

3.7 SHADOWS on OPEN SPACE

This section of the Draft EIS describes existing shadow conditions on public open spaces and shoreline street ends in the site vicinity, as well as key on-campus open spaces and evaluates the potential shading impacts that could occur to these spaces as a result of the implementation of the **Draft MIMP** or EIS Alternatives.

Policy Context

The Seattle Municipal Code (SMC) contains specific provisions that describe the scope of the SEPA analysis shadows on open spaces. Relevant policies from SMC 25.05.675 are provided below:

Q. Shadows on Open Spaces Policies

2. *It is the City's policy to minimize or prevent light blockage and the creation of shadows on open spaces most used by the public.*
 - a. *Areas outside of downtown to be protected are as follows:*
 - 1) *Publicly owned parks;*
 - 2) *Public schoolyards;*
 - 3) *Private schools which allow public use of schoolyards during non-school hours; and*
 - 4) *Publicly owned street ends in shoreline areas.*
 - d. *When the decisionmaker finds that a proposed project would substantially block sunlight from open spaces listed in subsections 25.05.675.Q.2.a and 25.05.675.Q.2.b above at a time when the public most frequently uses that space, the decisionmaker may condition or deny the project to mitigate the adverse impacts of sunlight blockage, whether or not the project meets the criteria of the overview policy set forth in Section 25.05.665.*
 - e. *Mitigating measures may include, but are not limited to:*
 - 1) *Limiting the height of the development;*
 - 2) *Limiting the bulk of the development;*
 - 3) *Redesigning the profile of the development;*
 - 4) *Limiting or rearranging walls, fences, or plant material;*
 - 5) *Limiting or rearranging accessory structures, i.e., towers, railing, or antennae; and*
 - 6) *Relocating the project on the site.*

3.7-1 Existing Conditions

Existing Campus

Existing buildings, as well as mature vegetation, on the Seattle Pacific University campus are the primary sources of shadows. Buildings generally range from one to six stories in height, with the tallest buildings being Ashton Dorm (56 ft. tall) in the southwest campus, Royal Brougham Pavilion (52 ft. tall) in the north campus, and Demaray Hall (49 ft. tall) in central campus. The majority of the buildings on campus range from one to four-stories in height. Mature trees, as noted in **Section 3.2** of this Draft EIS, are located throughout the campus and also contribute to shading.

Open Spaces on the SPU Campus

The largest existing open space on the SPU campus is Tiffany Loop. Located in the center of campus, Tiffany Loop contains mature trees and lawn and is primarily used for passive recreation and gathering. Martin Square is another key open space on the campus that consists of a brick-lined square framed by three buildings including Gwinn Commons, Ames Library and Weter Memorial Hall. Stairs lead down to a circular gathering space in the center of the square. Refer to **Figure 3.7-1** for the locations of these two key SPU campus open space areas¹.

Existing Campus Vicinity

Open Spaces in Site Vicinity

Protected open spaces located in proximity to the SPU campus include West Ewing Mini Park and the 6th Avenue W Street End. West Ewing Mini Park is a 0.3-acre park located on the Fremont Cut that contains lawn and an upper concrete overlook with lights and benches for passive recreation and views of the water. The 6th Avenue W Street End terminates at the Fremont Cut; this street end has been selected by the City for improvement for public use.² Refer to **Figure 3.7-1** for the locations of these public open spaces relative to the existing and proposed MIO campus boundaries.

3.7-2 Impacts of the Proposed Action and Alternatives

Draft MIMP (Proposed Action)

Planned and potential future development and associated landscaping on the SPU Campus and in the MIO expansion areas would generate shadows over adjacent portions of the campus and surrounding streets. In general, the time of greatest shading would occur during periods when the sun is at a low-angle, including mid- to late afternoon in the winter and late afternoon to early evening in the summer.

