

Appendix D
Pedestrian Wind Study – Review of EIR Alternatives

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Memorandum

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Date: February 18, 2016 RWDI Reference #: 1402356

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San Francisco Planning Department

CC: Seth Mallen E-Mail: smallen@maximusrepartners.com
Maximus-BP 1979 Mission Street LLC

From: Neetha Vasan – RWDI E-Mail: Neetha.Vasan@rwdi.com
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**RE: Pedestrian Wind Study – Review of EIR Alternatives
1979 Mission Street
San Francisco, CA**

Dear Debra,

Rowan Williams Davies & Irwin Inc. (RWDI) conducted a wind tunnel study for the Proposed Project at 1979 Mission Street. Pedestrian wind comfort and hazard conditions around the Proposed Project were presented in RWDI's Pedestrian Wind Study report dated June 29, 2015 (hereafter referred to as "Wind Study Report").

After the Wind Study Report, design alternatives required by California Environmental Quality Act ("CEQA") that would reduce the shadow impacts of the Proposed Project were provided to RWDI for additional comments on the potential wind conditions, including:

- Alternative A: No Project Alternative;
- Alternative B: Bulk Code-Compliant Alternative;
- Alternative C: Raised Playground Alternative;
- Alternative D: Reduced Shadow Alternative 1 (Reduced Capp Component, Sculpted Northeast Side);
- Alternative E: Reduced Shadow Alternative 2 (Reduced Capp Component, 35-foot Setback); and,
- Alternative F: Reduced Shadow Alternative 3 (Reduced Mission and Capp Components, 70-foot Setback for Capp Component).

This letter summarizes our findings, based on the information received on June 24, November 9, 23 and 26, 2015, and our experience with wind-tunnel testing of the Proposed Project as well as other buildings in the San Francisco area. The following discussion includes a description of the alternative designs, describes anticipated wind effects of the modified features in the alternative designs in comparison to the Proposed Project, and the resulting differences in wind conditions in comparison to those presented in the Wind Study Report.

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ALTERNATIVE A: NO PROJECT ALTERNATIVE

Description

Under the No Project Alternative, required by CEQA, the site would remain in its existing condition and would not be redeveloped with a mixed use (residential, commercial, and accessory parking uses) development. There will be no changes to the surrounding loading or curb space and the existing surface parking lot with 54 spaces would not be removed and any associated soil contamination would not be remediated. The No Project Alternative is intended to avoid impacts associated with building demolition, site preparation, construction activities, and effects associated with the more intense uses on the site as a consequence of developing the Proposed Project. The two existing one story structures with mezzanine and partial basements, 54 surface parking spaces, and a total of 34,195 gsf of commercial-retail spaces would remain and Walgreens and other tenants would continue operating at the site, if they so choose. Building heights on the site would not increase nor would the benefits of the proposed project be offered to the Mission neighborhood the project site serves.

Wind Impacts

This alternative would not result in any changes to the existing wind conditions that were detailed in our Wind Study Report for the Proposed Project. Therefore, there would be no wind impact as a result of Alternative A.

ALTERNATIVE B: BULK CODE COMPLIANT ALTERNATIVE

Description

To develop Alternative B (Bulk Code-Compliant Alternative), the Proposed Project's design has been revised to comply with the Planning Code Section 270 bulk requirements above 65 feet thereby eliminating the need for any bulk exception for either the Mission Street or the 16th Street components.

- The footprint of the Mission Street residential component above 65 feet would have chamfered corners with a 110 feet x 110 feet footprint. This component above 65 feet would be set back 6 feet from the Mission Street property line, approximately 45 feet from the north property line, 25 feet from the common property line with Northeast 16th Mission BART¹ Plaza. The diagonal dimension of Mission Street residential component is 140 feet.
- The Proposed Project's 16th Street residential component currently complies with the bulk limitations above 75 feet. This alternative design would set back the façade facing the Northeast 16th Mission BART Plaza approximately 40 feet above 65 feet to comply with Planning Code bulk requirements.

¹ BART - Bay Area Rapid Transit

The plaza adjacent to the Proposed Project site is one of two entrances to the 16th Street Mission BART Station.

