

Development of the DDF involved close coordination with preliminary BART station design in order to ensure that future BART station requirements are taken into account in a manner that will enhance both projects as they advance.

## 7 Integration of Station Design with TOD

### 7.1 Structural Coordination

BART requires that its new stations be designed to an “essential services building,” level of seismic performance, per Article 1 in Chapter 4 of the California Division of the State Architect (DSA) regulations on Structural Safety (DSA-SS). These enhanced requirements ensure that stations can quickly resume operation after a maximum potential earthquake. This is a much stricter standard than what is applied to commercial buildings – it is focused on ensuring that occupants can safely evacuate, and it reduces the potential for more extensive damage that may take a considerable amount of time to repair before occupancy and operations can resume.

BART standards require that development above a station be designed to the same “essential service” standard. This requires a more intensive structural design, with structural elements carried down through the station to the ground and extra work done at the time of station construction. Issues related to locations of structural elements, building mass and height, and associated extra costs require careful study and focused attention to address these issues.

Work performed to date by VTA's BSV Phase II Project team includes a structural analysis and feasibility study that has to date identified a nine-story building as the maximum feasible TOD over the station. It is shown directly on top of the BART station in the test fit massing shown in Chapter 4, with shear wall locations and seismic analysis validating the structural design for the TOD above the station at a conceptual level. However, the station design work is ongoing, and if future analysis determines that a TOD building above the station is not feasible, then the DDF allows for whatever office floor area lost to be accounted for elsewhere on the VTA block in order to meet the City of San José's FAR 4 commercial use requirement. As shown at the end of Chapter 4, the test fit massing is flexible and can be adjusted, then re-evaluated to balance the various guidelines and criteria for TOD.

### 7.2 Access, Egress, and Services

Shear walls for the nine story TOD building that carry down through the basement level of the station have been studied, and the ground floor plan of the station has been adjusted so that the entrance and service cores for the TOD building can be accommodated in the north end of the station, including elevator and escalator access to a second floor office lobby space, as indicated in figures 7-01 and 7-02.

One of the key elements of an underground station is ventilation, and there are a number of chillers and service ducts that also need to be integrated into the TOD building. These elements have been designed and positioned to have minimal impact on the TOD building by locating them on the level directly above the BART station; they do not carry through the rest of the structure. However, there will need to be service access with an accompanying easement to this equipment for routine maintenance and future replacement by BART.

Shear Walls : 