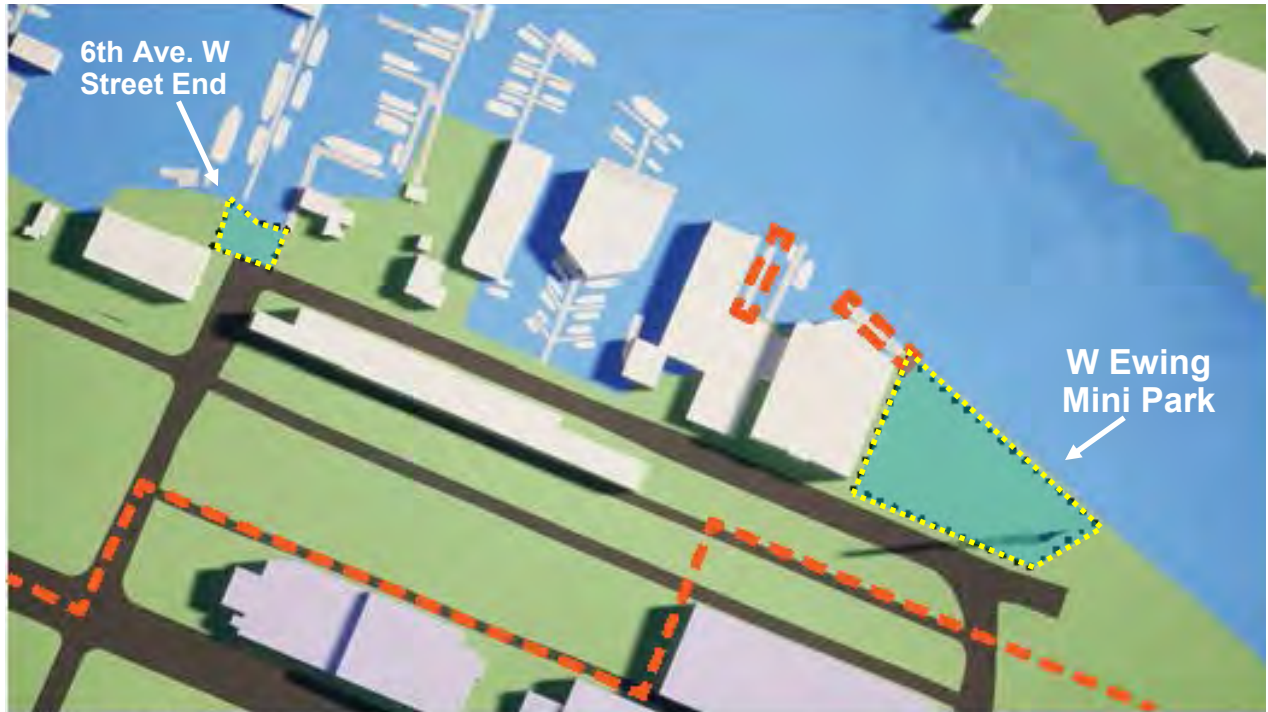
Factors that influence the extent of shading include: weather (e.g., cloud cover); building height, width and facade orientation; and the proximity of other intervening structures, topographic variations and significant landscaping. Generally, greater building heights extend the length of the shadow cast, and increased mass (or cross-sectional width) widens the shadow cast by a building. Shadows from tall buildings extend farther from a building, but their effects on more distant locations are of shorter duration, because the sun's motion translates into faster movement of the shadow over the ground. Buildings with greater mass create wider shadows and an increased amount of shaded area within the immediate area (e.g., adjacent streets, public spaces, etc.), but the reach of the shadow would be limited by the building's height.

¹ SPU maintains an open campus and public use of on-campus open spaces is allowed for passive, unscheduled recreation uses. Use of on-campus open spaces for scheduled events or more formal purposes is not allowed without the express permission of the University.

² City of Seattle Fact Sheet. Shoreline Street Ends. March 2016.
https://www.seattle.gov/Documents/Departments/SDOT/PublicSpaceManagement/Factsheet_Stends_English.pdf

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Off-Campus Open Space Locations



On-Campus Open Space Locations



Source: Perkins + Will, 2021

Figure 3.7-1
Off- and On-Campus Open Space Locations

This section of the Draft EIS contains shadow diagrams that depict shading under existing conditions and from the *Draft MIMP* and *No Action Alternative (Alternative 1)* for vernal equinox (approx. March 21st), summer solstice (approx. June 21st), autumnal equinox (approx. Sept. 21st), and winter solstice (approx. December 21st). The figures and accompanying text below describe possible shadow impacts to protected off-campus open spaces (West Ewing Mini Park and the 6th Avenue W Street End), that could result from full-buildout of planned and potential development associated with the *Draft MIMP*, with consideration of shading that already occurs from existing buildings that would remain, as well as existing trees.

The following analysis summarizes shadow impacts for three times of the day on each of the key days of the solar year. These key days of the solar year and times of the day depict worst-case impacts. Shadow-related impacts, however, can also occur at other times of the day throughout the year. Because of the earth's rotation, the duration of shadow-related impacts varies for a stationary observer³ based on season and depending upon the width of the shadow. The shadow graphics that are included have been adjusted to compensate for topography and, in the case of vernal equinox, summer solstice, and autumnal equinox, daylight savings time.⁴

Vernal (Spring) Equinox

Sunrise on vernal equinox (approx. March 21st) occurs at about 6:11 AM and sunset at 6:21 PM.

The extent of possible shading from the proposed full-buildout of the *Draft MIMP* development must also be considered within the context of climatic data for the month (e.g., on average the number of clear, partly cloudy and cloudy days). Data⁵ indicate that on average March has 4 clear days, 8 partly cloudy days and 19 cloudy days.⁶

As indicated in **Figures 3.7-2** and **Figure 3.7-3**, for the Vernal Equinox, potential impacts depicting shadows from new development under the *Draft MIMP*, together with shadows from other nearby existing buildings that would remain and shadows from existing trees that could remain, were evaluated at 8 AM, 12 PM and 5 PM. Pacific Daylight Savings Time is in-effect on this day. The existing conditions and *No Action Alternative* shadows are also provided for comparison purposes.

