead, future development of Pad #1 consists of a non-convenience use, the existing buildings within The Center will constitute 83.4% of the total non-convenience use buildings. The building areas used for this calculation are:
    - Pad #1 – Future 5,200 SF max. per Development Plan OV12-98-12
    - Pad #2 – 1,649 SF – This Project (Tropical Smoothie Convenience Use)
    - Pad #3 – 8,735 SF – Existing westerly building (non-convenience use)
    - Pad #4 – 17,412 SF – Existing southerly building (non-convenience use)

The proposed Convenience Use is also subject to the standards for "Drive-thru Uses, Not including Banks" listed in OVZCR 25.1.B.8, sub-sections a thru d. Compliance with those sub-sections is as follows:

- *OVZCR 25.1.B.8.a*
  The standard reiterates the applicability of those standards discussed above from OVZCR 25.1.B.6 – Convenience Uses. The standard also states that drive-thru uses are subject to the Noise restrictions of OVZCR 25.1.A.3, which requires a Noise Impact Study for The Project. Included as an attachment, we are including a Noise Assessment report prepared by Spendiarian & Willis Acoustics & Noise Control LLC in conformance with the OVZCR 25.1.A.3 noise standards. The assessment concluded that noise associated with the Tropical Smoothie Drive-thru speaker during daytime hours were found to decrease faster than and fall below the roadway noise levels at the nearest residential properties. During nighttime hours, the assessment concluded the sound pressure levels were found to meet the limits specified in the Town of Oro Valley Zoning Code at Table 25-1.A.
- *OVZCR 25.1.B.8.b*
  The standard states that the drive-thru use shall not be visible from any public roadway or any property used or intended for residential purposes. The Project will be screened from La Canada Drive by existing screening and landscaping that was part of the Canada Crossroads phase 1 development. The Center includes screening along La Canada Drive, in the form of a decorative

masonry wall that includes The Center's public artwork component, and a vegetated earthen berm. The easterly landscape buffer along the La Canada Drive frontage is 30 feet in depth with 20 feet on The Center property and 10 feet within the La Canada Drive right-of-way per the approved Development Plan. The in-depth discussions to follow herein, under the headings "Conditional Use Permit Required" and "Use-Specific Setback Reduction Required", below, provide specific detail on how The Project is not visible by any residential properties nearby.

- *OVZCR 25.1.B.8.c*
  The standard states that the required length of vehicle queuing in the drive-thru shall be determined using drive-thru volume data from similar businesses in locations with corresponding site design and traffic characteristics. For this case, an existing Tropical Smoothie Café, located in Tucson at Houghton Town Center (Houghton Road at Old Vail Road), has the same building model and same franchisee/operator as The Project. The franchisee provided data regarding the drive-thru volume at that location. The peak business hours of the restaurant are between 11:00 am and 1:00 pm, with 11:00 am to 12:00 pm being the typical peak hour. The busiest day occurred in May 2021 with a peak hour of approximately 26 entering vehicles. The typical peak hour maximum number of vehicles in the drive-thru queue is 6-7 vehicles. Vehicles typically complete the entire drive-thru transaction within approximtely 2 minutes. Based on the data provided, the provision of queuing space for at least 7 vehicles in the drive-thru lane should be provided. The design of The Project provides a lane that can accommodate 8 vehicles with 4 queued for the ordering speaker and 4 queued between the speaker and the pick-up window.
- *OVZCR 25.1.B.8.d*
  The standard prohibits the use of adjacent roadways, drive aisles or other parking areas access lanes for drive-thru lane queuing. The proposed layout for The Project provides the queuing within the confines of the drive-thru lane.

Building and Setbacks
The Project is a single-story, 1,544 SF building with an exterior cooler (1,649 SF total). The tallest exterior wall, including parapet is 20-feet. The maximum height allowed is 25-feet as established by Board of Adjustment case OV10-97-9.

Setbacks required by zoning are 20-feet in the front, 25-feet at the rear, and 25-feet on the sides with the rear and side setbacks being applicable to the perimeter boundaries of The Center, not to The Project's subject parcel. There is also a 105-feet front setback recorded at Docket 7397, Page 727, measured from the centerline of La Canada Dr, which equates to a 30-feet front setback when measured from the front property line. All setbacks are met with the proposed site layout with the exception of the Use-Specific setback from residential lots relating to the Convenience Use. Refer to the section below discussing the "Use-Specific Setback Reduction Required."

Conditional Use Permit Required:
As previously explained, the Development Agreement between the Town and the Master Developer of The Center, Peregrine, noted that Peregrine anticipated The Center would attract Convenience Uses that would require Conditional Use Permits. The Project proposed does, in-fact propose a Convenience Use. As such, a Conditional Use Permit is required per OVZCR 23.3 Table 23-1. The first of the required neighborhood meetings for both the Conceptual Site Plan Process as well as the Conditional Use Permit Process was held on June 8, 2022.

Granting this Conditional Use Permit will in no way, whatsoever, be detrimental to the public health, safety, or welfare. First and foremost, The Project is proposing a restaurant use within the existing

Canada Crossroads Shopping Center that has existed for over two decades, and was planned with the anticipation that such Convenience Uses would be part of the development. The Center is part of the fabric of this commercial and residential area of the Town, and the addition of this small restaurant with a drive-thru will only enhance The Center. Among these benefits are:

- Converting an existing and unsightly dirt pad within The Center to an active restaurant that will provide increased business and activity to The Center. The business created by The Project likely means more business (now or in the future) to the other tenants within The Center. The addition of The Project will also generate additional tax revenues to the Town.

- Providing additional parking to The Center. The Center provides cross-access parking availability for all its tenants. The Project will add 6 parking spaces to the current 26 provided on the parcel. The Project is expected to have fewer dine-in customers than a typical restaurant, therefore reducing the total parking demand. This will likely provide the adjacent businesses more available parking than currently exists.

- Provide additional food options to the area, and healthy menu choices. This is a vibrant commercial part of the Town, and the addition of The Project will provide a healthy and convenient restaurant alternative to nearby residents and motorists. The presence of a drive-thru is not new in this area, as the bank across the street has drive-thru aisles.

- The Project is separately owned from the rest of The Center, and if approved this will be a long-term business that will strive to be a good neighbor with the surrounding tenants and residents.

This application shows that there will be no negative impacts from The Project, as follows:

- Views: The Project is a one-story building and will have no impact on the views of the nearby residences. The closest residential homes are over 300 ft. away to the south, and sit on a hillside such that some are higher than The Center and others are lower than The Center. Refer to the attached Map and Cross Sections depicting the screening and topographic relief. None of the homes will be able to see The Project because it will be shielded from view by the existing Center buildings, perimeter screen wall and the topographic elevation differences.

  The only properties that will see The Project are the existing commercial businesses in The Center and across the street. Most of the businesses within The Center have no patio, so for those businesses there are no views to impede. This one-story building will have limited impacts on views, particularly on the existing restaurant tenant that has views to the east of the Catalina Mountains. The attached Viewshed Images show that the impacts will be limited and less obstructive than the previously approved retail building shown on The Center's Development Plan.

  It also should be noted that the footprint of The Project is much smaller than if an office or larger retail store were to be built instead. The Development Agreement and Development Plan anticipated a 5,950 SF building on the property and the project is substantially smaller at 1,649 SF. More importantly, any business that currently rents in the center had to realize that the

vacant pads would be built on at some point in the future. This Conditional Use Permit request is much different than a residential homeowner next to vacant land – this is a case of an existing Center developing an existing vacant pad adjacent to a major road.

The required project information relating to the specific conditions for approval of the Conditional Use Permit, according to per OVZCR 22.5, are as follows:

1. The granting of the Conditional Use Permit will not be detrimental to the public health, safety, or welfare. The factors to be considered in arriving at that conclusion, according to OVZCR 22.5, are noise, smoke, odor, dust, vibration, illumination, hazards from explosion, contamination, fire or flood, traffic volumes, compatibility with the surrounding uses and the Town's General Plan, and the hours of operation. A discussion of each of those factors follows:
    a. No damage or nuisance will arise from noise, smoke, odor, dust vibration or illumination
        i. Noise: The noise generated by the proposed Tropical Smoothie Café will be minimal. Included as an attachment, we are including a Noise Assessment report prepared by Spendiarian & Willis Acoustics & Noise Control LLC. The assessment concluded that noise associated with the Tropical Smoothie Drive-thru speaker during daytime hours were found to decrease faster than and fall below the roadway noise levels at the nearest residential properties. During nighttime hours, the assessment concluded the sound pressure levels were found to meet the limits specified in the Town of Oro Valley Zoning Code at Table 25-1.A.
        ii. Smoke: Tropical Smoothie does not employ the use of an exhaust hood and produces no smoke.
        iii. Odor: The Project's food offerings of smoothies, sandwiches, and salads do not generate exterior odors. Since The Project will not use an exhaust hood system, odors will be minimal at most. An odor abatement plan is required by the Town of Oro Valley prior to issuance of building permits.
        iv. Dust: The use will not involve any activities that create dust.
        v. Vibration: The use will not involve any activities that create vibration.
        vi. Illumination: The Project will have minimal additional lighting, consisting of the interior lights and the exterior lights on the building, which must be shielded in accordance with the Town Outdoor Lighting Ordinance. Two light poles already exist on the subject parcel, which will remain. The existing Canada Crossroads commercial buildings and the existing screen wall around the southern perimeter of Canada Crossroads will block the view of The Project from the residential lots within the Rancho Feliz subdivision to the south. The attached Map and Cross Sections demonstrate the screening afforded by those screening elements as well as the topographic elevation differences between The Project and nearby residential properties.
    b. Hazards: The use will not pose any hazards to persons or property relating to possible explosions, contamination, fire, or flood.
    c. Traffic: The Project's traffic will come mostly from La Canada Drive, a major street with ample capacity for the proposed traffic. As The Project's traffic will come from a major street, this traffic will not negatively impact the surrounding areas, particularly the residential homes. In addition, the traffic generated by The Project will not be of unusual volume or character. The Traffic Impact Statement prepared for The Project by Greenlight Traffic Engineering concluded that The Project is not expected to have a significant impact to the surrounding roadway infrastructure and there are no sight-

distance concerns at the existing project driveways. The TIS is attached. Existing roadway improvements that provide access to Canada Crossroads include an east-bound right-turn lane at the Lambert Lane driveway, a southbound right-turn lane at the north-most La Canada Dr. driveway, and a raised median break with a northbound left-turn lane at the south-most La Canada Dr. driveway.

As previously explained, OVZCR 25.1.B.8.c requires that drive-thru lanes are designed to provide a minimum vehicle queuing length determined using drive-thru volume data from similar businesses in locations with corresponding site design and traffic characteristics. For this case, an existing Tropical Smoothie Café, located in Tucson at Houghton Town Center (Houghton Road at Old Vail Road), has the same building model and same franchisee/operator as The Project. The franchisee provided data regarding the drive-thru volume at that location. The peak business hours of the restaurant are between 11:00 am and 1:00 pm, with 11:00 am to 12:00 pm being the typical peak hour. The busiest day occurred in May 2021 with a peak hour of approximately 26 entering vehicles. The typical peak hour maximum number of vehicles in the drive-thru queue is 6-7 vehicles. Vehicles typically complete the entire drive-thru transaction within approximtely 2 minutes. Based on the data provided, the provision of queuing space for at least 7 vehicles in the drive-thru lane should be provided. The design of The Project provides a lane that can accommodate 8 vehicles with 4 queued for the ordering speaker and 4 queued between the speaker and the pick-up window.

2. Compatibility: The characteristics of The Project are compatible with uses permitted in the surrounding area. The Canada Crossroads development is zoned C-N throughout and the properties in the vicinity north of Lambert Lane and east of La Canada Drive a part of the El Conquistador Country Club PAD zoning. Businesses within Canada Crossroads include restaurants, hair and nail salons and various offices. The uses in the El Conquistador PAD near this intersection, Lambert Lane and La Canada Dr., include such businesses as Walgreens, Circle-K gas station, Fry's Food and Drug Store, various professional offices, Papa Murphey's Pizza and other restaurants such as Noble Hops and Chinese Bistro. The mitigation measures that will be employed to minimize the impact of The Project on adjacent properties will include a minimum three and one-half feet tall opaque screen wall around the perimeter of the drive-thru lane with landscaping along the exterior side of the screen wall, in accordance with the standards required by the Town of Oro Valley Zoning Code, to further reduce visibility of the drive-thru. Enhancements that exceed the minimum standards for drive-thru lane screening and landscaping will be provided at key points between the Tropical Smoothie and the adjacent Harvest restaurant patio as well as at the drive-up window. Namely, the screen wall will be supplemented with a vegetation trellis that extends three feet above the screen wall height. Additionally, the screen wall height will be increased to four and one-half feet around the 90-degree turn in the drive-thru lane.
3. General Plan Compliance: The Project—a drive-thru restaurant within an existing commercial center —is in conformance with the Town's *Your Voice, Our Future General Plan* (the "General Plan"). The Property is located within a Tier II Growth Area, which is a neighborhood-focused commercial area, supported by a variety of residential areas. These areas, which include the La Cañada Drive and Lambert Lane intersection, are intended to serve the immediate needs of residents, while limiting impact. The Growth Area should focus on making transportation more efficient, make infrastructure expansion more economical and provide for a sensible pattern of land development.

The Property is designated as Neighborhood Commercial/Office ("NCO") on the General Plan's Land Use Map. The NCO designation promote commercial and office areas with good access to major roadways (i.e. at the intersections of arterial roadways) near residential areas. It encourages uses that serve and are integrated with the surrounding neighborhoods.

The Project meets the criteria for the NCO land use designation. The Property is zoned C-N, which is a corresponding zoning designation to the NCO land use designation. This Project was designed to adhere to the goals and policies of the General Plan, including the following:

5.4 Development Goals

V. Neighborhoods that include access and effective transitions to open space, recreation and schools and that are supported by shopping and services which meet daily needs.

The Project will provide food service to the surrounding neighborhoods, providing easy access (including pedestrian and bike access for nearby neighbors) to smoothies and easily accessible food options. The convenience of this food option will serve the surrounding neighborhoods and drivers travelling along Lambert Lane and La Canada Dr.

X. Effective transitions between differing land uses and intensities in the community.

The Project faces La Canada Dr., which is appropriate for a restaurant use. The Project has been designed to fit within the existing Canada Crossroads Shopping Center. The drive through is fully screened from the adjacent commercial uses within the Center. The Project is at the interior of the Center, and therefore the existing commercial buildings fully screen The Project from the nearest residential uses.

Policy LU.4. Promote outdoor lighting that enhances safety and circulation, beautifies landscapes, minimizes impacts to adjacent properties and does not reduce public enjoyment of the night sky.