- The Capp Street Residential component of the Proposed Project is located in a 55-X height and bulk district. There is no bulk limitation for the X-bulk district. At maximum height of 55 feet under the Planning Code, the Capp Street residential component complies with the Planning Code requirements and would not require any design revisions.
- The maximum height of this Bulk Code Compliant alternative would be the same as the Proposed Project for the Mission Street and the 16th Street Components, which would be 105 feet under the Planning Code and 121 feet high to the top of the elevator penthouses.
- The total number of residential units would be the same as the Proposed Project, but the unit size mix would be different due to the additional setbacks above 65 feet. Forty percent of the units would have two or more bedrooms. This Bulk Code Compliant Alternative would also comply with the Mission NCT district zoning.

These features have been illustrated in Figures B-1 and B-2. This alternative would still require deviation from the Planning Code rear yard and unit exposure requirements.

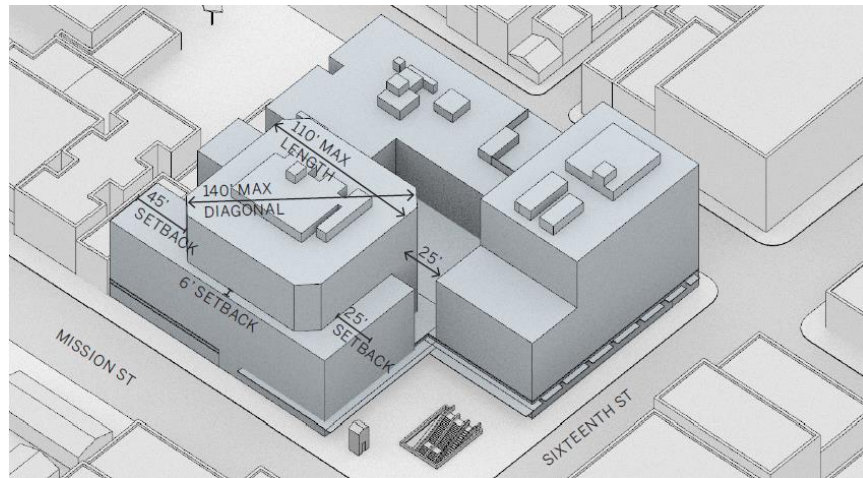


Figure B-1: View from SW – Bulk Code-Compliant Alternative

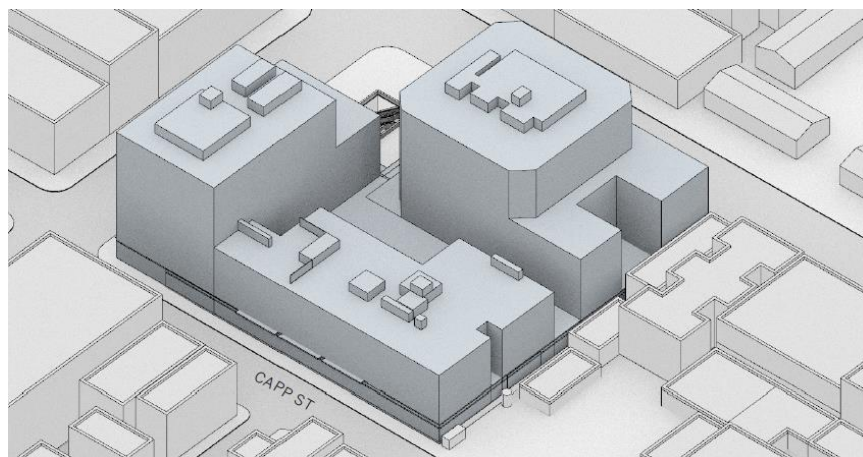


Figure B-2: View from NE – Bulk Code-Compliant Alternative



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Open Space and Landscaping

Under the Bulk Code Compliant Alternative the type and location of open space and landscaped areas would be similar to the Proposed Project. The Bulk Code Compliant Alternative would provide 23,360 square feet of common usable open space (a 7,500 square foot roof deck on the Mission component, a 5,960 square foot roof deck on the 16th Street component, a 7,500 square foot deck on the Capp Street component in addition to the 1,400 square foot inner court and a publicly accessible ground level open space adjacent to the Northeast 16th Mission BART Plaza.