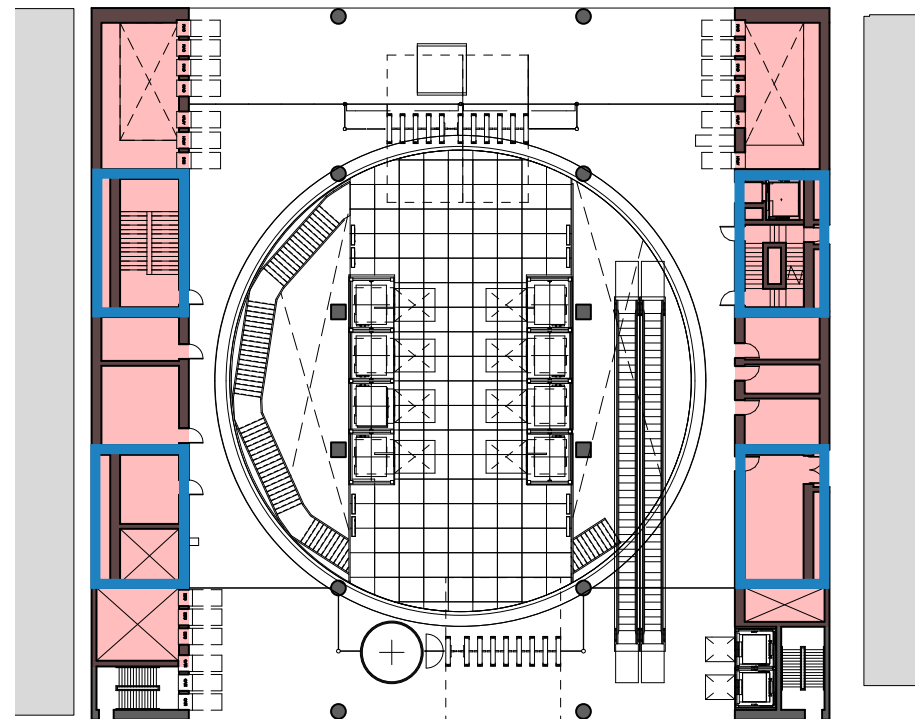


Fig. 7-01 BART Ground Floor Plan with Escalator Access

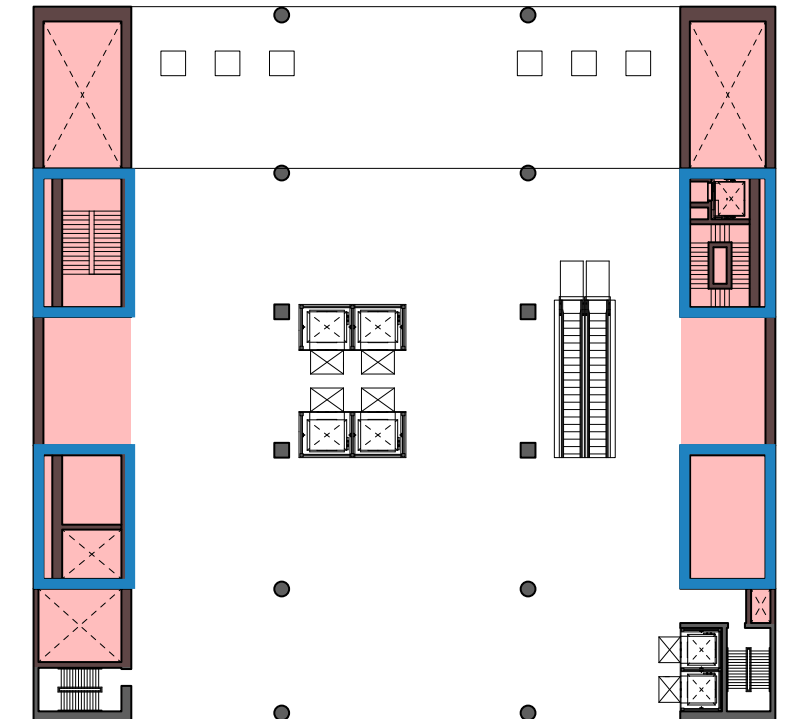


Fig. 7-02 BART Lobby Floor Plan with Escalator Access

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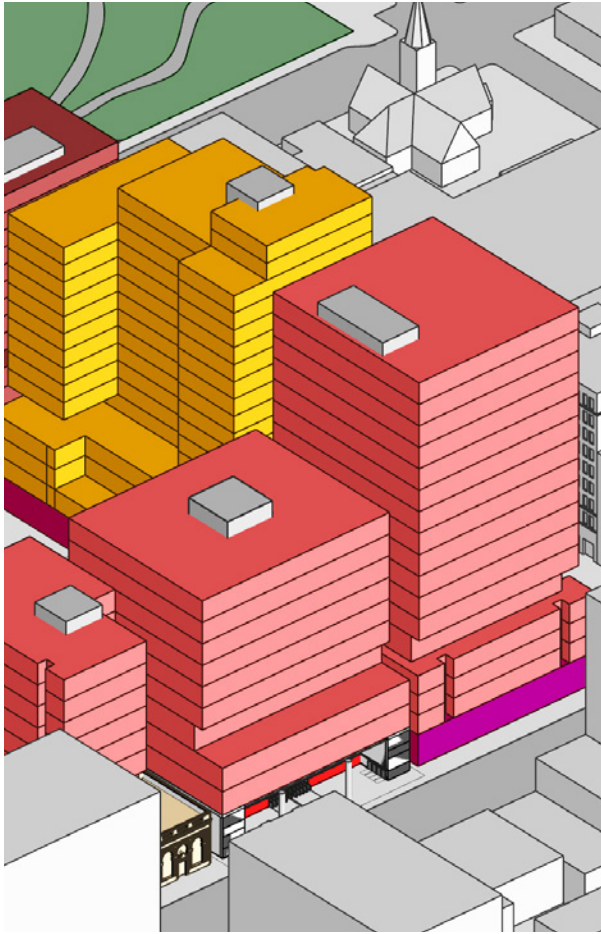