The Project will fully comply with the Town's Outdoor Lighting Ordinance and have minimal, if any, impact on the adjacent properties. The existing commercial buildings within the Canada Crossroads Shopping Center will fully screen The Project from the adjacent residential areas.

Policy LU.5. Provide diverse land uses that meet the Town's overall needs and effectively transition in scale and density adjacent to neighborhoods.

The Project is a small-scale restaurant that will provide neighboring residents with new and diverse food and beverage options. The scale of the restaurant will fit within the existing commercial center and the overall context of the Lambert/La Canada intersection.

Policy LU.7. Coordinate planning for land use and transportation in order to promote growth areas and transit and commercial corridors.

The Project fits within the context of the Lambert/La Canada intersection, which has a variety of neighborhood commercial uses, such as sit-down, take-out and fast-food restaurants, banks, personal services, and a convenience store and grocery store. This Project will fill in an existing building pad that has been vacant for 20 years, which will place development in an area that has existing infrastructure and utilities. The Project is an appropriate land use within this busy neighborhood commercial corridor.

4. Hours of Operation: The hours of operation for The Project will be from 6am to 10pm daily. The hours of operation will have no negative impact on immediately adjoining properties because they all consist of other commercial businesses within the Canada Crossroads Shopping Center. As explained in section 1.a.i, above, the Noise Assessment conducted for The Project concluded that noise levels anticipated at the nearest residential lots, day or night, are within acceptable levels per Town Code and are less than the La Canada Dr. roadway noise during daytime hours.

Use-Specific Setback Reduction Required:
Town Council approval is required for a reduction to the required 250-feet separation between a Convenience Use and nearby residentially-used properties pursuant to OVZCR 25.1.B.6.a. The actual separation existing is approximately 199 feet based on survey data. The proposed reduced separation is 195-feet to allow for error. The proposed reduction is allowed, with Town Council approval pursuant to OVZCR 25.1.B.6.a.i.d., provided that major barriers, such as buildings or topographical features, exist to mitigate impacts on adjacent residential properties. The applicant must demonstrate to following as conditions of approval:

1. Noise levels shall not exceed the Town Code-restricted maximum levels listed in OVZCR Table 25-1.A. As explained in section 1.a.i, above, the Noise Assessment conducted for The Project concluded that noise levels anticipated at the nearest residential lots, day or night, are within acceptable levels per Table 25-1.A and are less than the La Canada Dr. roadway noise during daytime hours.

2. Odor abatement shall be in accordance with OVZCR Section 25.1.A.6. The proposed building will not have an exhaust hood. Odors will be minimal and an abatement plan is required prior to issuance of building permits per the cited code section.

3. Visibility of drive-thru uses and drive-thru lanes shall be mitigated in accordance with OVZCR Section 25.1.B.8 and screened in accordance with Section 27.6.C.5. The proposal includes the required screening and landscaping around the perimeter of the drive-thru lane as well as enhanced screening and landscaping between the drive-thru and the adjacent Harvest and Caffe Torino restaurant patios.

4. A major barrier(s), such as building(s) and topographical features, exists to mitigate impacts on the adjacent residential properties. One of the major barriers that exist between The Project and the adjacent residential properties to the south is the existing Canada Crossroads commercial building. The second is a 6-feet high screen wall located along the southern perimeter of Canada Crossroad atop a steep slope which measures approximately 10-feet at its highest point. This barrier was installed pursuant to the 1998 Development Agreement, which

acknowledged that The Property likely would include a use requiring a drive-thru. The attached Map and Cross Sections depict the topographic elevation differences between The Project and nearby residential properties. Those barriers will help mitigate impacts on the residential lots relating to noise and light and will screen the view of The Project from those lots.

Parking and Loading:
Parking throughout The Center is shared and common according to the Covenants, Conditions, and Restrictions for the Center. The planned parking for The Center as a whole, as shown on The Canada Crossroads Development Plan OV12-98-12, had a surplus of 40 spaces (212 required/252 planned). A total of 209 spaces exists currently. Following the completion of the The Project, and assuming the vacant Pad 1 to the north is developed with 18 additional spaces, per the OV12-98-12 Development Plan, the total parking count in The Center will be 233 spaces, a 9.9% surplus over the total 212-space requirement originally noted on the Development Plan and a 20.1% surplus over the reduced 194-space total requirement resulting from reduction in spaces needed for Pad 2. A discussion of the reduced parking follows.

The subject parcel (Pad 2) currently has 26 existing parking spaces. The Development Plan OV12-98-12 included a parking calculation for the subject lot based on 5,950 SF of retail space with a total requirement of 33 spaces. The parking requirement for The Project, using the Town's ratio of 9 spaces per 1,000 SF for the proposed use, is much lower at 15 spaces. However, as shown on the Conceptual Site Plan, 32 spaces are proposed on the subject parcel, including 2 accessible spaces.

A dedicate loading zone is not required for the proposed building size and use according to the Town of Oro Valley Zoning Code. Loading zones exist at the southwest corner of The Center and will be utilized when necessary.

Solid Waste
Solid waste refuse enclosures exist at the southeast corner of The Center and will be utilized on a shared basis with other tenants in The Center pursuant to the Covenants, Conditions and Restrictions for The Center recorded at Docket 11674, Page 4303 in Pima County Records.

Front Bufferyard and Screening:
A 30-feet front landscape bufferyard, with 20-feet onsite and 10-feet in the La Canada Dr right-of-way, was approved for the Canada Crossroads Development Plan, OV12-98-12, was constructed, and still exists. It will remain. A portion of the screening consists of a screen wall and a portion consists of a vegetated earthen berm.

Detention:
Stormwater detention requirements for The Center as a whole were addressed at the time of the initial construction of the development and according to the details provided on the Development Plan OV12-98-12. No additional detention is required.

Sewer:
There is an onsite private sewer available for connection and according to the Canada Crossroads Development Plan, a building sewer stub is already installed.

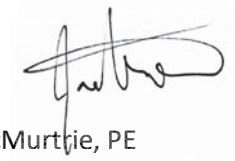
Water:
Oro Valley Water Utility facilities already exist onsite with an existing water service and fire service stub.

Power
TEP has facilities onsite that will be the point of connection for a new onsite electrical transformer to service the Tropical Smoothie.

Architecture/Signage
The architecture and signage will conform to the requirements of the Town and the Canada Crossroads Development including materials selection and colors. The owner of the Canada Crossroads development has provided approval of the signage and colors and his signature is affixed to submittal items for signage and building color. Refer to separate Architectural Project Narrative prepared by the project architect.

Public Art
The Public Art requirement was satisfied by the initial construction of Canada Crossroads and consists of mosaics and molded details on the perimeter screen walls.

We look forward to working with you all on this project.



James McMurtrie, PE

Attachments:

Noise Assessment-Spendiarian & Willis Acoustics & Noise Control
Traffic Impact Statement- Greenlight Traffic Engineering
Viewshed Images
Map & Cross Sections of site and adjacent residential

Spendiarian & Willis Acoustics & Noise Control LLC
The Form and Function of Sound
(520) 623-6003 AcousticalNoise.com 4335 N Alvernon Way, Tucson, AZ 85718

Noise Assessment of Drive-through Kiosk

Tropical Smoothie Café
La Cañada Drive and Lambert Lane
Oro Valley, Arizona

Prepared for

ONETEN REI

Project Manager
Nico Fricchione

Lance Willis, PhD
© Spendiarian & Willis Acoustics & Noise Control LLC
R. 0, July 27, 2022

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1. Summary

This report is an assessment of the noise impact of a drive-through kiosk at La Cañada Drive and Lambert Lane with respect to Section 25.1 of the Oro Valley Zoning Code. In the daytime use case, kiosk sound levels were found to decrease faster with distance and fall below the roadway noise levels at the adjacent residential properties. In the nighttime use case, kiosk sound pressure levels were found to meet the limits in Table 25-1.A of the Zoning Code. Overall the operation of a drive-through kiosk on the proposed site is compatible with surrounding land uses. Recommendations are made to meet the acoustical performance analysis given in this document.

2. Site Summary

2.1 Proposed Site Development

A restaurant use is proposed for an existing shopping center on La Cañada Drive near Lambert Lane (see Figure 2.1). The project will consist of a Tropical Smoothie Café with a drive-through kiosk on the west side of the building.

2.2 Area Summary

The land uses surrounding the proposed site are shown in Figure 2.2. There are single family homes to the south and west. To the north and east are commercial uses. At the shopping center there are other restaurant uses on the west and south sides between the proposed site and the residential areas.

The nearest single family homes to the south are shielded by the Caffe Torino building and an existing CMU privacy wall (shown in Figure 2.3 looking southwest). Homes to the west are shielded by a row of restaurants and are 460 feet from the proposed site.

2.3 Zoning

Zoning in the area is shown in Figure 2.4 [Pima County ArcGIS Online <https://pimamaps.pima.gov/HtmlPubViewer/index.html>]. The proposed site and adjacent commercial uses at the shopping center are zoned C-N, Neighborhood Commercial. The residential uses to the south and west are zoned R1-36 and the commercial uses to the east and north are zoned PAD, Planned Area Development.

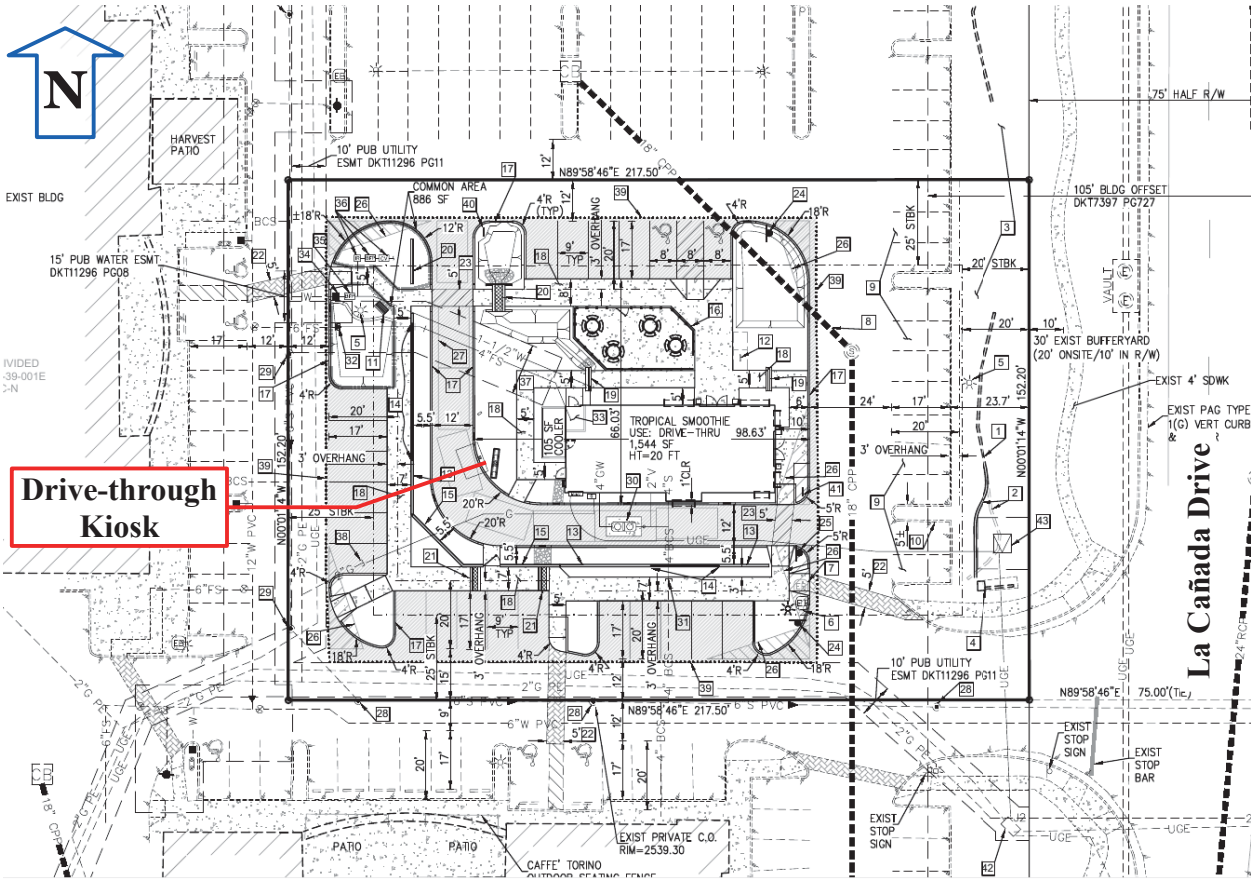


Figure 2.1. Proposed Site Plan

Figure 2.2. Proposed Site and Surrounding Area

Figure 2.3. Restaurant Buildings and Privacy Wall Shielding Homes to South

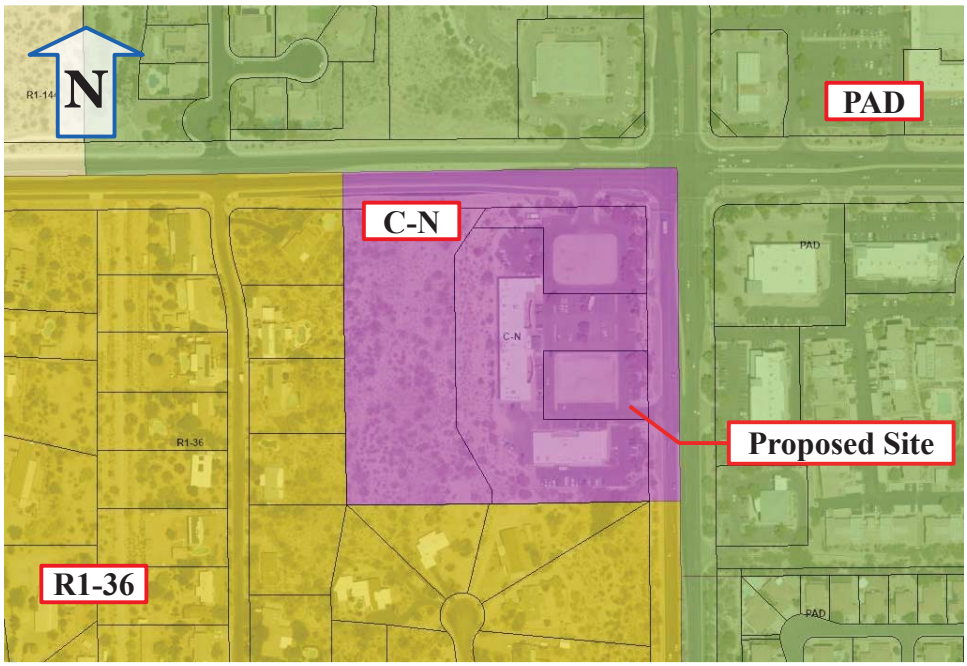


Figure 2.4. Zoning

3. Site Plan Analysis

3.1 Methodology

The acoustical site model has been constructed using the iNoise package version 2022.01 developed by DGMR. The sound propagation model is ISO 9613. This software conforms with the ISO/TR 17534-3 quality standard for implementing the ISO 9613 Part 2 outdoor sound propagation model.