Access and Parking

Pedestrian access to the site under the Bulk Code Compliant Alternative would be identical to the Proposed Project. Parking would be provided in the basement and ground levels with up to 163 parking spaces for use by project residents and retail tenants, including four car share spaces, and 158 Class I secured bicycle parking for residents and 4 Class I secured bicycle parking for retail tenants at the ground level. Ingress and egress to parking would be from Capp Street. Streetscape and pedestrian safety improvements would be similar to the Proposed Project

Wind Impacts

The Bulk Code Compliant Alternative would incorporate substantial changes to the Mission Street building relative to the Proposed Project as shown in Figures B-1 and B-2. In the Bulk Code Compliant Alternative, the chamfered corners and the wide setback from the main façade above 65 feet, facing the 16th Mission Northeast BART Plaza in the Mission Street would be positive design features that could help reduce downwashing of winds. On the other hand, the 65 foot massing and tower would be taller than most of the surrounding buildings to the west and northwest. This massing would therefore intercept prevailing winds approaching from those directions and direct them towards street level. All the corners of the Mission Street residential component of this alternative below 65 feet would be 90 degree corners and are expected to cause these winds to accelerate and flow into the BART Plaza. Overall, the resultant wind conditions are expected to be similar to those reported in the Wind Study Report (i.e., for the Proposed Project).

ALTERNATIVE C: RAISED PLAYGROUND ALTERNATIVE

Description

The building proposed under the Raised Marshall Elementary School Playground Alternative (“Raised Playground Alternative”) would be identical to the Proposed Project in every respect. However, the project sponsor would construct a new 15 feet high structure on the existing playground (Figure C-1). This new structure would provide additional needed space for the existing school, such as a permanent library, multi-purpose space, storage and space for other programs to be determined by the Board of the San Francisco Unified School District. The roof of the new structure would be the new playground.



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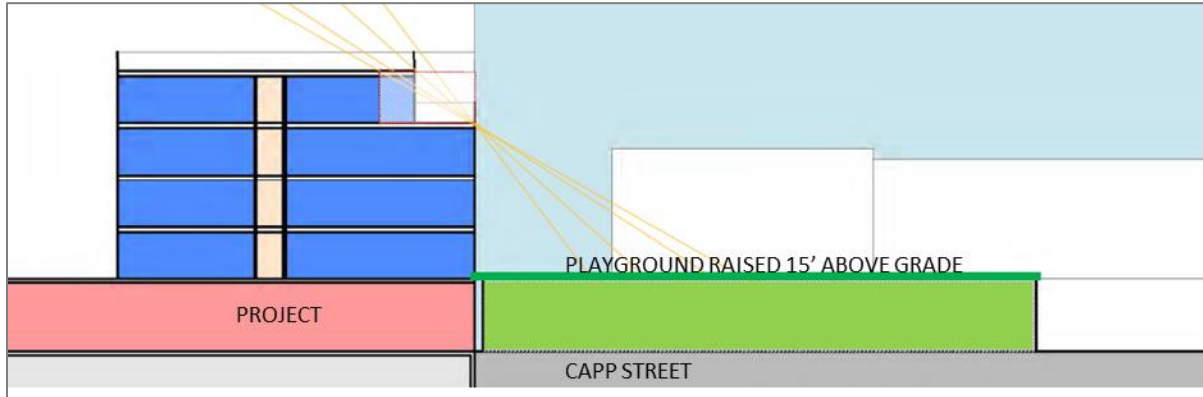


Figure C-1: Sketch of the Raised Playground – View from Capp Street

Open Space and Landscaping

Under the Raised Playground Alternative, the type and location of open space and landscaped areas would be identical to the Proposed Project. Similar to the Proposed Project, Approximately 28,741 square feet of common and 10,424 square feet of private usable open space would be provided to the residents under this alternative. Open space would also include a publicly accessible ground level open space adjacent to the 16th Mission Northeast BART Plaza. An inner court and roof decks provide common usable open space for the residents.

Access and Parking

Pedestrian and vehicular access to the site under the Raised Playground Alternative would be identical to the Proposed Project, and the number of off-street parking spaces and secured Class I bicycle parking spaces would be the same. The new, raised playground would be reached by an outdoor stair from the current at-grade gated entry courtyard adjacent to the school entrances, as well as from the elevator-served second floor of the existing school building. Streetscape and pedestrian safety improvements under this Alternative would be identical similar to the Proposed Project.