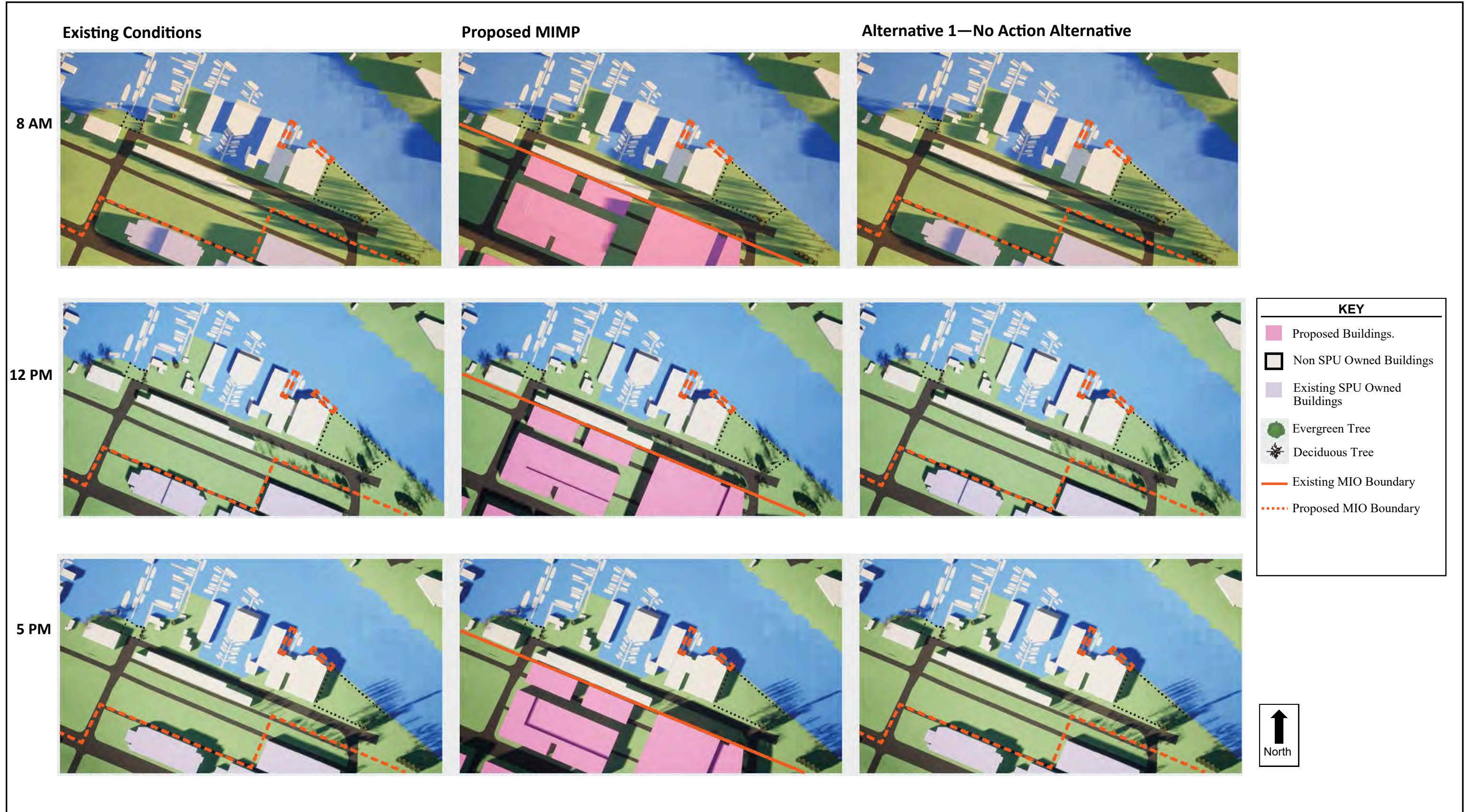
³ The rate of change of the sun's angle relative to the earth varies widely by season – from about 5 degrees horizontally and 2 degrees vertically every 15 minutes in June to 3 degrees horizontally and 1 degree vertically every 15 minutes in December.

⁴ Pacific Daylight Savings Time (PDST) applies to shadow impacts associated with spring equinox, summer solstice and autumnal equinox.