3.2 Kiosk Sound Source

3.2.1 Location

The drive-through kiosk will be located on the west side of the café. The adjacent single family homes are shielded by the restaurant buildings at the shopping center and by a privacy wall built at a higher elevation than the proposed site.

3.2.2 Use Cases

A well designed kiosk will often have an automated gain control (AGC) function to adjust the output of the loudspeaker based on the background noise level. The AGC reduces the amount of sound produced at times when the background noise is low such as during nighttime hours. This is useful for kiosks located in areas where there is a large variation in background noise at different times of day such near a highway.

This leads to two use cases. One is when the loudspeaker volume is determined relative to the background noise level. The other is when the background noise is not a factor and the kiosk output is set to achieve a normal conversation level.

In the former case, the equivalent-continuous sound pressure level, LAeq, will be set at 15 dBA above the background noise level. This is a common setting for good speech communication in the presence of noise. In the latter case, LAeq will be set to a sound pressure level of 65 dBA at the customer position.

3.2.3 Zoning Code Requirements

The Oro Valley Zoning Code Section 25.1 gives specific recommendations for maximum allowable sound pressure levels according to receiving land use, time of day, and the characteristics of the sound produced. Speech is considered regular impulsive sound. All equivalent-continuous levels are to be adjusted by 5 dBA. Neither the restaurant employee speaking or the loudspeaker used will produce noticeable sound in the 16, 31.5, or 63 Hz octave

bands. The one minute level limits will therefore not apply in this application.

The level limits in Table 25-1.A of the Code that apply are the one hour average limits and maximum sound limits. These limits are adjusted upward in the presence of background noise levels that exceed the limits. This will apply in the use case where the kiosk level is set 15 dBA above the roadway noise. Here the concern will be whether the one hour average and maximum sound pressure levels exceed the background noise level at the adjacent properties or whether they are masked by it.

3.2.4 Source Characteristics

The loudspeaker will be mounted on a post at a height of about 3.5 feet above grade as seen in Figure 3.1. The kiosk is positioned at a curve in the drive-through lane. This will increase the distance from the customer to the loudspeaker as the vehicle avoids the inside curb. Distance from the customer to the loudspeaker is expected to be 8 feet.

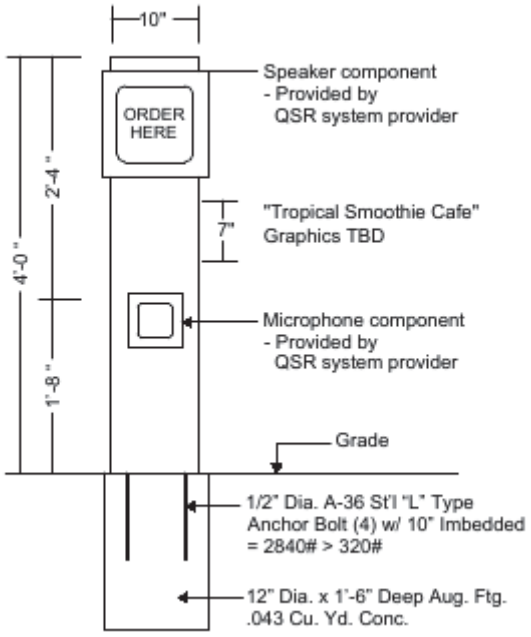


Figure 3.1. Loudspeaker Post

An ANSI S3.5 normal effort speech spectrum will be used for the loudspeaker. Table 3.1 shows the unadjusted and unweighted octave band speech sound pressure levels that will serve as the starting point for the source model.

Octave Band (Hz)	Sound Pressure Level (dB)
125	48.10
250	56.86
500	59.09
1000	54.09
2000	48.77
4000	43.48
8000	37.03

Table 3.1. Normal Effort Speech Levels

The loudspeaker enclosure has a minimal baffle effect. A cardioid directivity pattern with a 10 dB rear null will be assumed as shown in Figure 3.2. The loudspeaker faces southwest.

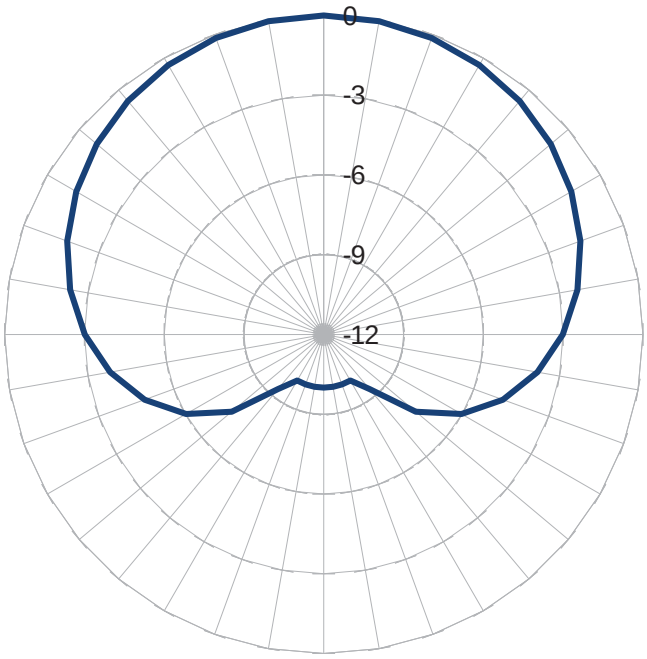


Figure 3.2. Kiosk Directivity Pattern

The relative difference in LAeq and LAmax will be assumed to be 15 dBA. This is a

conservative estimate of the fast exponential time weighted speech crest factor and does not take into account a number of factors that will tend to decrease the level difference. These may include power compression by the loudspeaker driver and audio compression in the signal processing (not including the AGC).

Other undefined factors that will tend to reduce the amount of sound leaving the property include the directivity of kiosk and obstacles, mainly the customer's vehicle, that will block sound and change the directivity.

3.3 The Model Space

Figure 3.3 gives an overview of the acoustical model. The drive-through kiosk is located on the west side of the proposed café building. Three residential and two commercial field points have been selected to verify sound pressure levels at nearby land uses. These are:

- Residential
    - 10280 Camino Valdeflores
    - 10281 Camino Valdeflores
    - 10302 Hacienda Hermosa Drive
- Commercial
    - South shop facade (Breadsmith)
    - West shop facade (Caffe Torino)

The heights of the receivers are at 5 feet above grade. The ground factor in the ISO 9613 model is 0.1, a hard, but slightly absorbing, porous surface.

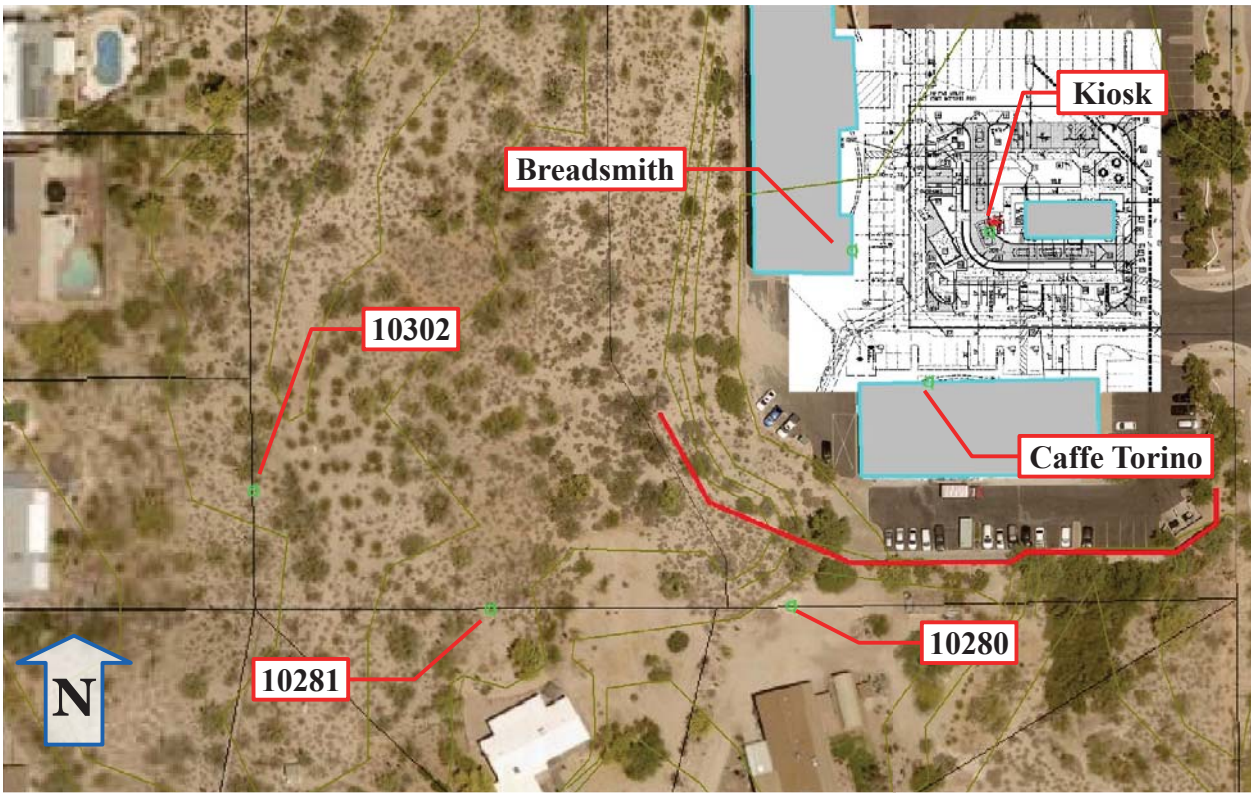


Figure 3.3. Model View

3.4 Sound Pressure Level Contour Maps

Sound pressure level contours in the figures below are displayed in 5 dBA increments. The legend identifying the map symbols is in Figure 3.4. All sound pressure levels are A-weighted. Sound walls are labeled as barriers in the iNoise software. The height of the grid points is 5 feet above grade.

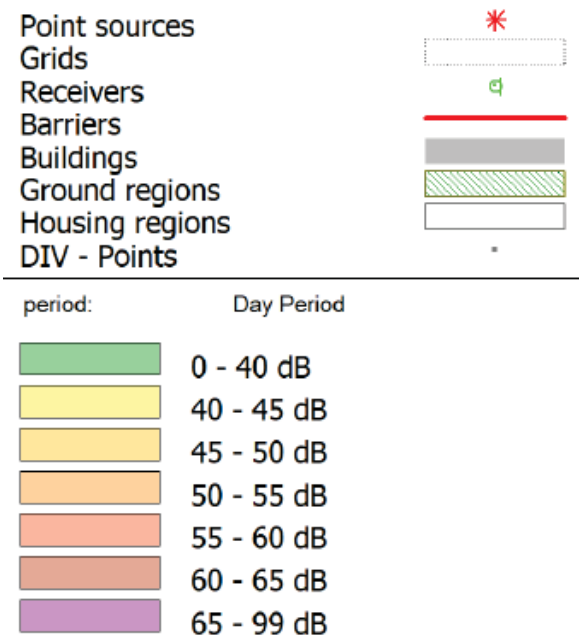


Figure 3.4. Legend for Sound Pressure Level Contour Maps

3.5 Low Background Noise Use Case

In the kiosk use case where background noise levels do not interfere with speech intelligibility, a normal conversation level at the customer vehicle is sufficient. Sound pressure level contours for the adjusted LAeq are shown in Figure 3.5. The LAmax levels will be 10 dBA higher.

Figure 3.5. LAeq Sound Pressure Level Contours with No Background Noise

As can seen in the above figure and in Tables 3.2 and 3.3 below, with moderate kiosk settings the adjusted average (LAeq) and maximum (LAmax) sound pressure levels are below the nighttime limits of 45 and 65 dBA respectively for single family residences in Table 25-1.A of the Code. The sound levels also meet the commercial limits of 65 and 85 dBA for LAeq and LAmax at the storefronts of the restaurants in the shopping center.

Location	Land Use	Height Above Grade (ft)	Adjusted Sound Pressure Level (dBA)	Daytime Limit (dBA)	Exceeds Daytime Limit	Evening Limit (dBA)	Exceeds Evening Limit	Nighttime Limit (dBA)	Exceeds Nighttime Limit
10280 Camino Valdeflores	Single Family	5	21.6	55	no	50	no	45	no
10281 Camino Valdeflores	Single Family	5	28.6	55	no	50	no	45	no
10302 Hacienda Hermosa Dr	Single Family	5	27.2	55	no	50	no	45	no
Customer		3	70.0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
South shop building	Commercial	5	44.5	65	no	65	no	65	no
West shop building	Commercial	5	46.3	65	no	65	no	65	no

Table 3.2. LAeq Levels at Adjacent Land Uses with No Background Noise

Location	Land Use	Height Above Grade (ft)	LAFmax (dBA)	Daytime Limit (dBA)	Exceeds Daytime Limit	Evening Limit (dBA)	Exceeds Evening Limit	Nighttime Limit (dBA)	Exceeds Nighttime Limit
10280 Camino Valdeflores	Single Family	5	31.6	75	no	70	no	65	no
10281 Camino Valdeflores	Single Family	5	38.6	75	no	70	no	65	no
10302 Hacienda Hermosa Dr	Single Family	5	37.2	75	no	70	no	65	no
Customer		3	80.0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
South shop building	Commercial	5	54.5	85	no	85	no	85	no
West shop building	Commercial	5	56.3	85	no	85	no	85	no

Table 3.3. LAmax Levels at Adjacent Land Uses with No Background Noise

3.6 Use Case with Road Noise Interference

Acoustical measurements of the roadway noise have not been performed on the proposed site to quantify the background noise levels throughout the day. This part of the analysis will look at the difference between ambient and background sound pressure levels as defined in the Zoning Code at the adjacent properties when the road noise drives the kiosk output to higher levels.

The kiosk is a point source whose sound pressure level decreases 6 dB with every doubling of distance. The roadways generating most of the background sound are line sources. Sound radiating from a line source will decrease 3 dB with every doubling in distance from the centerline of the road. Because the sound from the kiosk decreases more rapidly than the roadways, there will be a distance from the kiosk where the sound from the roadways becomes dominant. The purpose of this analysis to find whether the noise assessment locations receive more sound from the kiosk or the roadways.

Roadway line sources have been added to the acoustical model. According to the PAG Travel Data and Forecasting website <https://pag.public.ms2soft.com/tcds/tsearch.asp?loc=Pag&mod=>, La Cañada Drive has a daily traffic count of 26,440 vehicles while Lambert Lane has a daily count of 8,767. This is a sound power level difference of 4.8 dBA. The total sound power of the road sources has been set arbitrarily since no measurements are available.