Fig. 7-03 Nine Story TOD Massing above BART Station

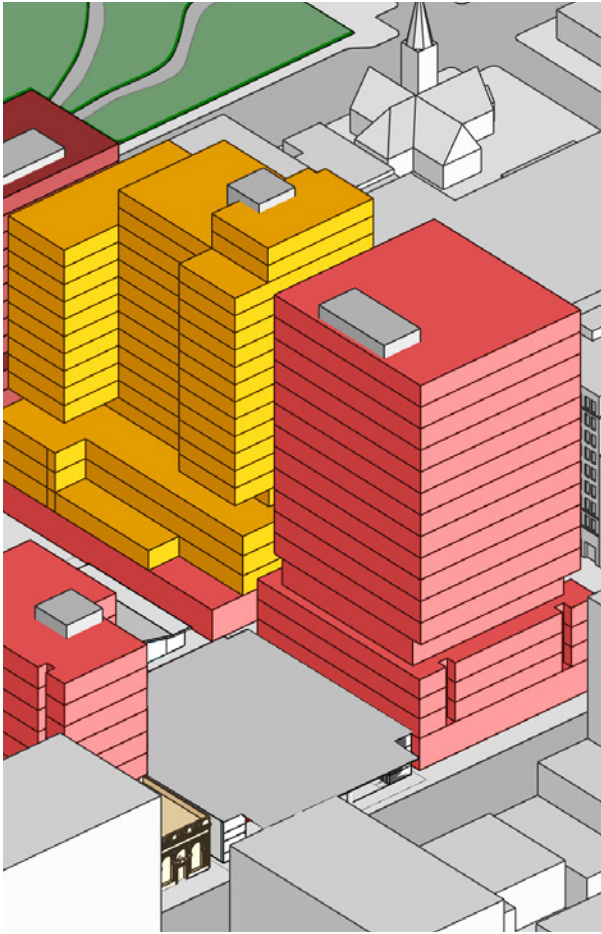


Fig. 7-04 BART Station with no TOD Massing



Fig. 7-05 Nine Story TOD Elevation

## 7 Integration of Station Design with TOD

### 7.3 Plaza Features

The depth of the basement level below the plaza, which contains back-of-house spaces to serve the BART station, has been sized to allow for planting and landscaping on the public plaza above. Parking or other TOD facilities cannot be located beneath the back-of-house spaces.

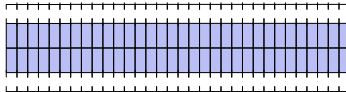
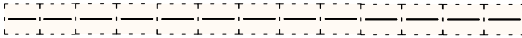
There are some back-of-house components that will likely need to surface at the plaza level, including an emergency egress staircase and a ventilation shaft. The DDF envisions that these elements be integrated into a pavilion building in the plaza, which would also house a café or restaurant as well as public restrooms to further activate the plaza and station area.

### 7.4 Parking, Emergency and Service Access to the Station

The BART station also requires a few vehicular parking stalls for BART staff, as well as spaces for a range of bicycle parking options, as space for parking does not exist in the underground BART station. Vehicular parking stalls for BART staff (approximately four to six stalls) need to be integrated into the overall TOD parking solution strategy, which could include options that utilize space on adjacent city streets, or within a TOD basement parking garage. Bicycle parking requirements, as shown on figure 7-06, show the approximate number of bicycle parking spaces that will need to be provided for the station. Prior to TOD being built on the VTA Block, bicycle parking will be located within the block in a temporary location. Subsequently, bicycle parking could be housed in a nearby retail space leased by BART, as occurs at other BART stations, which could be one of the retail spaces facing onto the plaza. Once the TOD strategy is further developed and the schedule is known, a final location for bicycle parking will need to be coordinated between VTA, BART and the City of San José.

DDF and station requirements include the paseo to the north of the station that links Market and First streets. This paseo will be approximately 40 feet wide in order to allow access for emergency vehicles and authorized service vehicles. Removable bollards would prevent unauthorized vehicles from accessing this paseo. The BSV Phase II station project will also need to coordinate their construction logistics so that the adjacent property owners all retain access to their property during construction in the same manner as their current access.

Note: Indicative space required for bicycle parking shown below. Actual position to be determined later.

	Class I bicycle parking - Racks (64x4) =	app. <b>250</b> (250req.)
	Class II bicycle parking (13x7) =	app. <b>100</b> (90req.)
		<b>Total = app. 350</b> (340req.)