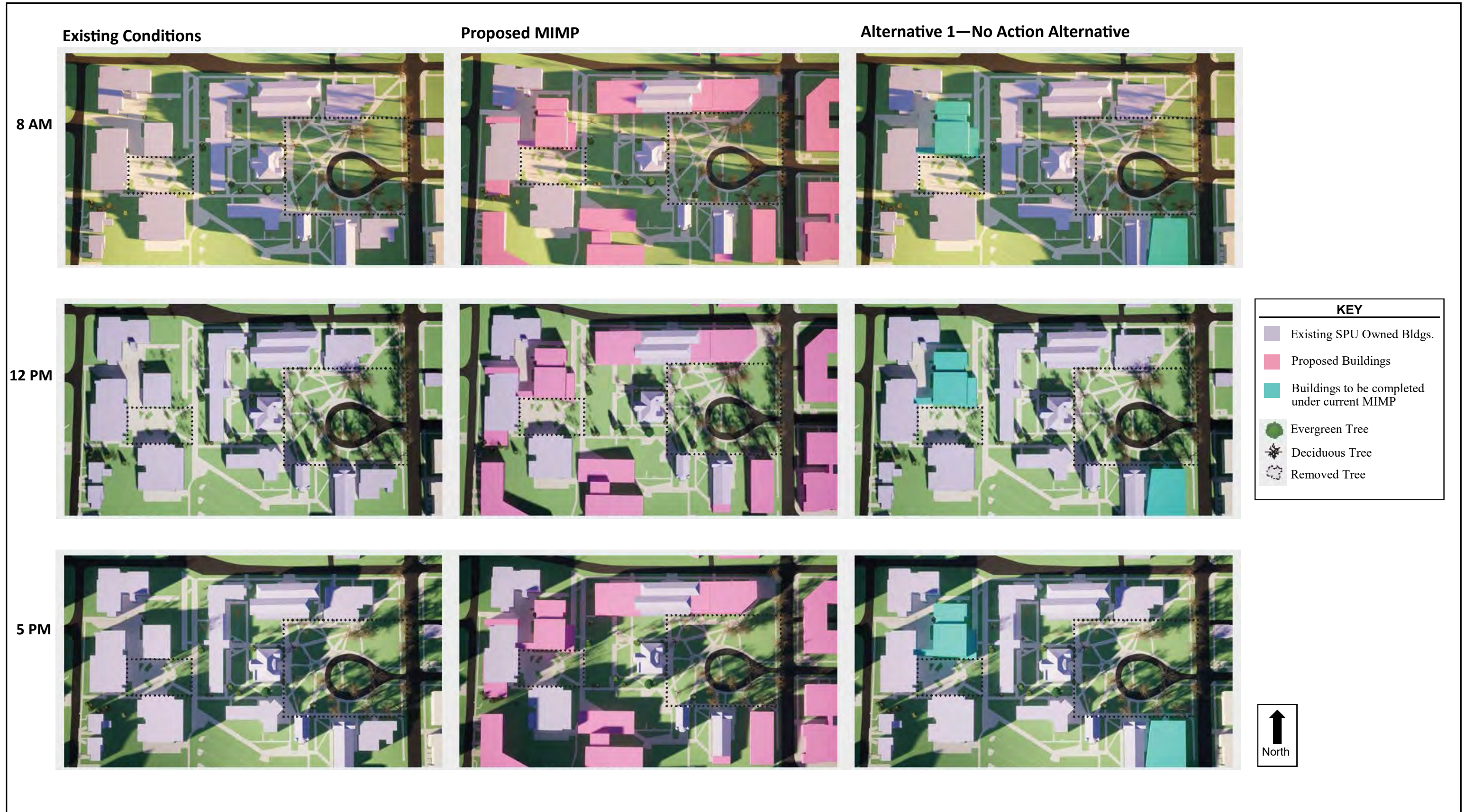
⁵ NOAA, 2005.

⁶ NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

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Off-Campus Open Spaces (see Figure 3.7-2)

Under the *Draft MIMP*, the campus boundary would be extended to the north in the vicinity of the 6th Avenue W Street End, and new campus buildings would be in closer proximity to the street end as compared to under existing conditions.

- At **8 AM**, shadows from the *Draft MIMP* development would extend in a westerly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.
- At **12 PM**, shadows from the *Draft MIMP* development would extend in a northerly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.
- At **5 PM** shadows from the *Draft MIMP* development would extend in a northeasterly direction and would not affect West Ewing Mni Park or the 6th Avenue W Street End.

On-Campus Open Spaces (see Figure 3.7-3)

- At **8 AM**, shadows from development associated with the *Draft MIMP* would extend in a westerly direction and would not affect Martin Square; in fact, somewhat less shading to the east portion of the Square would occur due to the demolition of buildings located to the east of this open space area that would occur with implementation of the *Draft MIMP* (Watson Hall and Marsten Hall). Some new shading could affect the northeast portion of Tiffany Loop; approximately 25 percent or less of the open space would be affected. This area contains open lawn and is used for gathering and passive recreation. The new shading would not be considered significant, however, as over half of Tiffany Loop is already shaded under existing conditions.
- At **12 PM**, shadows from development associated with the *Draft MIMP* would extend in a northerly direction and would not affect Martin Square. A small amount of additional shading from development associated with the *Draft MIMP* could occur in the southeast portion of Tiffany Loop. Overall, less than 5 percent of this open space area would be affected by new shading. Tiffany Loop is already partially shaded by existing trees at this time of day, and the new additional shading would not be considered significant given that the majority of Tiffany Loop would remain unaffected.
- At **5 PM** shadows from development associated with the *Draft MIMP* would extend in a northeasterly direction. A small amount of additional shading from development associated with the *Draft MIMP* could occur in the southwest portion of Martin Square (with less than 5 percent of the open space affected). Martin Square is already over 50 percent shaded under existing conditions at this time of day and the new shading would not be considered significant. Somewhat less shading would occur to Tiffany Loop under the *Draft MIMP* as compared to existing conditions (in the southwest corner), due to the demolition of Moyer Hall.