The unadjusted LAeq of the kiosk at the customer vehicle has been set 15 dBA higher than the

road noise at the same location. The adjusted LAeq of the kiosk is 5 dBA higher than this level and the LAmax 15 dBA higher.

Table 3.4 lists the differences in ambient sound pressure level (unadjusted LAeq), with the kiosk operating, with respect to the background roadway noise. Unadjusted levels are used here because they are not being compared to the Code limits, but to the background noise level in order to determine whether a measurement of LAeq would be possible. At each noise assessment location the difference between the ambient and background noise level is less than 3 dBA. It would therefore not be possible to measure the one hour equivalent-continuous sound pressure level and apply a background noise correction.

Location	Land Use	Height Above Grade (ft)	Ambient – Background Levels, Leq (dBA)	Maximum Sound Level Difference (Lmax, dBA)
10280 Camino Valdeflores	Single Family	5	0.0	-15.0
10281 Camino Valdeflores	Single Family	5	0.0	-6.8
10302 Hacienda Hermosa Dr	Single Family	5	0.0	-7.7
Customer		3	15.1	30.0
South shop building	Commercial	5	0.7	7.4
West shop building	Commercial	5	0.9	8.4

Table 3.4. Sound Pressure Level Differences s at Adjacent Land Uses in Comparison to Roadway Noise

The maximum sound pressure level, LAmax, is also less than the roadway background noise level at each of the residential land uses. At the restaurants to the south and west, which are much closer to the kiosk, the difference between the maximum sound level and the background noise level is greater than zero. At these locations the kiosk would likely be audible over the background noise, but is not expected to exceed the 85 dBA maximum sound pressure level limit in the Code.

4. Conclusions and Recommendations

An investigation of the noise impact of a drive-through kiosk at the proposed Tropical Smoothie Café at La Cañada Drive and Lambert Lane has been carried out for two use cases. In one case, for daytime hours, the kiosk loudspeaker must overcome the background noise created by the two adjacent roadways. In the other use case for nighttime hours, moderate conversational sound pressure levels produced by the kiosk were evaluated against the sound pressure level limits in Section 25.1 of the Oro Valley Zoning Code. In the daytime use case, kiosk sound levels were found to decrease faster than and fall below the roadway noise levels at the adjacent residential properties. In the nighttime use case kiosk sound pressure levels were found to meet the limits in Table 25-1.A of the Code.

The analysis in this report assumes a well designed drive-through kiosk. If the kiosk is operated during evening or nighttime hours an automated gain control (AGC) system may be needed to reduce the kiosk sound level when the background noise level decreases.

The following are guidelines for minimizing the noise impact of the loudspeaker on the surrounding area and optimizing communication with the customer.

- Place loudspeakers as close as possible to the customer in order to reduce the required amplification for necessary for good communication.
- Avoid placing the kiosk on a curve that will force the vehicle farther away from the loudspeaker.
- Aim the loudspeaker away from noise sensitive areas and avoid directing sound upward.
- To the degree possible, locate kiosks so as to utilize vehicles, buildings, and other structures to block the line of sight from the loudspeakers to noise sensitive areas. A menu board or wall can also be used for this purpose.
- Adjust the loudspeaker volume to the minimum necessary for good communication. In most applications, this should not be more than 15 dBA above the background noise level at the customer's vehicle (including the customer's vehicle).
- If necessary, such as may be the case for kiosks that are operated into the evening or nighttime hours, use an automatic gain control (AGC) amplifier to power the loudspeaker. This will reduce the gain to the loudspeaker during times of lower background noise level.
- Don't place the kiosk in a location with high background noise levels that will require increasing the loudspeaker volume for effective communication.

Not all of these measures may be necessary for a specific application or kiosk design. In this application, the second and third recommendations are not met; however, the analysis has shown that the buffer distance to homes, the privacy wall built above the grade of the proposed kiosk site, and the shielding providing by the other buildings in the shopping center are sufficient to meet the requirements of the Oro Valley Zoning Code in regard to noise.

Ultimately, the amplification of the loudspeakers will have to be limited as necessary to comply with the sound pressure level limits set in the Oro Valley Zoning Code. The above recommendations will reduce the amount of amplification necessary for effective communication and minimize the amount of sound going toward noise sensitive land uses.

Appendix

A1. Glossary of Acoustical Terms and Abbreviations

A1.1 Abbreviations

AI: articulation index

ASEL: A-weighted sound exposure level

ASTC: apparent sound transmission class

dB: decibel

DNL: day - night level

FSTC: field sound transmission class

Hz: Hertz

IIC: impact insulation class

kHz: kilohertz

L_{eq}, LA_{eq}, LC_{eq}: equivalent sound pressure level

NC: noise criteria

NIC: noise isolation class

NIPTS: noise induced permanent threshold shift

NR: noise reduction

Pa: Pascal

POE: probable occupant evaluation (see room criteria)

PTS: permanent threshold shift

PWL: sound power level

QAI: quality assessment index (see room criteria)

RC: room criteria

RT_{60}: reverberation time

SEL: sound exposure level

SII: speech interference index

SIL: speech interference level

SLM: sound level meter

SPI: speech privacy index

SPL: sound pressure level

STI: speech transmission index

TTS: temporary threshold shift

A1.2 Terms

A-weighting: see frequency weighting

absorption coefficient: see sound absorption coefficient

acoustical coupler: a cavity of predetermined shape and volume used for the calibration of earphones or microphones in conjunction with a calibrated microphone adapted to measure the sound pressure developed within the cavity

anechoic room: a room whose boundaries absorb practically all of the sound incident thereon, thereby providing essentially freefield conditions

articulation index (AI): a number (ranging from 0 to 1) which is a measure of the intelligibility of speech- the higher the number the greater the intelligibility. This metric has been replaced by the Speech Intelligibility Index (SII) defined in ANSI S3.5.

average sound level: see equivalent continuous sound level

background noise: the total noise from all sound sources other than a particular sound that is of interest

band: a subsection of the frequency spectrum

C-weighting: see frequency weighting

coupler: see acoustical coupler

day-night level (DNL): the 24 hour equivalent (average) A-weighted sound pressure level. A 10 dBA penalty is incurred between the hours of 10:00 PM and 7:00 AM. The DNL system has been adopted by the U.S. Department of Housing and Urban Development, the Department of Defense, and the Federal Aviation Administration.

decibel (dB): a unit of level which denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the common logarithm (base 10) of this ratio.

diffuse field: a sound field which has statistically uniform energy density and in which the directions of propagation of the sound waves are randomly distributed. In a practical sense, the sound pressure levels at all points in the room are nearly the same except near the room

boundaries and a sound wave reaching a given point in the room is equally likely to arrive from all directions.

direct sound: sound which reaches a given location in a direct line from the source without any reflections.

equivalent continuous sound level (L_{eq}): the level of steady sound which, in a stated time period and at a stated location, has the same sound energy as the time varying sound. If frequency weighting is applied, the equivalent continuous sound level may be designated LA_{eq} to indicate A-weighting or LC_{eq} to indicate C-weighting, etc. See also frequency weighting.

field sound transmission class (FSTC): a single number rating similar to sound transmission class (STC), except that the transmission loss values used to derive this class are measured in the field. FSTC ratings are typically lower than STC ratings which are measured under laboratory conditions.

flanking path: A wall or floor/ceiling construction that permits sound to be transmitted along its surface; or any opening, which permits the direct transmission of sound through the air.

freefield: a sound field in which the boundaries have negligible effect over the frequency range of interest.

frequency: the number of times that a waveform repeats itself in a given period of time, usually one second, i.e. the number of cycles per second). Unit: Hz.

frequency weighting: a prescribed frequency dependent attenuation or amplification applied to measured sound data usually intended to better approximate the sensation of loudness in a human listener. For example, A, B, and C weighting approximate the frequency dependent shape of the equal loudness contours for soft, moderate, and loud sounds.

Hertz (Hz): unit of frequency, cycles per second.

impact insulation class (IIC): a single number metric used to compare the effectiveness of floor-ceiling assemblies in providing reduction of impact-generated sounds such as footsteps. This rating is derived from values of normalized impact sound pressure levels in accordance with ASTM E492.

insertion loss: the reduction in sound level at the location of the receiver when a noise reduction measure such as a barrier, attenuator, muffler, etc. is inserted into the transmission path between the source and receiver. Unit: dB.

level: the logarithm of the ratio of a given quantity to the reference quantity of the same kind. Levels represent physical quantities such as sound pressure on a logarithmic scale and are therefore expressed in decibels. Unit: dB.

loudness: that attribute of auditory sensation in terms of which sounds may be ordered on a scale extending from soft to loud. Unit: sone.

masking: the process by which the threshold of hearing for one sound is raised by the presence of another sound.

noise criteria (NC): a single number criteria for the HVAC or mechanical noise level in a room derived from measured octave band data. The octave bands are weighted to de-emphasize low frequencies because the human ear is least sensitive to these frequencies. This metric is not valid for outdoor measurements.

noise induced permanent threshold shift (NIPTS): the permanent hearing loss resulting from noise exposure.

noise isolation class (NIC): a single number rating derived from measured values of noise reduction between two enclosed spaces that are connected by one or more paths. This rating is not adjusted or normalized to a standard reverberation time.

noise reduction (NR): the difference in sound pressure level between any two points along the path of sound propagation, e.g. the difference in level between the interior and exterior of a building where the sound level inside is due only to exterior noise.

octave: the frequency interval between two tones whose frequency ratio is 2.

omnidirectional microphone: a microphone whose response is independent of the direction of the incident sound wave.

Pascal (Pa): a unit of pressure. 1 Pascal = 1 Newton per square meter (1 N / m^2).

permanent threshold shift (PTS): a permanent increase in the threshold of hearing at a given frequency.

point source: a source that radiates sound as if from a single point.

receiver: a person (or persons) or equipment which is affected by sound.

refraction: (1) the phenomenon by which the direction of propagation of a sound wave is changed as a result of a spatial variation is the speed of sound. (2) The angular change in direction of a sound wave as it passes obliquely from one medium to another having different sound speed.

reverberation time (RT_{60}): of an enclosure, for a sound of a given frequency or frequency band, the time that is required for the sound pressure level in the enclosure to decrease by 60 dB after the source has stopped. Unit: second.

room criteria (RC, RC Mark II): an octave band metric for evaluating HVAC noise inside a room. RC is a two dimensional metric consisting of a curve number that is the arithmetic average of the 500, 1000, and 2000 Hz octave band sound pressure levels and a qualitative descriptor identifying the character of the sound spectrum. The descriptor can be (N) for neutral, (LF) for low frequency dominance (rumble), (MF) for midfrequency dominance (roar), and (HF) for high frequency dominance (hiss). In addition, acoustically induced vibration can be designated by (LFV_B) for moderate, but perceptible vibration and (LFV_A) for clearly perceptible vibration. As an example, the maximum RC prerequisite for LEED is designated as RC 37(N) indicating curve number 37 with a neutral spectrum.

Further, two intermediary metrics are used in calculating the room criteria. The quality

assessment index (QAI) is a measure of the deviation from the given RC curve. The probable occupant evaluation (POE) is based on the magnitude of the QAI and can be 'Acceptable,' 'Marginal,' or Objectionable.'

Sabin: a unit of measure of sound absorption; a measure of sound absorption of a surface. It is the equivalent of 1 square foot of a perfectly absorbing surface; a metric Sabin is the equivalent of 1 square meter of a perfectly absorbing surface.

sone: the unit of loudness. One sone is the loudness of a pure tone presented frontally at a frequency of 1000 Hz and a sound pressure level of 40 dB referenced to 20 micropascals.

sound absorption coefficient (α): ideally, the fraction of diffusely incident sound power that is absorbed (or otherwise not reflected) by a material or surface.

sound exposure level (SEL): over a stated time period or event, 10 times the logarithm base 10 of the ratio of the time integral of the sound pressure squared to the product of the reference sound pressure, 20 μPa, squared and the reference time, one second. This quantity is used to characterize single events of short duration where the averaged level (L_{eq}) is inadequate.

sound level meter (SLM): an instrument that is used to measure sound level, with a standard frequency weighting and standard exponentially weighted time averaging.

sound power level (PWL): the total acoustical power emitted from a sound source expressed in decibels relative to 10^{-12} Watts.

sound pressure level (SPL): the acoustical pressure amplitude expressed in decibels relative to 20 micropascals.

sound transmission class (STC): a single number rating used to compare sound insulation properties of walls, floors, ceilings, windows, or doors. See also field sound transmission class.

speech intelligibility index (SII): metric defined under ANSI S3.5 to quantifiy the intelligibility of speech under adverse listening conditions such as noise masking, spectral filtering, and reverberation. The SII is defined for a scale of 0 to 1 where values greater than 0.75 indicate good communication and values below 0.45 indicate generally poor communication conditions.

speech intelligibility test: a procedure that measures the portion of test items (such as syllables, monosyllabic words, or sentences) that are heard correctly.

speech interference level (SIL): an index for assessing the interference effects of noise on the intelligibility of speech, derived from measurements of the background noise level of contiguous octave bands; i.e. the arithmetic average of the octave band sound levels for the bands centered at 500, 1000, 2000, and 4000 Hz (four band method) or the corresponding average for the octave bands centered at 500, 1000, and 2000 Hz (three band method). If other octave bands are used they must be specified. Unit: dB.

speech privacy index (SPI): The SPI is essentially the opposite of the speech intelligibility index and is defined as 1 - SII and usually represented as a percentage. An SPI above 80% is considered normal privacy while an SPI above 95% would meet the requirements of confidential privacy.

speech transmission index (STI): an index for rating the intelligibility of speech that takes both noise and reverberation into account.

temporary threshold shift (TTS): a temporary increase in the threshold of hearing at a given frequency.

threshold of hearing: for a given listener, the minimum sound pressure level of a specified sound that is capable of evoking an auditory sensation. The sound reaching the ears from other sources is assumed negligible.

transducer: a device designed to receive an input signal of a given kind and to furnish an output signal of a different kind in such a manner that the desired characteristics of the input signal appear in the output signal. For example, a microphone takes an acoustic pressure as an input and produces an electrical voltage as an output that is direct proportion to the instantaneous acoustic pressure amplitude. Other common examples in noise measurement would be a loudspeaker, accelerometer, or laser Doppler vibrometer (LDV).

transmission loss: the reduction in sound level from one side of a partition to the other.

wavelength: the distance a sound wave travels in the time it takes to complete one cycle.

weighting: see frequency weighting

A2. General Acoustics

Sound Pressure Level (SPL)

Sound is small, rapidly varying perturbations of atmospheric pressure with respect to the slowly changing ambient pressure. The ambient pressure is measured with a barometer while the small acoustic perturbations are measured with a microphone.