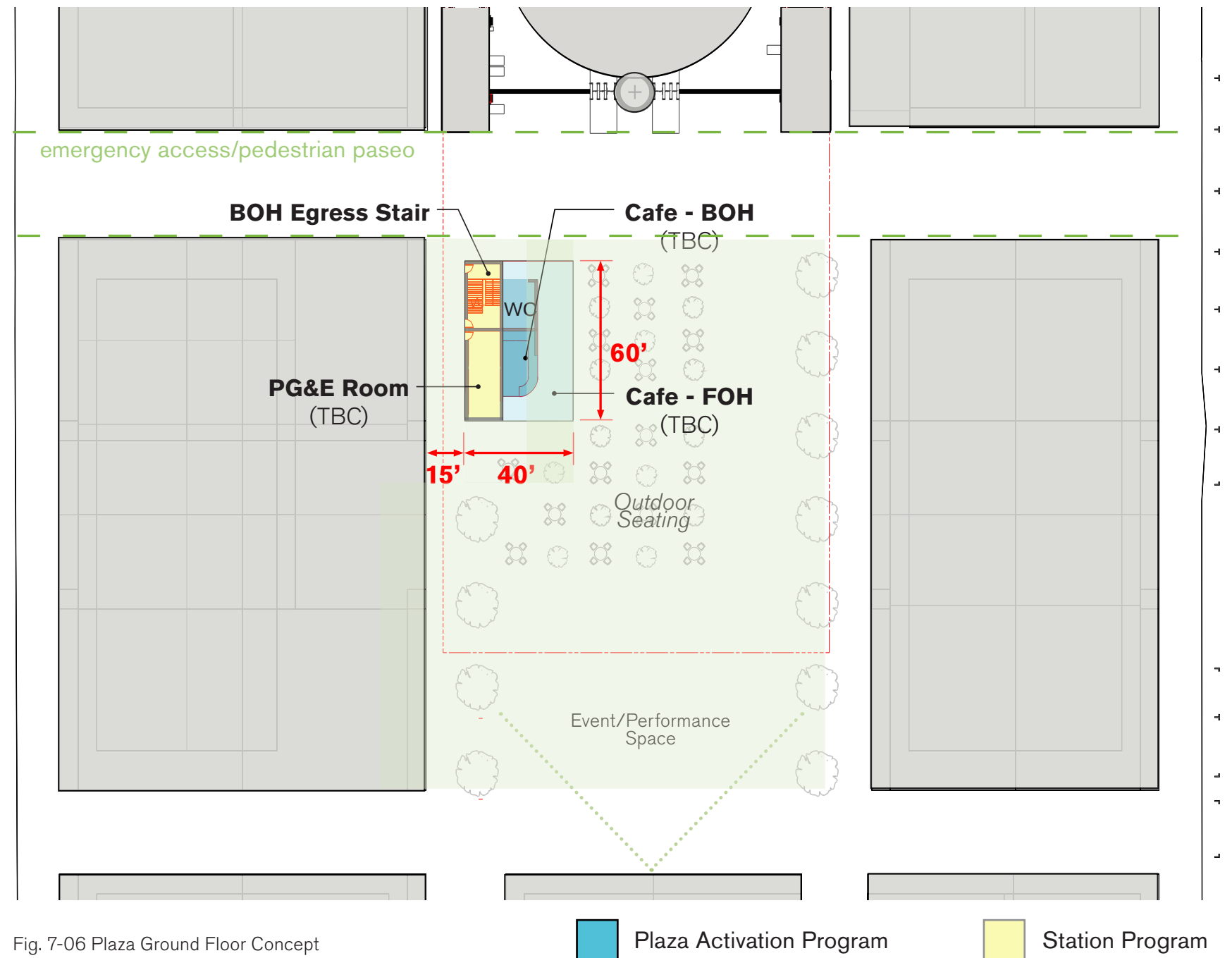


Fig. 7-06 Plaza Ground Floor Concept



Fig. 7-07 Artist's visualization of the VTA Block plaza

# 7 Integration of Station Design with TOD

## Plaza Pavilion Precedents

There are numerous examples of pavilion structures in squares or plazas that provide activation and programming for the plaza and the people in it, while also housing functional elements like restrooms and/or service risers. Examples include Union Square in New York (Fig 7-08,09,10) and the Quatermile plaza in Edinburgh, Scotland (Fig 7-11,12).