Summer Solstice

Sunrise on summer solstice (approx. June 21st) occurs at about 5:11 AM and sunset at 9:10 PM. Pacific Daylight Savings Time remains in-effect on this day.

Climatic data⁷ for the month of June indicates that on average June has 7 clear days, 8 partly cloudy days and 15 cloudy days.⁸

As indicated by **Figure 3.7-4** and **Figure 3.7-5** for summer solstice, potential impacts depicting shadows from new development under the *Draft MIMP*, together with shadows from other nearby existing buildings that would remain and shadows from existing trees that could remain, were evaluated at 8 AM, 12 PM and 5 PM.

Off-Campus Open Spaces (see Figure 3.7-4)

- At **8 AM**, shadows from development associated with the *Draft MIMP* would extend in a westerly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.
- At **12 PM**, shadows from development associated with the *Draft MIMP* would extend in a northerly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.
- At **5 PM** shadows from development associated with the *Draft MIMP* would extend in an easterly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.

On-Campus Open Spaces (see Figure 3.7-5)

- At **8 AM**, shadows from development associated with the *Draft MIMP* would extend in a westerly direction. Shading to Tiffany Loop and Martin Square would generally remain similar to that which occurs under existing conditions due to the presence of mature trees; no new significant shading impacts would be anticipated under the *Draft MIMP*.
- At **12 PM**, shadows from development associated with the *Draft MIMP* would extend in a northerly direction and would not affect Tiffany Loop or Martin Square.
- At **5 PM** shadows from development associated with the *Draft MIMP* would extend in an easterly direction and would not affect Martin Square or Tiffany Loop.

Autumnal Equinox

Sunrise on autumnal equinox (approx. September 21st) occurs at about 6:13 AM and sunset at 8:11 PM. Pacific Daylight Savings Time remains in-effect on this day.

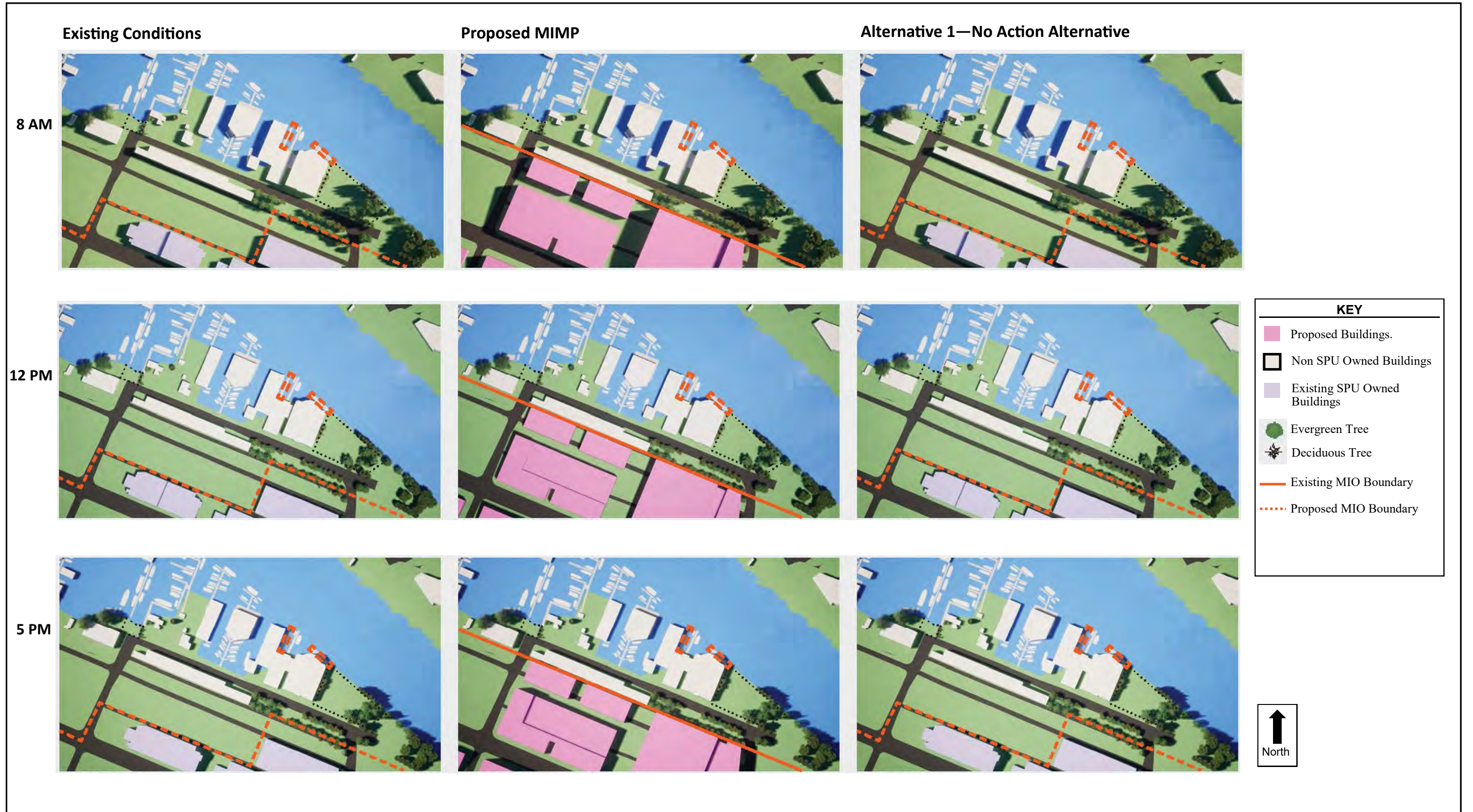
Climatic data⁸ for the month of September indicate that on average September has 3 clear days, 6 partly cloudy days and 22 cloudy days.⁹