The unit of sound pressure is the Pascal (Pa). However, due to the wide range of acoustic amplitudes that can be heard by the human ear, sound pressure is normally expressed on a logarithmic scale having units of decibels (dB). Sound pressure expressed this way is known as the sound pressure level (SPL) and has the following relation to sound pressure.

$$SPL = 20 \log_{10} \left(\frac{p}{p_{ref}} \right) \qquad \text{(A2.1)}$$

Here p is the sound pressure in Pascals. p_{ref} is a reference pressure, the threshold of hearing at 1000 Hertz (Hz), 20 x 10^{-6} Pa.

A-Weighting

The above formulation of SPL is a purely physical quantity. Due to the nonlinear and frequency dependent characteristics of the human ear it does not always correlate well with the perception of loudness. To improve the correlation for noise assessment purposes, a frequency weighting is often applied called A-weighting. The A-weighting function is based on listening tests in which human subjects adjusted tones throughout a range of frequencies to have equal loudness compared to a tone having an SPL of 40 dB at 1000 Hz. Figure A2.1 shows equal loudness contours according to ISO 226.

Thus applying A-weighting to measured sound pressures more closely represents the frequency response of the human ear for low to moderate amplitude sound. Sound pressure levels that have been A-weighted are denoted by the symbol, dBA. Figure A2.2 shows the A frequency weighting and several other common weightings.

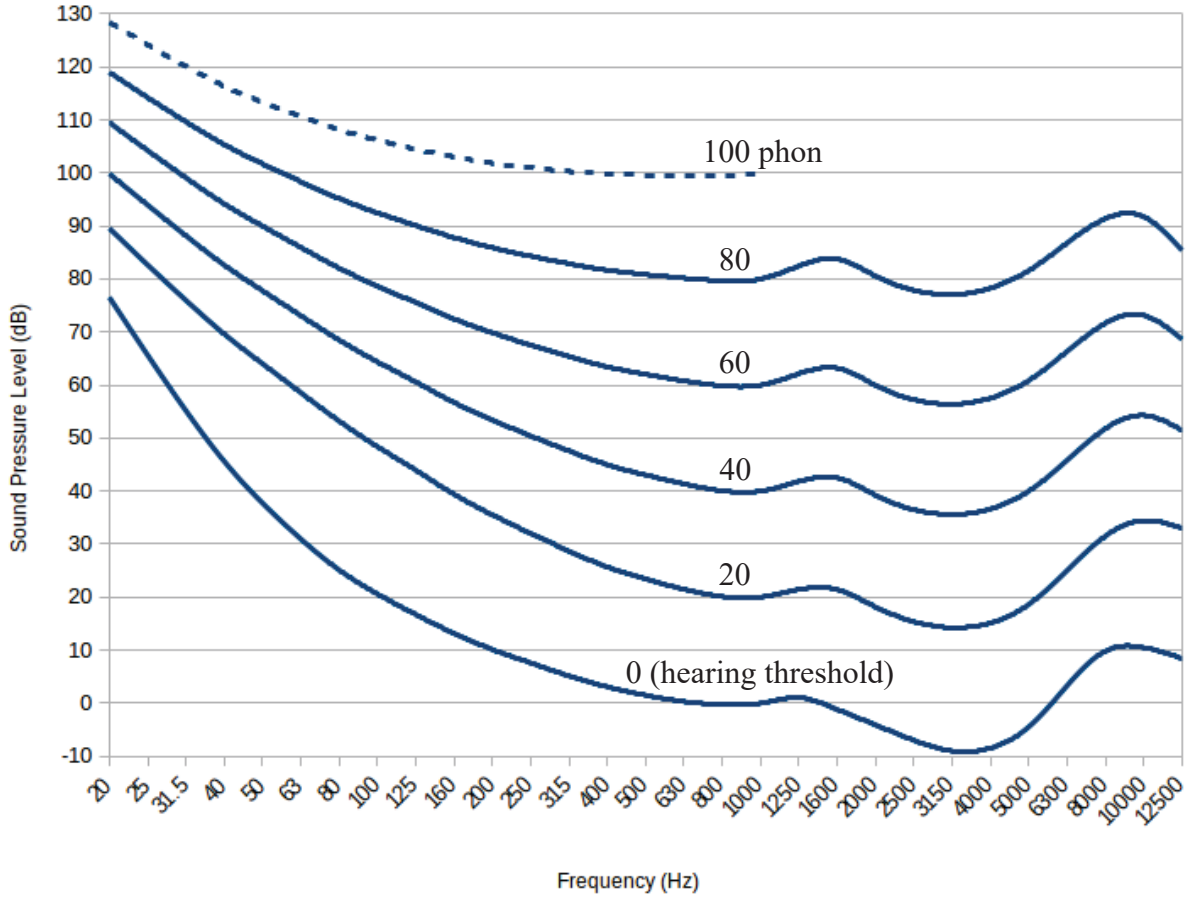


Figure A2.1. ISO 226 Equal Loudness Contours

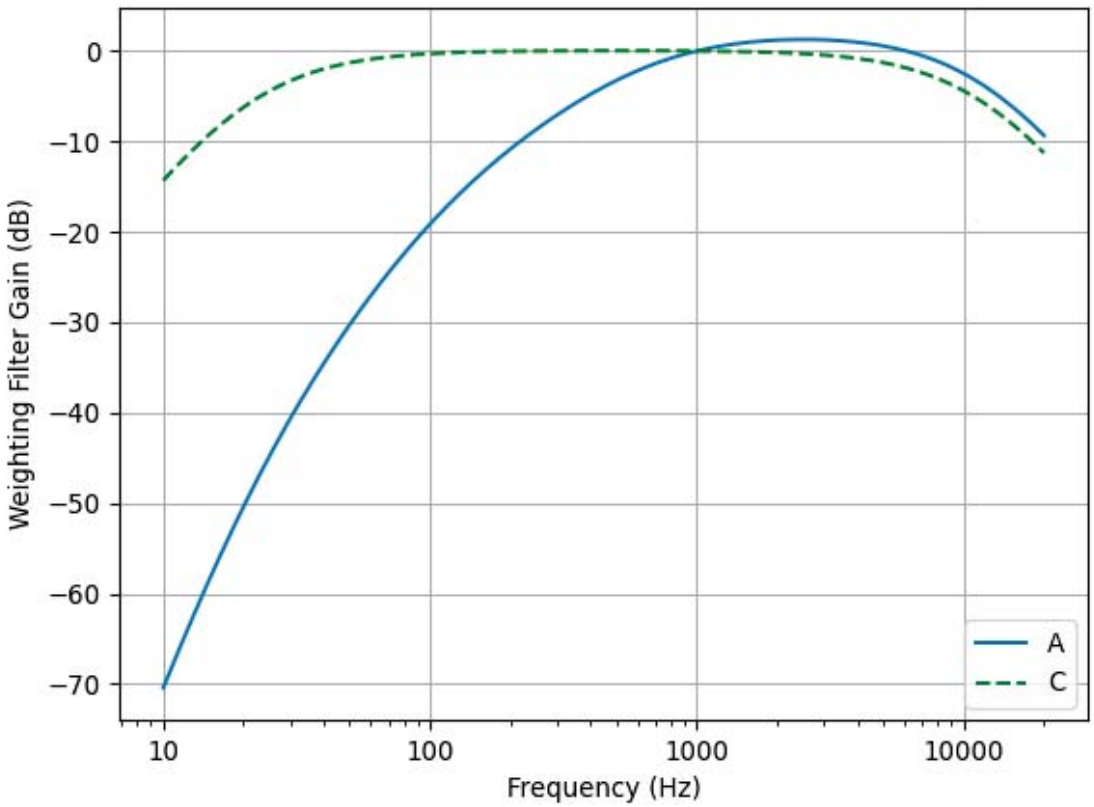


Figure A2.2. Frequency Weighting Filter Curves

The Perception of Sound

The most basic descriptions of sound are loudness (amplitude) and pitch (frequency). The frequency range of human hearing is roughly 20 to 20,000 Hz, although most people can not hear this full range because high frequencies are lost as a natural part of aging and other factors such as illness and exposure to high levels of noise that may cause permanent hearing loss.

Amplitude Attenuation with Distance

Sound originating from a small point source will spread spherically in all directions, absent any nearby surfaces. The conservation of energy requires the sound pressure spreading out from such a source to decrease by half with each doubling of distance. This is known as the inverse square law and is demonstrated in Table A2.1 and Figure A2.3.

Distance from Source (ft)	SPL (dBA)	SPL Loss Relative to 10 ft
10	90	
20	84	6
40	78	12
80	72	18
160	66	24
320	60	30

Table A2.1. Decrease of SPL with Distance Due to Spherical Spreading

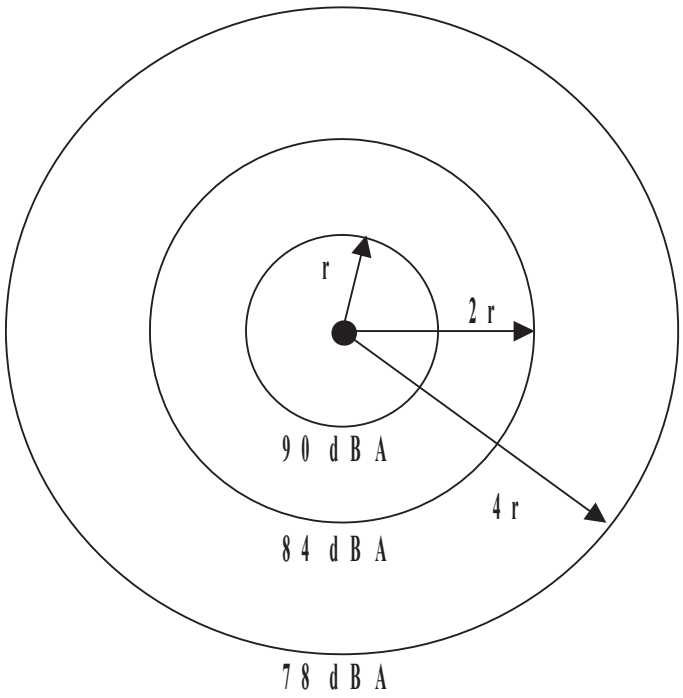


Figure A2.3. Decrease of SPL with Distance Due to Spherical Spreading

Adding Decibels

Summing the contributions from multiple sound sources to obtain the total SPL is *not* done simply by adding the decibel levels because SPL is a logarithmic quantity.

Imagine a fan produces a moderate SPL of 65 dBA at 6 feet. If a second identical fan were turned on the resulting SPL would not be 130 dBA. This would be equivalent to a commercial jetliner taking off at close range.

The correct method of adding the SPL from each source is to sum the acoustic power produced by each source. This implies that each time the number of sources having equal SPL is doubled, the SPL will increase by 3 dBA. Therefore, in the example with two fans, the correct total SPL would be 68 dBA. More examples with multiple sources producing equal SPL are shown in Figure A2.4.

$$65 \text{ dBA} + 65 \text{ dBA} \neq 130 \text{ dBA} \quad \textbf{WRONG} \tag{A2.2}$$

$$65 \text{ dBA} + 65 \text{ dBA} = 68 \text{ dBA} \quad \textbf{RIGHT} \tag{A2.3}$$

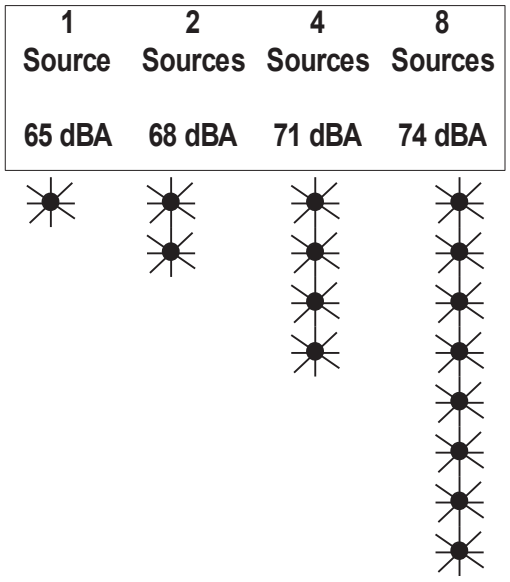


Figure A2.4. Total SPL from Multiple Sources with Equal SPL Output

Further Reading

Bruel and Kjaer, "Measuring Sound." Covers topics in this appendix in more detail. Available on the Bruel and Kjaer website, www.bkhome.com. Find this and other primers under the library section of the site.

Cyril M. Harris, Ed. Handbook of Acoustical Measurements and Noise Control, 3rd Edition. Acoustical Society of America, Melville, NY, 1998.

Greenlight Traffic Engineering

February 3, 2023

Nico Fricchione
Principal
ONETEN REI
140 E Rio Salado Pkwy, Suite 1104
Tempe, AZ 85281

Re: Oro Valley Tropical Smoothie | Traffic Impact Statement
SWC La Canada Dr/Lambert Ln, Oro Valley, AZ

1 INTRODUCTION

This Traffic Impact Statement (TIS) was prepared for the Oro Valley Tropical Smoothie (Project) located on the southwest corner of La Canada Drive and Lambert Lane in the Town of Oro Valley, Arizona (Town).

The purpose of this study was to document existing conditions and the proposed Project site plan, as well as calculate anticipated site-generated trips associated with the Project.

The Project will develop a 0.81-acre parcel with 1,544 square feet (SF) of gross floor area (GFA) of fast-food restaurant use, as shown in the site plan (Attachment A). The Project is forecast to generate 69 AM peak hour trips, 51 PM peak hour trips, and 722 average daily trips (ADT) based on the Institute of Transportation Engineers (ITE) Land Use 934 "Fast-Food Restaurant with Drive-Through Window". After adjustments for pass-by trips, the Project is forecast to generate approximately 33 AM peak hour trips, 21 PM peak hour trips, and 656 daily trips.

Since the Project is expected to generate fewer than 100 peak hour trips, the Project warrants a TIS. This TIS has been prepared in accordance with the Arizona Department of Transportation's (ADOT) Traffic Guidelines and Processes (TGP) 240 Traffic Impact Analysis & Statement for review and approval by the Town, as the Town defaults to ADOT's traffic study scoping guidelines.

2 PROJECT BACKGROUND

The Project site is located on the southwest corner of La Canada Drive and Lambert Lane in Oro Valley, Arizona, as shown in Figure 1. The Project site is an existing undeveloped parcel. The site is bounded by parking to the north, La Canada Drive to the east, and the Canada Crossroads strip mall buildings to the south and west.

The Project's primary site access will be achieved through one existing full-access driveway along La Canada Drive. Motorists can access the site via existing right-in/right-out driveways along Lambert Lane and La Canada Drive using the internal circulation within the larger commercial development. The anticipated Project opening year is 2023.