Wind Impacts

This alternative would not alter the Proposed Project, but would involve demolition of the existing playground and the one story portion of the Marshall School building located at the northwest corner of the playground, removal of temporary building located at the south end of the existing playground and the construction of a new 15-foot-tall structure with a new playground on the roof to the north of the Project site on Capp Street (see Figure C-1). The existing playground, at grade level would be sheltered by the project from the predominant winds approaching from the western half of the compass. The raised playground, which would be 15 feet above current grade, would continue to be lower in height than the Proposed Project. Therefore, the project would continue to shelter the playground from predominant winds. In a similar manner, the elevated playground structure would also afford protection to the adjacent



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sidewalk on west side of Capp Street. Due to all these reasons, we predict that the wind speeds on the elevated playground and sidewalks on Capp Street would not result in hazardous winds. While there would be a slight reduction in wind speeds on the Capp Street sidewalk, wind speeds at all other locations around the project would be similar to those presented in the Wind Study Report for the Proposed Project.

ALTERNATIVE D: REDUCED SHADOW ALTERNATIVE 1 (REDUCED CAPP COMPONENT, SCULPTED NORTHEAST SIDE)

Description

The building proposed under Alternative D (Reduced Shadow Alternative 1), all existing on-site improvements would be demolished and the site would be redeveloped with a mix of residential and retail uses in one-building with three residential components (Capp Street, 16th Street and Mission Street) above one-story ground floor retail. A total of 327 residential units containing approximately 287,300 gsf of residential, 34,198 square feet of retail uses, and 63,687 gsf of parking, loading, and building services would be developed for a total building area of approximately 385,185 gsf.

Similar to the Proposed Project, a basement parking garage would provide approximately 163 off-street parking spaces, including four car share spaces. The maximum height of the Mission Street and 16th Street residential components of this alternative would remain at a maximum of 105 feet as permitted under the Planning Code and would be 121 feet in height to the top of the elevator penthouse. However, the northeast corner of the Capp Street residential component would be sculpted to step up from 35 feet to 55 feet (three stories to five stories) towards the south and the west as shown on Figure D.1. This alternative would also comply with the Mission NCT district zoning. It would require similar deviations from the Planning Code as the Proposed Project for bulk.

Building Characteristics

Under this alternative, the Mission Street and the 16th Street residential components would consist of nine levels of residential use above the podium level and would be similar to the configuration of the Proposed Project (see Figures D-1 and D-2).. Above the seventh floor, the Mission Street component would be set back six feet from the Mission Street property line, and 17 feet-6 inches and 30 feet from the north property line. The 16th Street component would be set back approximately 40 feet above the seventh floor from the 16th Mission Northeast BART Plaza. The Mission and 16th Street residential components would be a maximum of 105 feet under the Planning Code and 121 feet to the top of the elevator penthouses. The 16th Street residential component and basement level through the third floor of the Capp Street component would remain identical to the Proposed Project.

The height of the Capp Street residential component would vary from 35 feet to 55 feet. The height reduction would be accomplished by setting the fourth floor back 24 feet from the north property line and 34 feet from Capp Street at the northeast corner as the building steps down to a three story volume. The fifth floor would be set back between 24 feet and 48 feet from the north property line and 34 feet from Capp Street at the northeast corner. Alternative D would have four units fewer than the Proposed Project.



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The Capp Street component with five levels of mixed use development would be 35 feet to 55 feet high with a maximum of 71 feet to the top of the elevator penthouse. The ground floor would include three at-grade residential units, residential lobbies, three freight loading spaces, one handicap van parking space, Access to the parking level and building services .are accessed from Capp Street. The second through fifth floors are residential only. This alternative would have 4 fewer units (two studios and two 2 bedroom units) than the Proposed Project.