Fig. 7-08 Luna Park Cafe, Union Square, NYC



Fig. 7-09 Luna Park Cafe BOH, Union Square, NYC



Fig. 7-10 Luna Park Cafe BOH, Union Square, NYC

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Fig. 7-11 Quarter Mile Plaza Scotland



Fig. 7-12 Quarter Mile Plaza Scotland

# 7 Integration of Station Design with TOD

## 7.5 Ongoing Coordination

While work to advance development of the VTA Block will soon transition to the next phase with deeper coordination with developers and other development partners, design and engineering for the BART station will continue into late 2022. VTA Block development efforts will be coordinated with VTA BSV Phase II Project design implementation efforts. The design and coordination work that has been done to date is preliminary, and subsequent adjustments will likely be required. VTA will ensure its station construction and TOD teams coordinate their work in order to achieve the best possible outcome for a highly efficient station design and successful TOD.

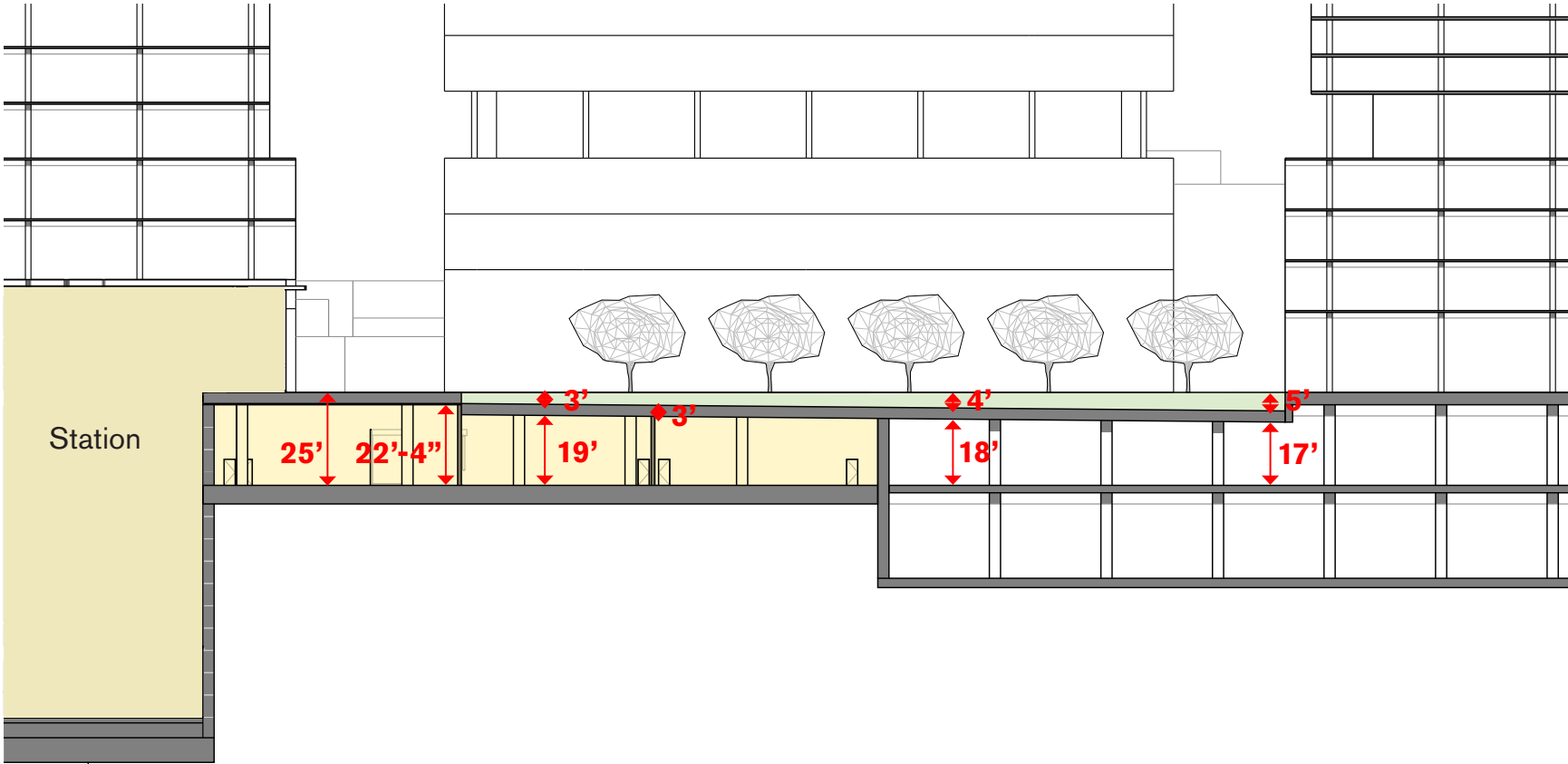


Fig. 7-13 Plaza Section