Figure 1: Project Location

3 EXISTING CONDITIONS

3.1 Existing Roadways

Lambert Lane is a 4-lane, east-west divided roadway. The cross section includes pavement, raised median, and curb and gutter on both sides of the roadway. The north side of the roadway provides sidewalk, and the south side of the roadway provides a bi-directional bike path. There is a 45 mile per hour (mph) posted speed limit on Lambert Lane. Lambert Lane is classified as an Urban Minor Arterial based on the ADOT Statewide Federal Functional System Online Map.

La Canada Drive is a 4-lane, north-south divided roadway. The cross section includes pavement, raised median, and curb and gutter on both sides of the roadway. The west side of the roadway provides sidewalk, and the east side of the roadway provides a bi-directional bike path. The posted speed limit is 45 mph adjacent to the Project site. La Canada Drive is classified as an Urban Minor Arterial based on the ADOT Statewide Federal Functional System Online Map.

3.2 Intersections

Lambert Lane and La Canada Drive is a four-leg signalized intersection. The northbound, southbound, and eastbound approaches consist of one dedicated left-turn lane, two through lanes and one dedicated right turn lane; the westbound approach consists of one dedicated left-turn lane, one dedicated through lane, and one shared through/right-turn lane.

4 PROPOSED SITE CONDITIONS

4.1 Site Access, Circulation and Parking

The Project primary site access will be achieved through one existing full access driveway along La Canada Drive. Motorists can access the site via existing right-in/right-out driveways along Lambert Lane and La Canada Drive

using the internal circulation within the larger commercial development. There are no sight distance concerns at any of the existing site access driveway locations.

Operations information was provided by the tenant who operates the Houghton Town Center restaurant, located at Houghton Road/Old Vail Road in Tucson, AZ. The peak business hours of the restaurant are between 11 AM – 1 PM, with 11 AM – 12 PM being the typical peak hour. The busiest day occurred in May 2021 with a peak hour of approximately 26 entering vehicles. The typical peak hour maximum number of vehicles in the drive-through queue is 6-7. Vehicles typically complete the entire drive-through transaction within about 2 minutes.

There is a single-lane drive-through proposed on the site. The driveway will begin at the northwest corner of the site which travels along the west side of the building and continues to the pickup window on the south side of the building. The drive-through exit will be on the southeast corner of the site.

Parking will be provided for this development on all sides of the building. There will be a total of 32 parking spaces, including 2 accessible spaces, provided by the Project.

4.2 Trip Generation

Before reductions due to pass-by trips, the Project is forecast to generate approximately 69 AM peak hour trips, 51 PM peak hour trips, and 722 daily trips on a typical weekday based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (TGM), 11th Edition.

After adjustments for pass-by trips, the Project is forecast to generate approximately 33 AM peak hour trips, 21 PM peak hour trips and 656 daily trips. These are the estimated new trips that are expected to be added to the roadway network. Calculated trip values are shown in Table 1. A detailed trip generation calculation sheet is included in Attachment B.

4.3 Pass-By Trips

Pass-by trips are intermediate stops made by motorists traveling from an origin to a primary trip destination. Pass-by trips are attracted to a trip generator from existing adjacent street traffic "passing by" the use. These trips are not new trips added to the roadway by the proposed development; however, they are still accounted for at the site driveways. Since pass-by trips come from existing traffic already traveling past the site, these trips are deducted from the total new trips generated by the proposed development.

Based on appendices contained within the ITE TGM, Fast-Food Restaurant with Drive-Through Window AM/PM peak hour average pass-by percentages are 50%/55%.

Table 1: Project Trip Generation

Land Use	ITE Code[1]	Size	Unit	AM Peak Hour			PM Peak Hour			Daily Volume
				In	Out	Total	In	Out	Total	
Fast-Food Restaurant with Drive-Through Window	934	1.54	KSF GFA[2]	35	34	69	27	24	51	722
Total Driveway Trips				**35**	**34**	**69**	**27**	**24**	**51**	**722**
Fast-Food Restaurant with Drive-Through Window Pass-By Trips at 50% and 55% (AM and PM)[3]				-18	-18	-36	-15	-15	-30	-66
Pass-By Driveway Trips				**-18**	**-18**	**-36**	**-15**	**-15**	**-30**	**-66**
Total New External Trips				**17**	**16**	**33**	**12**	**9**	**21**	**656**

1. *Land Use Code (LUC), per ITE TGM, 11th Edition.*
2. *KSF GFA = 1,000 square feet of gross floor area*
3. *Pass-by trip rates summarized from ITE TGM Appendices.*

5 CONCLUSIONS

The following conclusions are made based on the findings of the Project TIS:

1. The Project is expected to generate approximately 69 AM peak hour, 51 PM peak hour and 722 daily trips based on the ITE Trip Generation Manual, 11th Edition. After adjustments for pass-by trips, the Project is forecast to generate approximately 33 AM peak hour trips, 21 PM peak hour trips and 656 daily trips.
2. The Project is not expected to have a significant impact to the surrounding roadway infrastructure as it is expected to generate under 100 peak hour trips.
3. There are no sight-distance concerns at the existing Project driveways.

6 RECOMMENDATIONS

In summary, the proposed Project is expected to have no significant impact on the adjacent roadway network. The following recommendations were developed based on the findings of the Project TIS:

1. Design and construction of the proposed Project improvements should conform to the Town of Oro Valley design guidelines, as applicable.

Sincerely,
Greenlight Traffic Engineering, LLC

Scott Kelley, PE, PTOE
Principal/Project Manager
scottk@greenlightte.com
(602) 499-1339

Attachments:

A – Lambert/La Canada Tropical Smoothie Site Plan
B – Trip Generation Calculations

ATTACHMENTS

CONCEPTUAL SITE PLAN
TROPICAL SMOOTHIE - LA CANADA DR
2202232

GENERAL NOTES

1. BASIS OF BEARINGS IS: "THE EAST LINE OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 12 SOUTH, RANGE 13 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PIMA COUNTY, ARIZONA BEARING S00°01'14"E (ASSUMED BEARING)" ACCORDING TO A.L.T.A./N.S.P.S. AND TOPOGRAPHICAL SURVEYS PREPARED BY HARVEY LAND SURVEYING, INC. SEALED AND DATED FEBRUARY 25, 2022 BY COLIN D. HARVEY, RLS 42017 (HARVEY JN 2022-32)
2. BASIS OF ELEVATIONS IS: "A PIMA COUNTY OPUS CONTROL POINT #12S13E_J15, SAID POINT BEING IN SECTION 10, TOWNSHIP 12 SOUTH, RANGE 13 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PIMA COUNTY, ARIZONA. A #4 REBAR W/ TAG "RLS 13190" LOCATED APPROX. 64 FT NORTH OF LAMBERT LANE AND 91 FEET WEST OF LAMBERT PARK LANE. ELEVATION = 2604.32' (NAVD 88 DATUM)" PER AFOREMENTIONED SURVEY
3. BASIS OF ELEVATION, BASIS OF BEARINGS, BOUNDARIES, EASEMENTS, TOPOGRAPHIC DATA AND CULTURE SHOWN ARE FROM THE AFOREMENTIONED SURVEY PREPARED BY HARVEY LAND SURVEYING INC.
4. THIS PROJECT IS WITHIN THE CANADA CROSSROADS DEVELOPMENT. REFER TO DEVELOPMENT PLAN OV12-98-12.
5. GROSS AREA OF DEVELOPMENT IS 33,103.50 SF OR 0.76 ACRES, MORE OR LESS.
6. GROSS FLOOR AREA (GFA) IS 1,649 SF.
7. MAX FLOOR AREA RATIO (FAR) IS 0.25 PER OVZCR TABLE 23-2B. FAR PROPOSED IS 1,649/ 33,103.50 = 0.05
8. TOTAL MILES OF NEW PUBLIC STREETS IS 0.
9. TOTAL MILES OF NEW PRIVATE STREETS IS 0.
10. OV10-97-9 IS APPLICABLE TO THE PROJECT AND DOCUMENTS APPROVAL OF A BOARD OF ADJUSTMENT INCREASE IN MAXIMUM BUILDING HEIGHT FROM 18' TO 25'.
11. ASSURANCES FOR WATER SERVICE, SITE STABILIZATION AND LANDSCAPING MUST BE POSTED PRIOR TO ISSUANCE OF GRADING PERMITS
12. SOLID WASTE REFUSE WILL BE STORED IN SHARED EXISTING DUMPSTER ENCLOSURES AT THE SOUTHEAST CORNER OF CANADA CROSSROADS CENTER.

PLANNING GENERAL NOTES

1. THE USE IS CONVENIENCE USE: DRIVE-THRU RESTAURANT. APPROVAL OF A CONDITIONAL USE PERMIT IN ACCORDANCE WITH OVZCR 22.5 IS REQUIRED PER OVZCR 23.3 TABLE 23-1
2. THIS PROJECT REQUIRES TOWN COUNCIL APPROVAL OF A REDUCTION TO THE REQUIRED 250-FEET SEPARATION BETWEEN CONVENIENCE USES AND RESIDENTIALLY-USED PROPERTIES, AS REQUIRED BY OVZCR 25.1.B.6.a. THE PROPOSED SEPARATION IS 195 FEET.
3. THE MAXIMUM BUILDING HEIGHT IS 25' PER BOARD OF ADJUSTMENT INCREASE DOCUMENTED IN OV10-97-9. THE PROPOSED BUILDING HEIGHT IS 20'.
4. NO OVERLAY ZONES ARE APPLICABLE.
5. THIS PROJECT IS NOT INCLUDED IN THE GENERAL PLAN SIGNIFICANT RESOURCE AREAS (SRA).
6. THIS PROJECT IS NOT SUBJECT TO THE REQUIREMENTS FOR ENVIRONMENTALLY SENSITIVE LANDS (ESL).
7. MINIMUM OPEN SPACE REQUIREMENT IS 25% OF LOT AREA=8,276 SF PER OVZCR TABLE 23-2B. TOTAL PROVIDED IS 8,279 SF.
8. MINIMUM LANDSCAPED COMMON AREA REQUIRED IS 2% OF LOT AREA=662 SF. TOTAL PROVIDED IS 886 SF.
9. NO LANDSCAPE BUFFER YARDS ALONG INTERIOR BORDERS ARE REQUIRED PER OVZCR TABLE 27.7. A MINIMUM 30' BUFFER YARD 'B' IS REQUIRED ALONG THE STREET FRONTAGE PER OVZCR TABLE 27-9. A STREET BUFFER YARD WITH 20' ONSITE AND 10' IN THE PUBLIC RIGHT-OF-WAY EXISTS PER APPROVED DEVELOPMENT PLAN BK19, PG30.
10. NO SCREENING ALONG INTERIOR BORDERS IS REQUIRED PER OVZCR TABLE 27-12.
11. SETBACKS REQUIRED:
    FRONT: 20' (76.7' PROVIDED). ALSO 105' FROM SECTION LINE PER DOCKET 7397 AT PAGE 727 (EQUATES TO 30' FROM FRONT PROPERTY LINE)
    PERIMETER SIDE & REAR SETBACKS FOR CANADA CROSSROADS DO NOT IMPACT THE SUBJECT PARCEL.
12. EXISTING ZONING IS C-N
13. ALL SIGNAGE AND LIGHTING TO BE ADDRESSED AS PART OF A SEPARATE REVIEW AND APPROVAL PROCESS
14. ALL PUBLIC ART REQUIREMENTS FOR CANADA CROSSROADS HAVE BEEN MET.

ENGINEERING GENERAL NOTES

1. THE DESIGN VEHICLE IS SU-30 (EXCLUDING DRIVE-THRU). DESIGN SPEED IS 5 MPH
2. ALL NEW PUBLIC ROADS WITHIN AND ADJACENT TO THIS PROJECT WILL BE CONSTRUCTED IN ACCORDANCE WITH APPROVED PLANS. SEPARATE PUBLIC IMPROVEMENT AND CONSTRUCTION PLANS WILL BE SUBMITTED TO THE TOWN ENGINEER'S OFFICE FOR REVIEW AND APPROVAL
3. ANY RELOCATION OR MODIFICATION OF EXISTING UTILITIES AND/OR PUBLIC IMPROVEMENTS NECESSITATED BY THE PROPOSED DEVELOPMENT WILL BE AT NO EXPENSE TO THE PUBLIC
4. THIS PROJECT DOES NOT PROPOSE ANY SUBSTANTIAL CHANGE TO THE DRAINAGE SCHEME OR STORMWATER DETENTION REQUIREMENTS APPROVED FOR THE CANADA CROSSROADS DEVELOPMENT PLAN OV12-98-12. THE PROJECT PROPOSES 73% IMPERVIOUS AREAS COMPARED TO 88% IMPERVIOUS AREAS ON THE APPROVED DEVELOPMENT PLAN OV12-098-12.