As indicated by **Figures 3.7-6** and **3.7-7** for autumnal equinox, potential impacts depicting shadows from new development under the *Draft MIMP*, together with shadows from other nearby

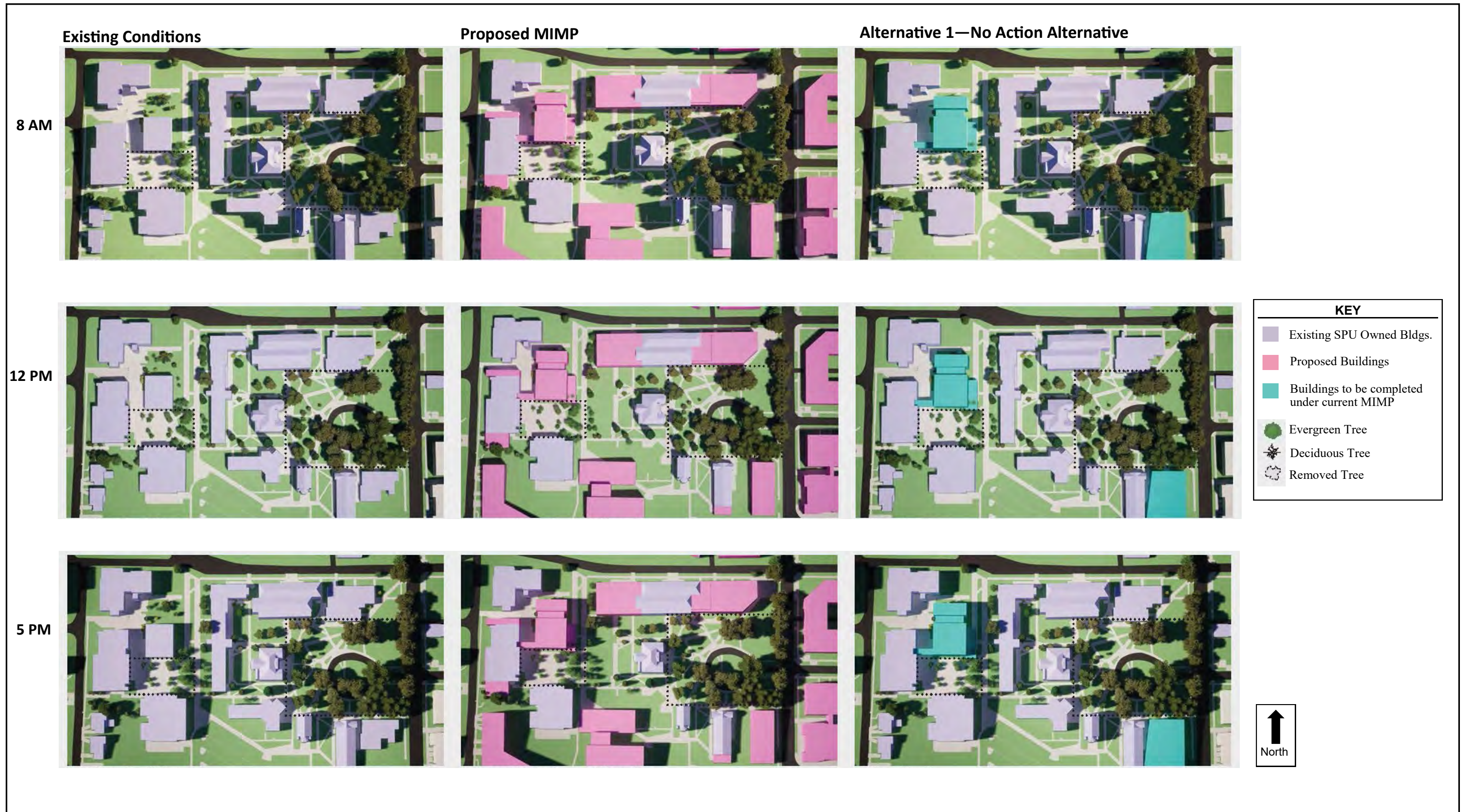
⁷ NOAA, 2005.