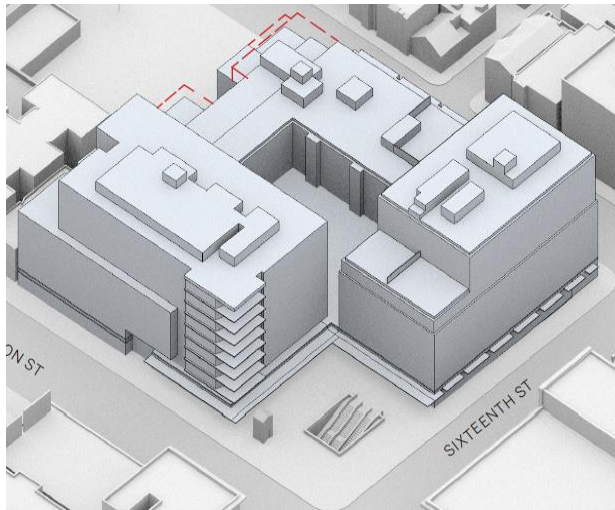


Figure D-1: View From SW- Reduced Shadow Alternative 1

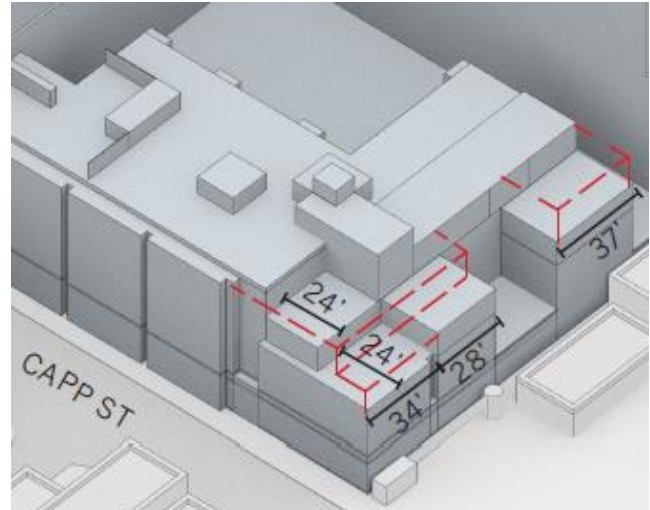


Figure D-2: Detail at NE Corner - Reduced Shadow Alternative 1

Open Space and Landscaping

Under Alternative D, the type and location of open space and landscaped areas would be similar to the Proposed Project, except that five of the units on the north end of the Capp Street component would have private usable space ranging from 672 square feet to 888 square feet. Approximately 28,053 square feet of common usable open space and private usable open space for 29 units would be provided to the residents under this alternative project. Open space would include a publicly accessible ground level open space adjacent to the 16th Mission Northeast BART Plaza.

Access and Parking

Pedestrian and vehicular access to the site under Alternative D would be identical to the Proposed Project. Parking would be provided in the basement and ground level, with up to 163 parking spaces for residents and retail tenants including four car share spaces, 162 Class I secure bicycle parking spaces, and freight loading. Ingress and egress to the parking level would be from Capp Street. The four Class I secure bicycle parking spaces for the retail tenants would be located at the ground level.

Streetscape and pedestrian safety improvements under Alternative D would be similar to the Proposed Project.



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Wind Impacts

The northeast corner of Alternative D proposed building would step up from 35 feet to 55 feet toward the south and the west (see details in Figure D-2). Except for sculpting the massing of the northeast corner of the Capp Street residential component, the massing of Alternative D would be similar to the Proposed Project. The scale of the massing reduction is not considered substantial in terms of wind impact. The 55 feet Capp Street building would be surrounded by other buildings of similar height, particularly to the west-southwest through northwest directions which is where the prevailing winds approach. The taller massing of the Mission Street and 16th Street buildings would sufficiently shield the Capp Street sidewalk and residential component from the prevailing winds. At such a protected location, it is expected that the wind impact of the design modification to the Capp Street residential component in Alternative D would not be substantially different when compared to the that of the Proposed Project as predicted in the Wind Study Report.

ALTERNATIVE E: REDUCED SHADOW ALTERNATIVE 2 (REDUCED CAPP COMPONENT, 35 FOOT SETBACK)

Description

Under the Alternative E, all existing on-site improvements would be demolished and the site would be redeveloped with a mix of residential and retail uses in one building with three residential components (Capp Street, 16th Street and Mission Street) above one-story ground floor retail. The building will contain 310 residential units, retail uses, parking, loading, and building services.