ORO VALLEY WATER UTILITY GENERAL NOTES

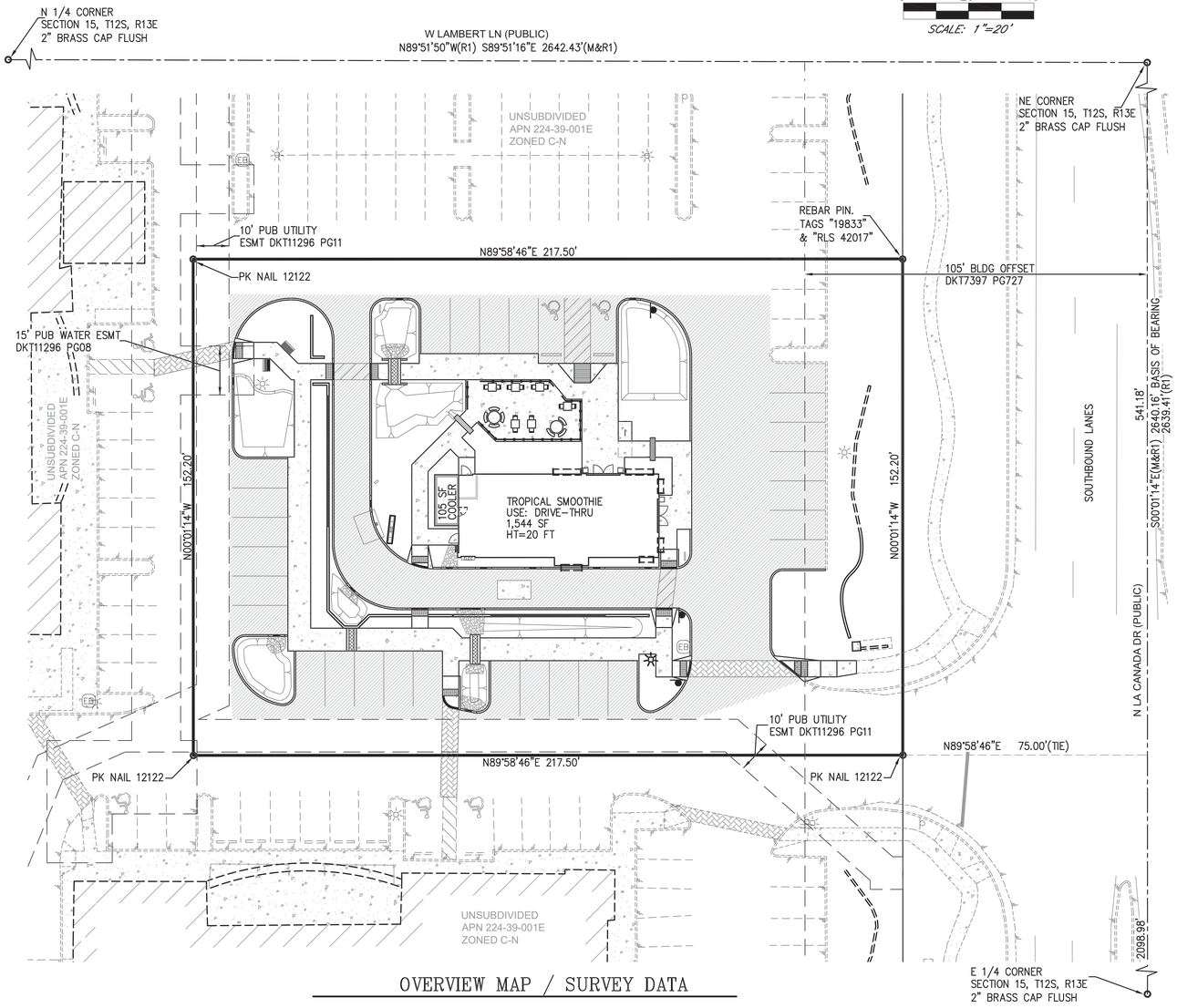
1. THIS DEVELOPMENT MUST COMPLY WITH THE ORO VALLEY WATER UTILITY SPECIFICATIONS MANUAL DURING ALL PHASES OF CONSTRUCTION
2. THIS PROJECT WILL BE SERVED BY ORO VALLEY WATER UTILITY WHICH HAS BEEN DESIGNATED AS HAVING AN ASSURED 100 YEAR WATER SUPPLY BY THE DIRECTOR OF WATER RESOURCES. ANY AND ALL WELLS MUST BE ABANDONED PER ADWR REGULATIONS
3. A LINE EXTENSION AGREEMENT MUST BE IN PLACE PRIOR TO ANY WORK ON THE WATER INFRASTRUCTURE FOR THIS PROJECT BEGINS.
4. ALL METERS SHALL HAVE A BACKFLOW PROTECTION DEVICE INSTALLED ON THE CUSTOMER SIDE OF THE METER
5. ALL FIRE SERVICES SHALL HAVE A BACKFLOW PROTECTION DEVICE INSTALLED ON THEM
6. ORO VALLEY WATER UTILITY WILL BE THE WATER SERVICE PROVIDER.

GOLDER RANCH FIRE GENERAL NOTES

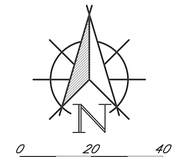
1. FIRE HYDRANTS CONNECTED TO AN APPROVED WATER SUPPLY OF 1500 GPM FOR FIRE PROTECTION MUST BE INSTALLED AND IN SERVICE PRIOR TO COMBUSTIBLE MATERIAL DELIVERY TO THE SITE. TEMPORARY CONSTRUCTION OFFICE TRAILERS ARE CONSIDERED COMBUSTIBLE MATERIAL
2. APPROVED FIRE APPARATUS ACCESS ROADS MUST BE INSTALLED AND IN SERVICE PRIOR TO COMBUSTIBLE MATERIAL DELIVERY TO THE SITE
3. AUTOMATIC FIRE SPRINKLER SYSTEMS ARE REQUIRED IN ALL NEWLY CONSTRUCTED COMMERCIAL BUILDINGS.
4. TEMPORARY STREET SIGNS MUST BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE OF VEHICLES. ALL STRUCTURES UNDER CONSTRUCTION MUST BE CLEARLY IDENTIFIED WITH AN APPROVED ADDRESS
5. THE INSTALLATION OF TRAFFIC CONTROL SIGNALING DEVICES AND/OR ELECTRICALLY OPERATED GATES ON FIRE APPARATUS ACCESS ROADS SHALL INCLUDE PREEMPTIVE CONTROL EQUIPMENT COMPATIBLE WITH THE FIRE DEPARTMENT'S EXISTING SYSTEM

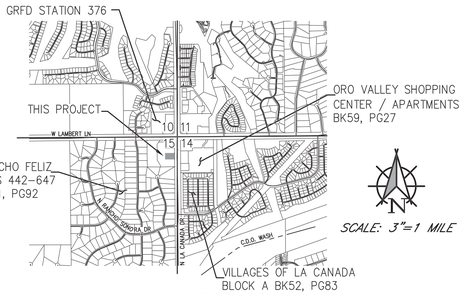
BUILDING CODES

1. THE FOLLOWING CODES AND STANDARDS SHALL BE APPLICABLE TO THIS DEVELOPMENT:
   INTERNATIONAL CODES WITH LOCAL AMENDMENTS
   NATIONAL ELECTRICAL CODE
   ADA STANDARDS FOR ACCESSIBLE DESIGN
   GOLDER RANCH FIRE DISTRICT STANDARDS AND FORMS
   TOWN OF ORO VALLEY POOL CODE
   PAG STANDARD SPECIFICATIONS & DETAILS FOR PUBLIC IMPROVEMENTS
   TOWN OF ORO VALLEY DRAINAGE CRITERIA MANUAL
   TOWN OF ORO VALLEY SUBDIVISION STREET STANDARDS AND POLICIES MANUAL
   TOWN OF ORO VALLEY ZONING CODE, CURRENT REVISED
   ORO VALLEY TOWN CODE, CURRENT REVISED



OVERVIEW MAP / SURVEY DATA





LOCATION MAP

LOCATED IN THE N.E. 1/4 OF SEC 15, T12S, R13E, G&SRM, TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA

LEGEND

- SUBJECT PARCEL BOUNDARY
- ADJACENT PROPERTY/ROW LINE
- EASEMENT LINE
- CENTERLINE
- EXISTING CURB AND EDGE OF ASPHALT PAVEMENT
- 2540 EXISTING 5' CONTOUR LINE
- EXISTING 1' CONTOUR LINE
- 8"W EXISTING WATERLINE, VALVE, REDUCER & METER
- UGE EXISTING UNDERGROUND ELECTRIC
- G EXISTING GAS LINE
- 8"S EXISTING SEWER, FLOW DIRECTION & MANHOLE
- 4"FS PROPOSED FIRE SERVICE LINE, REDUCER, HORIZONTAL BEND
- 4"BCS PROPOSED BUILDING CONNECTION SEWER & CLEANOUT
- PAVEMENT SAWCUT LINE
- EXIST LIGHT POLE
- SURVEY MONUMENT OR PIN AS NOTED
- 40.00 GB FINAL GRADE (ADD 2500') W/ ABBREVIATED DESCRIPTION
- 40.00± APPROXIMATE EXIST GRADE / MATCH-IN GRADE
- T, G, GB, HP, LP, INV, FFE TOP OF CURB/SDWK, GUTTER, GRADE-BREAK, HIGH POINT, LOW POINT, INVERT, FINISHED FLOOR ELEVATION
- FLOW DIRECTION ARROW
- Q_{100}= 100-YR ONSITE RUNOFF RATE
- ASPHALT PAVING
- CONCRETE/SIDEWALK
- BRICK-PATTERN STAMPED CONC. CROSSWALK
- PROPOSED FENCE

CIVIL ENGINEER

DYNAMIC CIVIL DESIGNS LLC
ATTN: JAMES MCMURTRIE
4690 N MELPOMENE WAY
TUCSON, AZ 85749
PH (520) 461-8016
EMAIL JAMES.MCM@LIVE.COM

ARCHITECT

NEPTUNE DESIGN GROUP
ATTN: CHRIS NEAL
6501 E GREENWAY PKWY #103-707
SCOTTSDALE, AZ 85254
PH (480) 297-5577
EMAIL cneal@neptunedg.com

OWNER/DEVELOPER

ONETEN REI GUADALUPE LLC
ATTN: NICO FRICCHIONE
140 RIO SALADO PKWY STE 1104
TEMPE, AZ 85281
PH (570) 947-7372
EMAIL nico@onetenrei.com

LANDSCAPE ARCHITECT

NOVAK ENVIRONMENTAL
ATTN: KAREN CESARE
4574 N 1ST AVE STE 100
TUCSON, AZ 85718
PH (520) 206-0591
FX (520) 882-3006
EMAIL karen@novakenvironmental.com

SITE ADDRESS

10335 N LA CANADA DR
ORO VALLEY, AZ 85737

REF. NO: OV12-98-12
OV10-97-9
OV9-96-7
PRE-APP 2102451
CUP 2202252

PRELIMINARY NOT FOR CONSTRUCTION

JAMES C. MCMURTRIE — 12626 — REGISTERED ENGINEER — ARIZONA U.S.A.

Dynamic Civil Designs LLC
4690 N MELPOMENE WAY TUCSON ARIZONA 85749
PH: (520) 461-8016 EMAIL: james.mcm@live.com

LOT	PROPOSED USE	SQUARE FOOTAGE	PARKING RATIO	TOTAL PARKING		TOTAL HANDICAP PARKING		LOADING ZONE RATIO	TOTAL LOADING ZONES		BIKE PARKING CLASS I		BIKE PARKING CLASS II	
				REQUIRED	PROVIDED	REQUIRED	PROVIDED		REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
PAD 2	CONVENIENCE USE: DRIVE-THRU	1,649 SF RESTAURANT	9/1000	15	32(26 EXIST)	2	2	NONE REQ'd	0	0	0	0	2	2
OV12-98-12 REFERENCE INFO		5,950 SF RETAIL	5.5/1000 (CALCULATED)	33					1	1				
TOTALS				15	32	2	2		0	0	0	0	2	2

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

NO.	BY	DATE	DESCRIPTION	APPROVED BY	DATE

CONCEPTUAL SITE PLAN
TROPICAL SMOOTHIE-LA CANADA DR

LOCATED IN THE N.E. 1/4 OF SEC 15, T12S, R13E, G&SRM, TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA

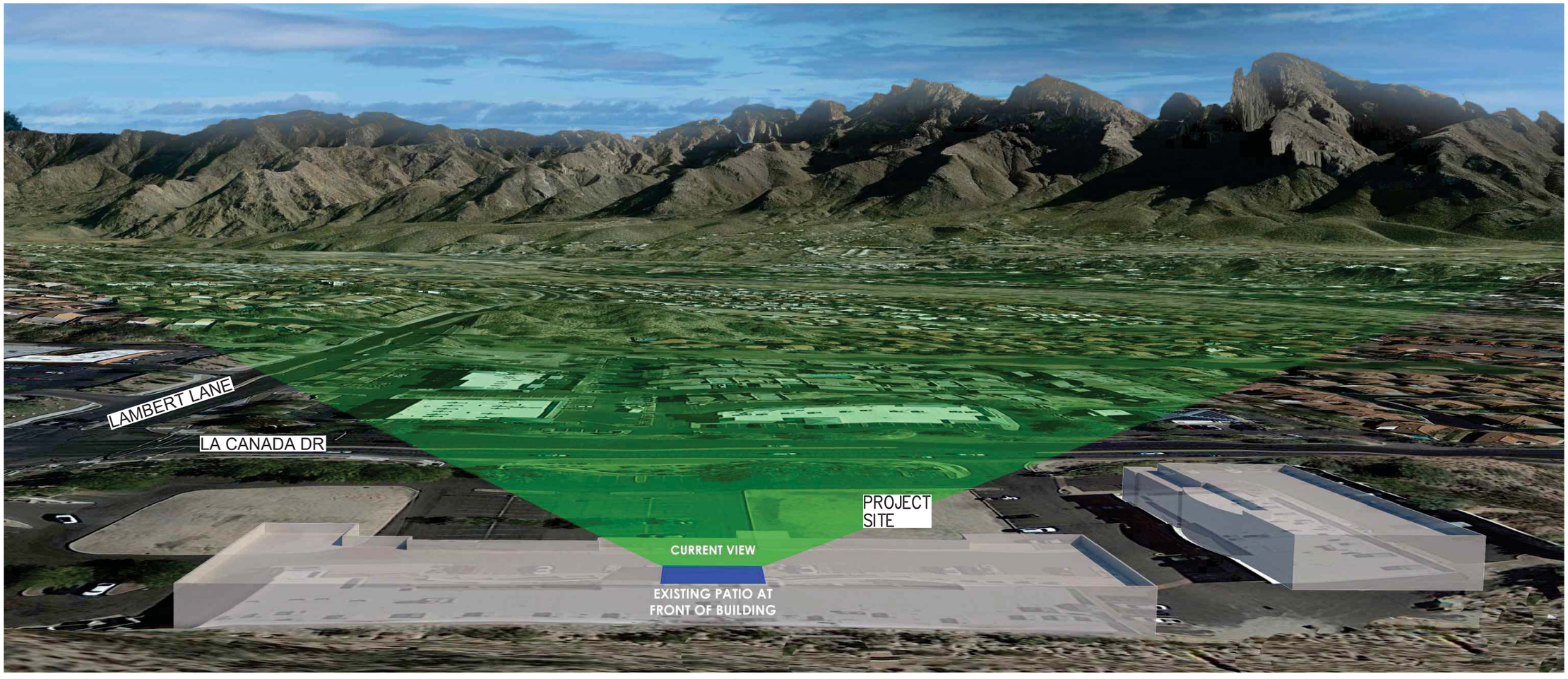
CASE NO: 2202232
JOB NO. D21017 | SCALE HORIZ: 1"=20'
DATE: JANUARY, 2023 | CONTOUR INTERVAL=N/A