⁸ NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

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existing buildings that would remain and shadows from existing trees that could remain, were evaluated at 8 AM, 12 PM and 5 PM.

Off-Campus Open Spaces (see Figure 3.7-6)

- At **8 AM**, shadows from development associated with the ***Draft MIMP*** would extend in a westerly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.
- At **12 PM**, shadows from development associated with the ***Draft MIMP*** would extend in a northerly direction and would not affect West Ewing Mini Park of the 6th Avenue W Street End.
- At **5 PM** shadows from development associated with the ***Draft MIMP*** would extend in a northeasterly direction and would not affect West Ewing Mini Park or the 6th Avenue W Street End.

On-Campus Open Spaces (see Figure 3.7-7)

- At **8 AM**, shadows from development associated with the ***Draft MIMP*** would extend in a westerly direction and would not affect Martin Square or Tiffany Loop.
- At **12 PM**, shadows from development associated with the ***Draft MIMP*** would extend in a northerly direction and would not affect Martin Square. A small amount of additional shading could occur in the southeast corner of Tiffany Loop (less than 5 percent of Tiffany Loop affected). However, existing trees that would remain are already shading this area under existing conditions at this time of day and no new shading impacts would be anticipated to be experienced.
- At **5 PM** shadows from development associated with the ***Draft MIMP*** would extend in an easterly direction. A small amount of additional new shading would occur to Martin Square, which is nearly 100 percent shaded under existing conditions. The additional new shading would not be considered significant. A small amount of additional shading could also occur to the southeast corner of Tiffany Loop (less than 5 percent of Tiffany Loop affected). However, existing trees that would remain are already shading this area under existing conditions, and no new shading impacts would be anticipated to be experienced.

Winter Solstice

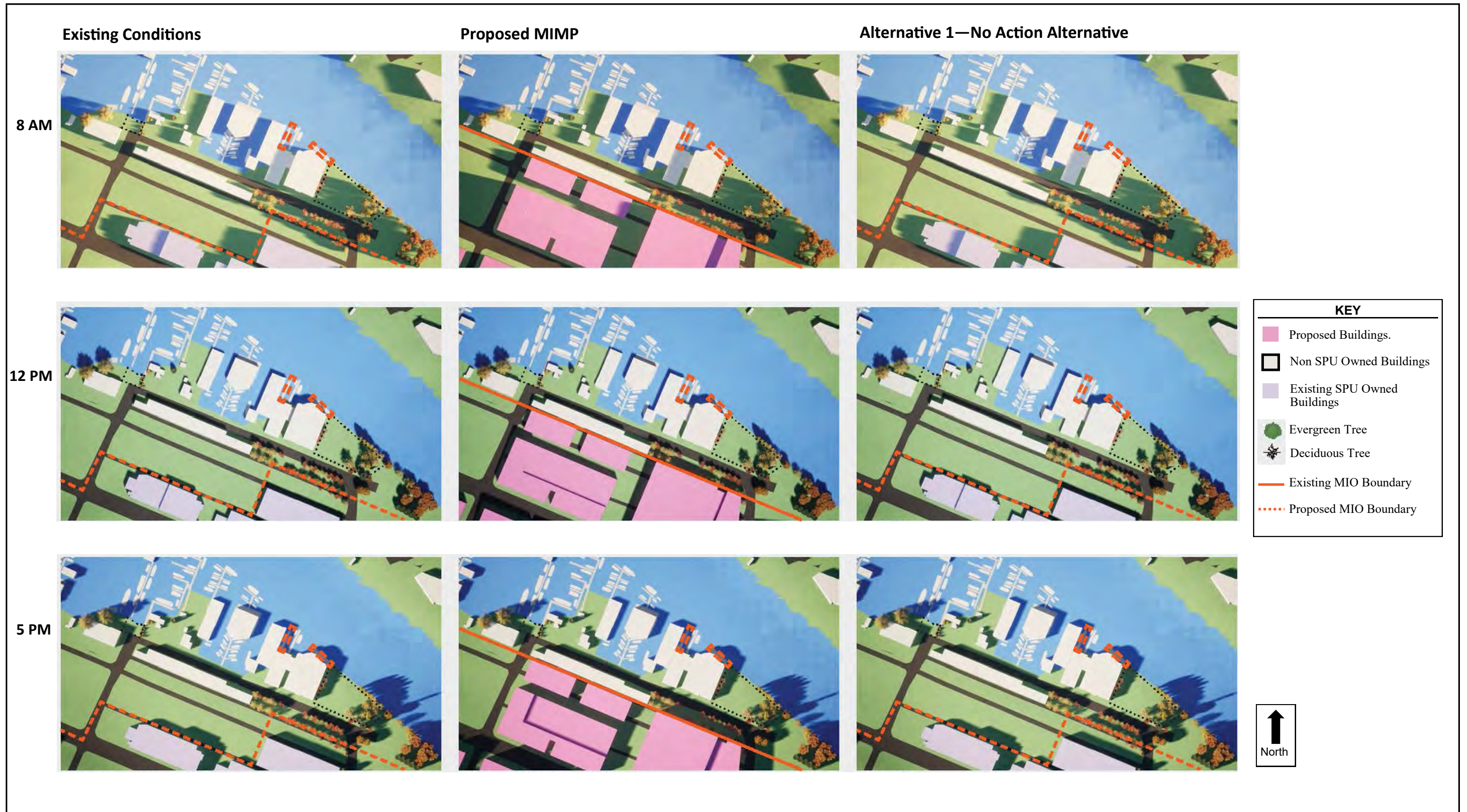
Sunrise on winter solstice (approx. December 21st) occurs at about 7:54 AM and sunset at 4:19 PM.