Similar to the Proposed Project a basement parking garage would provide approximately 163 off-street parking spaces, through a combination of stackers, tandem parking and independently accessible spaces, of which four will be designated car share spaces. The maximum building heights would not exceed 105 feet and 121 feet to the top of the elevator penthouse. The northern end of the Capp Street building would be set back 35 feet at the second and third floors with an additional 10 foot setback at the fourth floor and an additional 20 foot setback at the fifth floor. This alternative would comply with the Mission NCT district zoning. Similar to the Proposed Project, it would require similar exceptions from the Planning Code.

Building Characteristics

The configuration of the Mission Street and 16th Street residential components above the podium level would be similar to the configuration of the Proposed Project (see Figures E1 and E2). The height of the Mission Street Component will be the same as the Proposed Project with nine residential levels above ground floor retail and maximum height of 105 feet under the Planning Code and 121 feet to the top of the elevator penthouses. The Mission Street Component will be set back of 17.5 feet to 30 feet on the north end of the building above 6th floor along Mission Street. The 16th Street component would consist of nine residential levels over ground floor retail with a maximum height of 105 feet under the Planning Code and 121 feet to the top of the elevator penthouses. Similar to the proposed project, the 16th Street component would be set back approximately 40 feet above the seventh floor.



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The Capp Street component would be 15 feet to 55 feet high as permitted under the Planning Code and 71 feet to the top of the elevator penthouse with five levels of mixed use development. The ground floor would include three at grade residential units, residential lobbies, 3 freight loading spaces, one ADA accessible van parking space. Access to the parking level and building services are accessed from the Capp Street, which would be identical to the Proposed Project. The second through fifth floors are residential.

This alternative would have a total of 310 units, which is a reduction of 21 units from the Proposed Project. Forty percent of the units will have two or more bedrooms and the remainder will be micro, studio, and one bedroom.

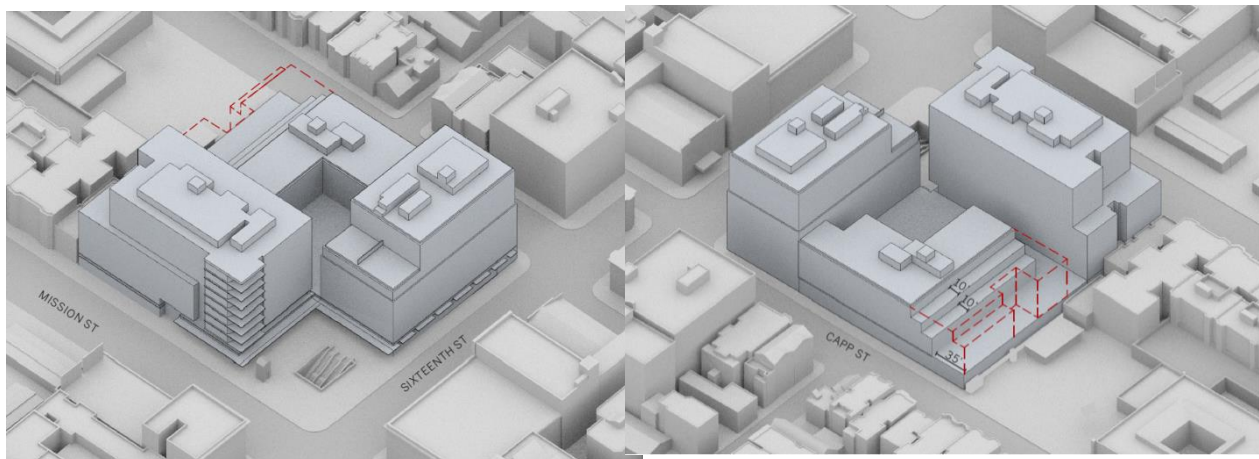


Figure E-1: View From SW- Reduced Shadow Alternative 2

Figure E-2: Detail at NE Corner - Reduced Shadow Alternative 2

Open Space and Landscaping

Under Alternative E, the type and location of open space and landscaped areas would be similar to the Proposed Project, except that the northern 35 feet of the Capp Street component at the second level will become a landscaped common usable open space for the residents thereby increasing the common usable open space. The north facing units on the second, fourth and fifth floors of the Capp Street component would have private usable open space. Both common and private open space would be provided to the residents under this alternative project. Open space would include a publicly accessible ground level open space adjacent to the 16th Mission Northeast BART Plaza.