Trip Generation Analysis

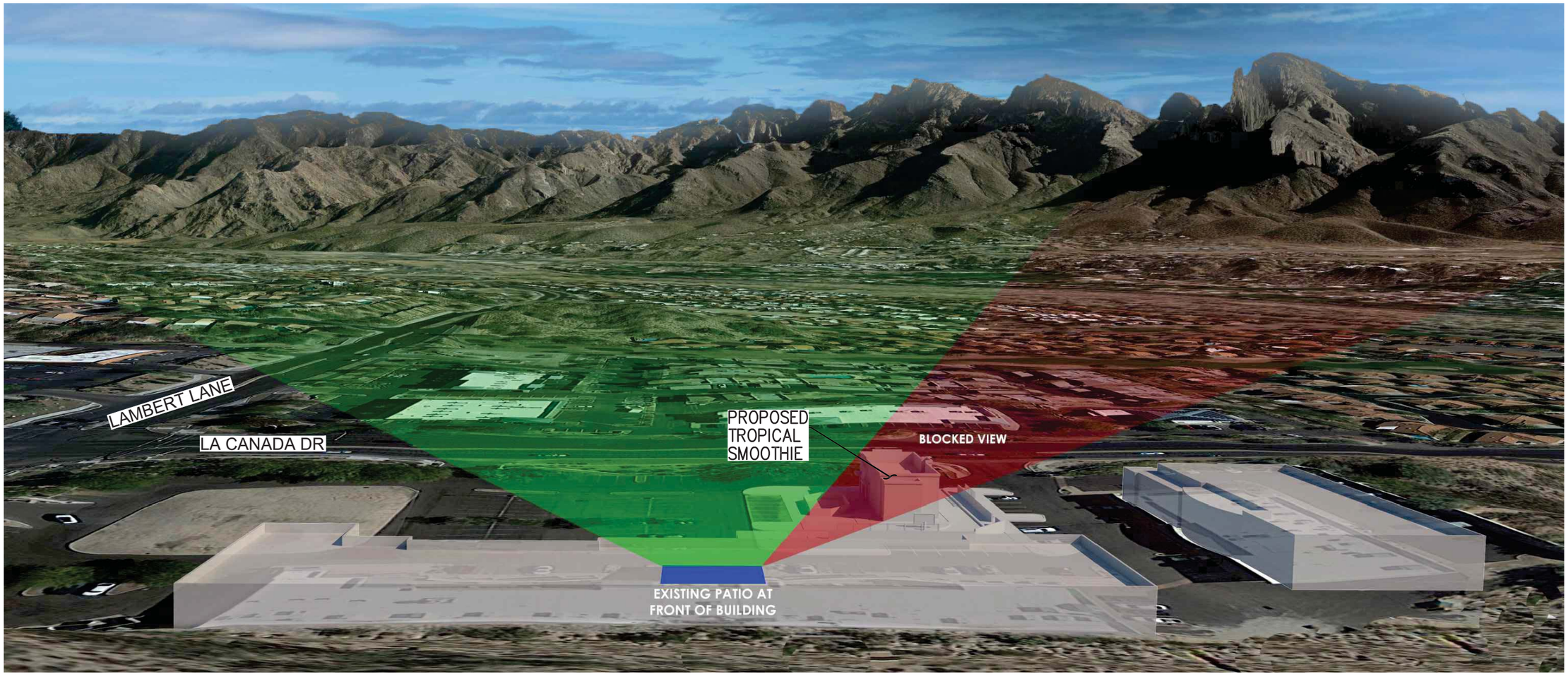
Project:	221043 ONET SR 92 Tropcial Smoothie
Originator:	Maria Jimenez
Checked:	Collette Frohlich, PE
Date:	3/30/2022
Data Source:	Dynamic Civil Designs Site Plan
Reference Manual:	ITE Trip Generation Manual, 11th Edition
Size:	1.54
Independent Variable:	GFA
Time Period:	Weekday (Monday - Friday), Peak Hour Adjacent Street Traffic
Setting/Location	General Urban/Suburban

				AM Calc			PM Calc			ADT Calc	AM			PM			
Land Use	**LUC**	**Units**	**Size**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**ADT**
TRIP ENDS																	
Fast-Food Restaurant with Drive-Through Window	934	1000 SF GFA	1.54	51%	49%	44.61	52%	48%	33.03	467.48	35	34	69	27	24	51	722
										Subtotal Trip Ends	**35**	**34**	**69**	**27**	**24**	**51**	**722**
PASS BY TRIPS																	
Fast-Food Restaurant with Drive-Through Window[1]	938					50%				55%	18	18	36	15	15	30	362
										Subtotal Pass-By	**18**	**18**	**36**	**15**	**15**	**30**	**362**
										External Trip Ends	**17**	**16**	**33**	**12**	**9**	**21**	**360**

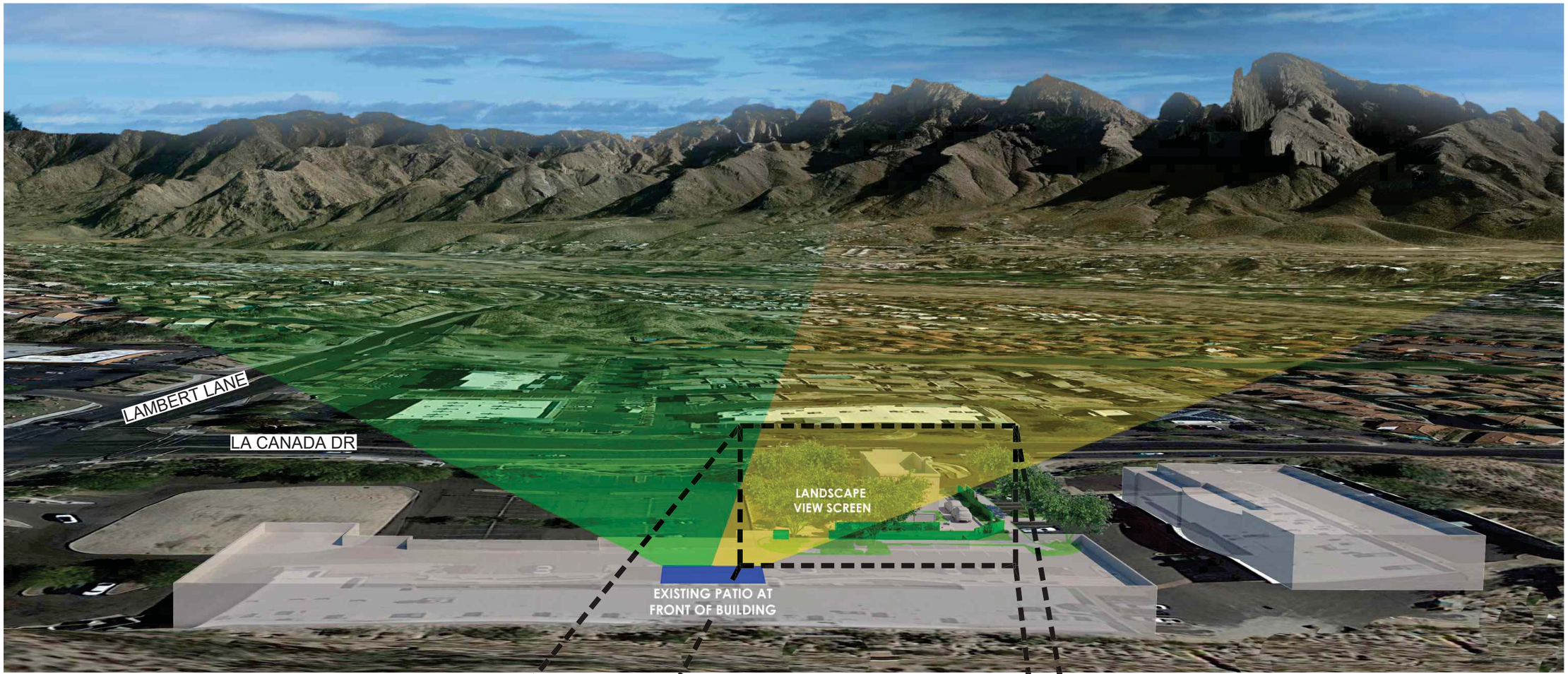
1. Pass-by rates were taken from the ITE Trip Gen Manual, 11th Ed Pass-by Tables.



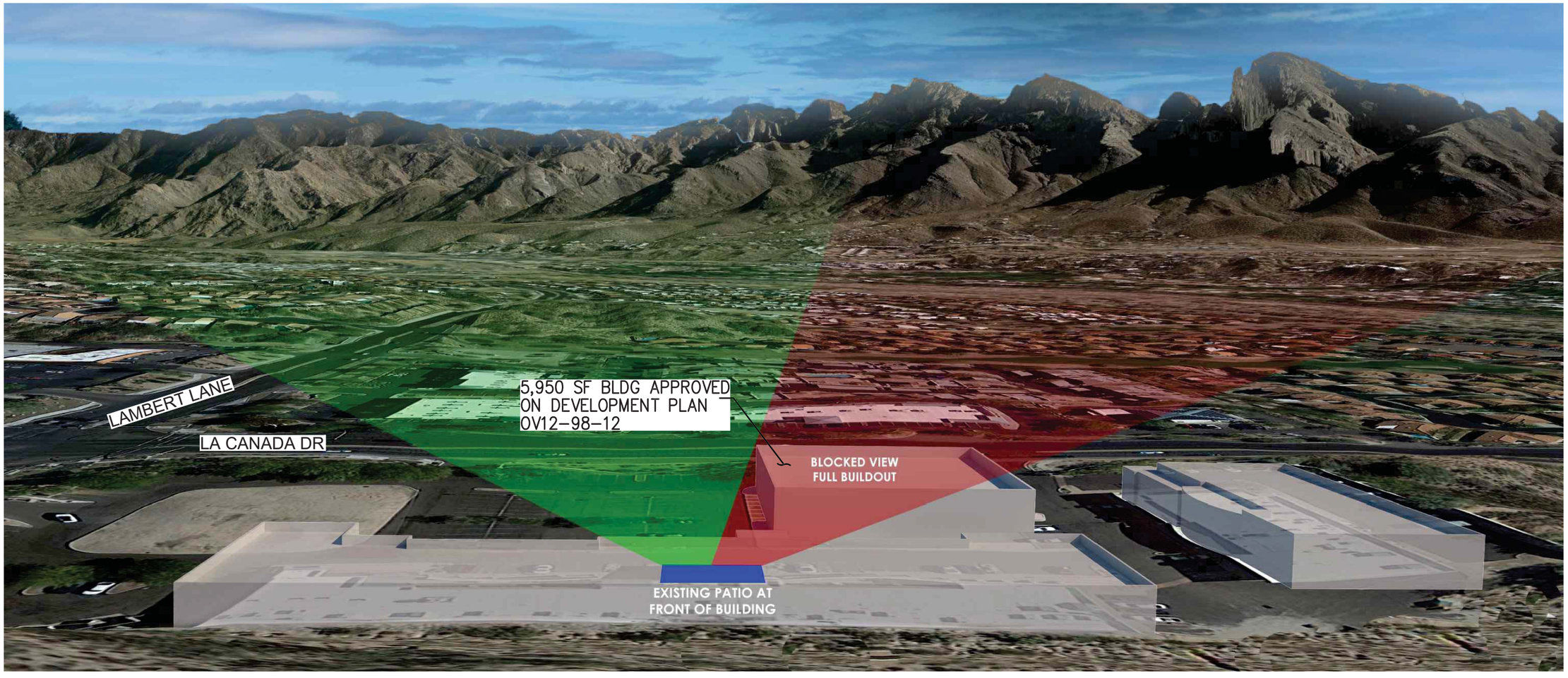
VIEWSHED IMAGE 1
VIEW: EAST



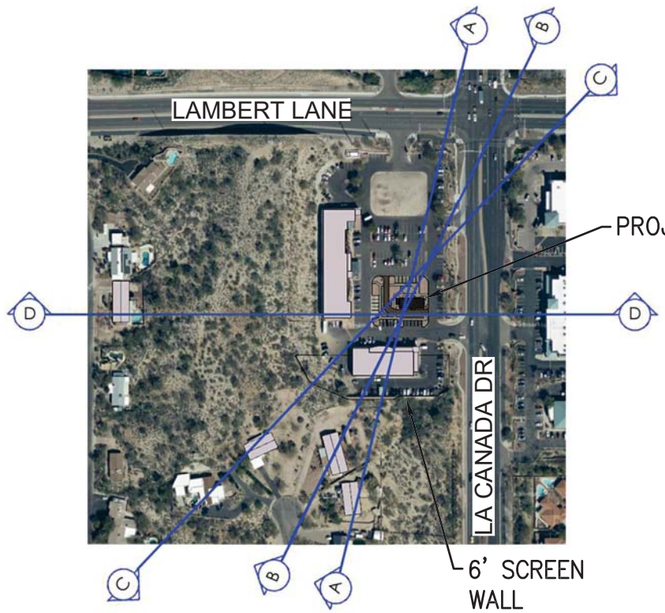
VIEWSHED IMAGE 2
VIEW: EAST

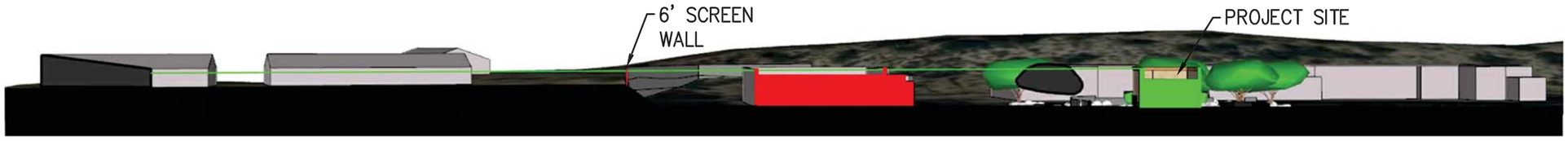


VIEWSHED IMAGE 3
VIEW: EAST



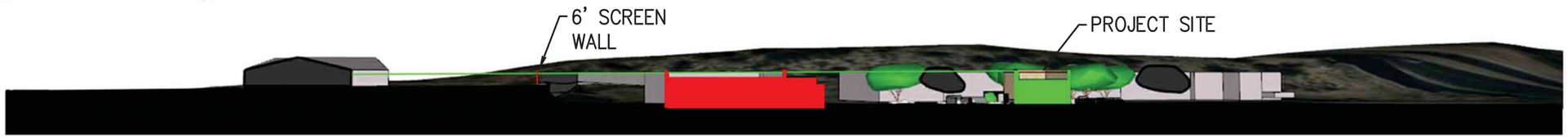
VIEWSHED IMAGE 4
VIEW: EAST





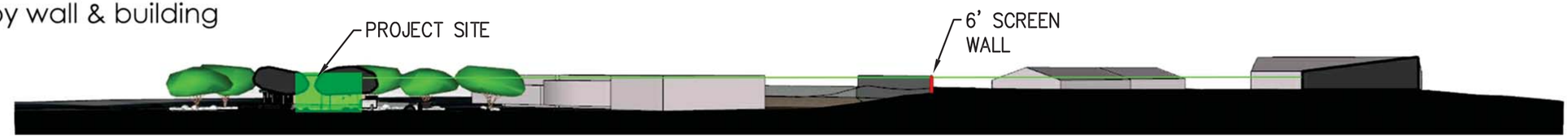
SECTION A

View blocked by wall & building



SECTION B

View blocked by wall & building



SECTION C

View blocked by wall

SECTION D

View blocked by hill

MAP & CROSS SECTIONS