Access and Parking

Pedestrian access to the site under Alternative E would be identical to the Proposed Project. Parking would be provided in the basement level with up to 162 parking spaces for residents and retail tenants, including four car share spaces, and 158 Class 1 secure bicycle parking spaces. The ground floor will include four Class 1 secure bicycle parking spaces for the retail tenants, the ramp to the parking level, the loading dock with three freight loading spaces, trash/recycle/compost compactors and one ADA



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accessible van space. Ingress and egress to the loading area and parking levels would be from Capp Street.

Streetscape and pedestrian safety improvements under the Reduced Shadow Alternative 2 would be similar to the Proposed Project.

Wind Impacts

Alternative E would be similar to Alternative D discussed previously. It would remove a substantial portion of the building massing at the north end of Capp Street. The 35-foot set back at the second level and the additional setbacks of 10 feet and 20 feet on the fourth and fifth levels, respectively, would result in a stepped massing along the entire north facade (see Figures E1 and E2). The massing reduction under this alternative would slightly reduce the potential wind impact on Capp Street, especially at the northeast corner of the proposed development when the prevailing winds are from the west-northwest and northwest directions. Due to the location of the increased set back at the second level and above, and the local wind directionality, wind conditions on Mission Street and 16th Street would not be negatively affected by the proposed design change. It is expected that the modification represented in this alternative would have no substantial effects on the wind conditions when compared to the Proposed Project as predicted in the Wind Study Report.

ALTERNATIVE F: REDUCED SHADOW ALTERNATIVE 3 (REDUCED MISSION AND CAPP COMPONENTS, 70-FOOT SETBACK FOR CAPP COMPONENT)

Description

Under Alternative F all existing on site improvements would be demolished and the site would be redeveloped with a mix of residential and retail uses in one building with three residential components (Capp Street, 16th Street and Mission Street) above ground floor retail. This alternative would construct a building with 243 residential units, ground floor retail uses, parking, loading, and building services.

Similar to the Proposed Project a basement parking garage would provide approximately 163 off-street parking spaces, including four car share spaces; the northern end of the Capp Street building would be set back 70 feet above the second floor and the 16th Street residential component would not exceed 105 feet as permitted under the Planning Code and would be 121 feet to the top of the elevator penthouse. The height of the Mission Street component would be reduced by 40 feet from 105 to 65 feet (See Figures E-1 and E2.) This alternative would comply with the Mission NCT district zoning. Similar to the Proposed Project, it would require deviations from the Planning Code.

Building Characteristics

The height of the Mission Street residential component would be reduced to 65 feet plus a 16-foot-tall elevator penthouse with five levels of residential use over ground floor retail. Similar to the Proposed Project, the 16th Street nine level residential component would be set back approximately 40 feet above the seventh floor with a maximum height of 105 feet as permitted under the Planning Code and would be



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121 feet in height to the top of the elevator penthouses (see Figure F-1). The north end of the Capp Street residential component would be set back 70 feet from the northern property line at the second floor (podium level) and would be a maximum of 55 feet in height as permitted under the Planning Code and would be 71 feet to the top of the elevator penthouses with four levels of residential use above the ground floor. The ground and basement levels, which would be identical to the Proposed Project, would include three at grade residential units, residential lobbies, 3 freight loading spaces, 163 off-street parking space including one ADA accessible van parking space, 162 Class I secured bicycle parking spaces. Access to the parking levels and building services would be from Capp Street. The second through fifth floors of the Capp Street residential component would be residential use only.

This alternative would have a total of 243 units, a reduction of 88 units from the Proposed Project, of which forty percent will be two-bedroom units and the remaining will be micro, studio and one bedroom.

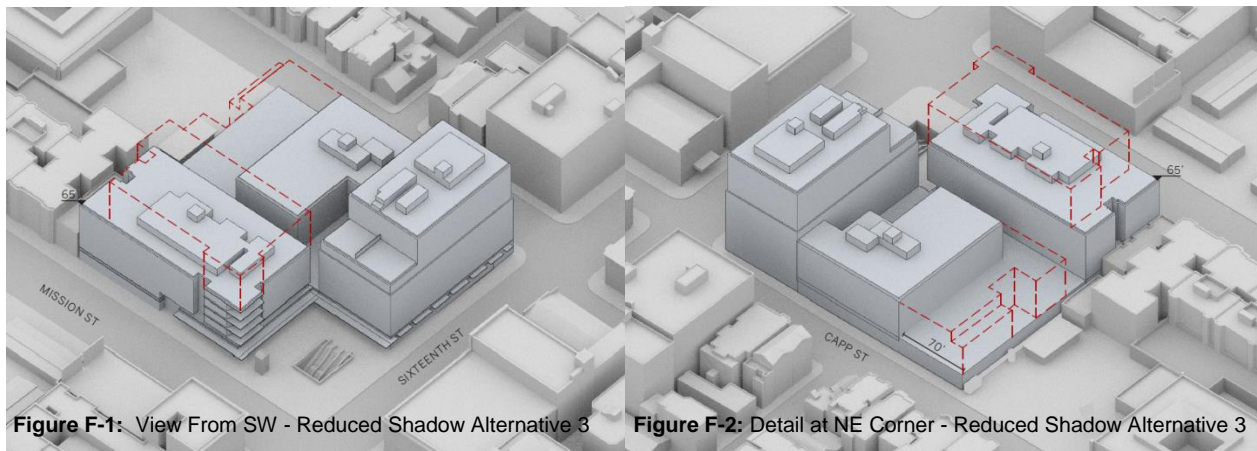


Figure F-1: View From SW - Reduced Shadow Alternative 3

Figure F-2: Detail at NE Corner - Reduced Shadow Alternative 3

Open Space and Landscaping

Under Alternative F, the type and locations of open space and landscaped areas would be similar to the Proposed Project. The building proposed under this alternative would provide 31,508 square feet of common open space at the second level, which is an increase of 2,767 square feet. Eleven units would have private usable open space. Open space would also include publicly accessible ground level open space adjacent to the 16th Mission Northeast BART Plaza.

Access and Parking

Access to the site under Alternative F would be identical to the Proposed Project. Parking would be provided in one basement level with up to 162 parking spaces for residents and retail tenants, including four car share spaces, and 158 Class I secure bicycle parking spaces. The ground floor will include four Class I secure bicycle parking spaces for the retail tenants, access to the parking level, and the loading dock with three freight loading spaces, trash/recycle/compost compactors and one ADA van space. Ingress and egress to the loading area and parking level would be from Capp Street.

Streetscape and pedestrian safety improvements under Alternative F would be similar to the Proposed Project.



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Wind Impacts

Alternative F would include more massing reductions than others discussed in this memorandum. In addition to the removal 70-foot length at the north end of the Capp Street residential component above the ground floor (Figures F-1 and F-2), the height of the Mission Street residential component would also be reduced by 40 feet to 65 feet. This proposed massing reduction would make the building along Mission Street similar in height to the existing surroundings in all wind directions resulting in a substantially reduced wind exposure. Consequently, the wind speeds of this Alternative along Mission and 16th Streets as well as in the 16th Mission Northeast BART Plaza would be lower than those predicted in the Wind Study Report of the Proposed Project.. No hazardous winds would be expected on and around the project site.

We trust that this memorandum adequately describes the expected impacts on wind conditions with each of the five design alternatives being considered for the project EIR. Please do not hesitate to contact us with any questions or concerns.

Kind regards,

ROWAN WILLIAMS DAVIES & IRWIN, INC.

A handwritten signature in blue ink, appearing to read 'Neetha Vasan', with a horizontal line underneath.

Neetha Vasan, M.A.Sc., LEED AP
Technical Coordinator

A handwritten signature in black ink, appearing to read 'Hanqing Wu', with a horizontal line underneath.

Hanqing Wu, Ph.D., P.Eng.
Technical Director / Principal

A handwritten signature in black ink, appearing to read 'Frank Kriksic', with a horizontal line underneath.

Frank Kriksic, B.E.S., C.E.T., LEED AP C.DIR.
Principal / Project Manager