Climatic data⁹ for the month of December indicate that on average December has 3 clear days, 4 partly cloudy days and 23 cloudy days.¹⁰

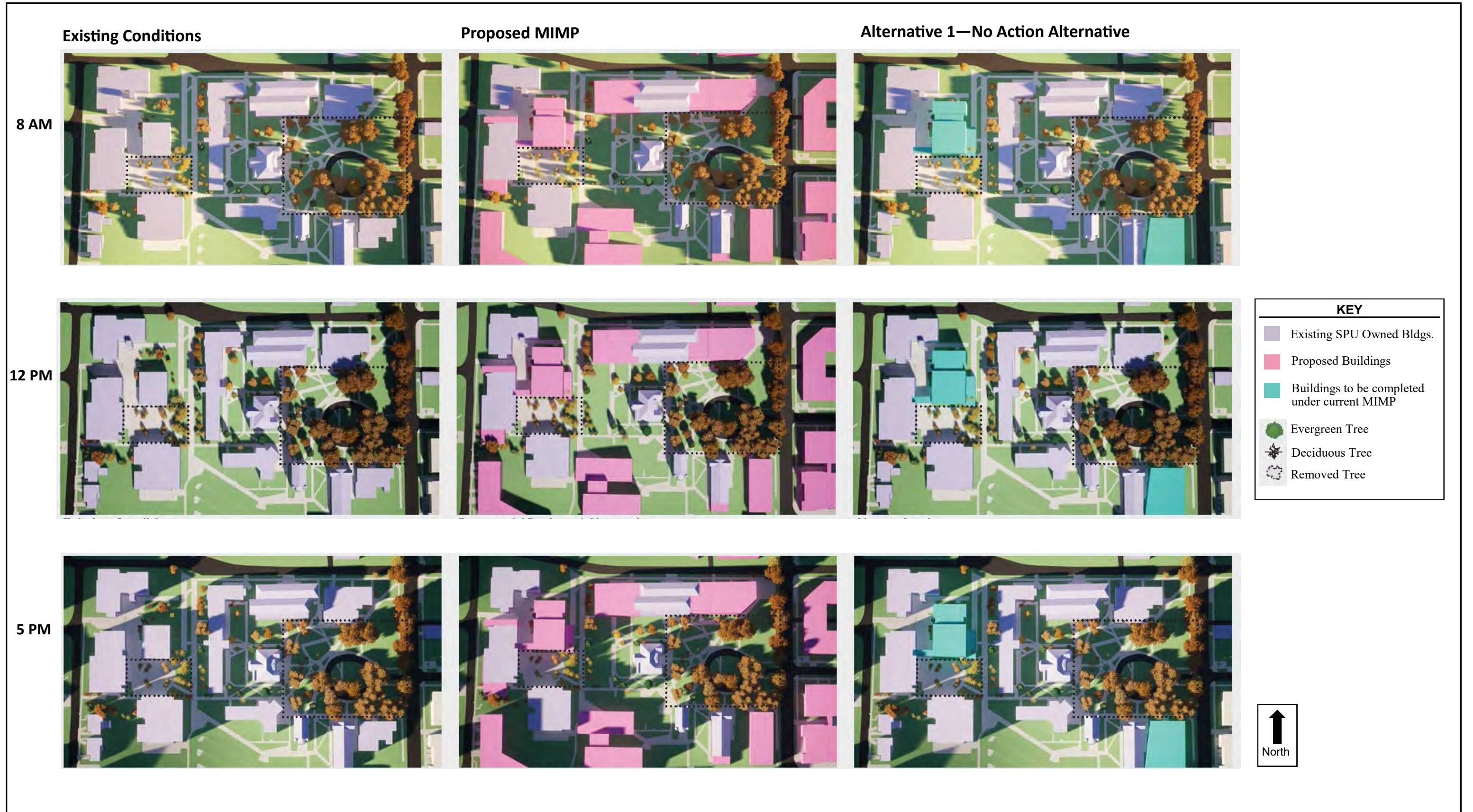
⁹ NOAA, 2005.

¹⁰ NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

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As indicated in **Figures 3.7-8 and 3.7-9**, for winter solstice, potential impacts depicting shadows from new development under the **Draft MIMP**, together with shadows from other nearby existing buildings that would remain and shadows from existing trees that could remain, were evaluated at 9 AM, 12 PM and 4 PM.

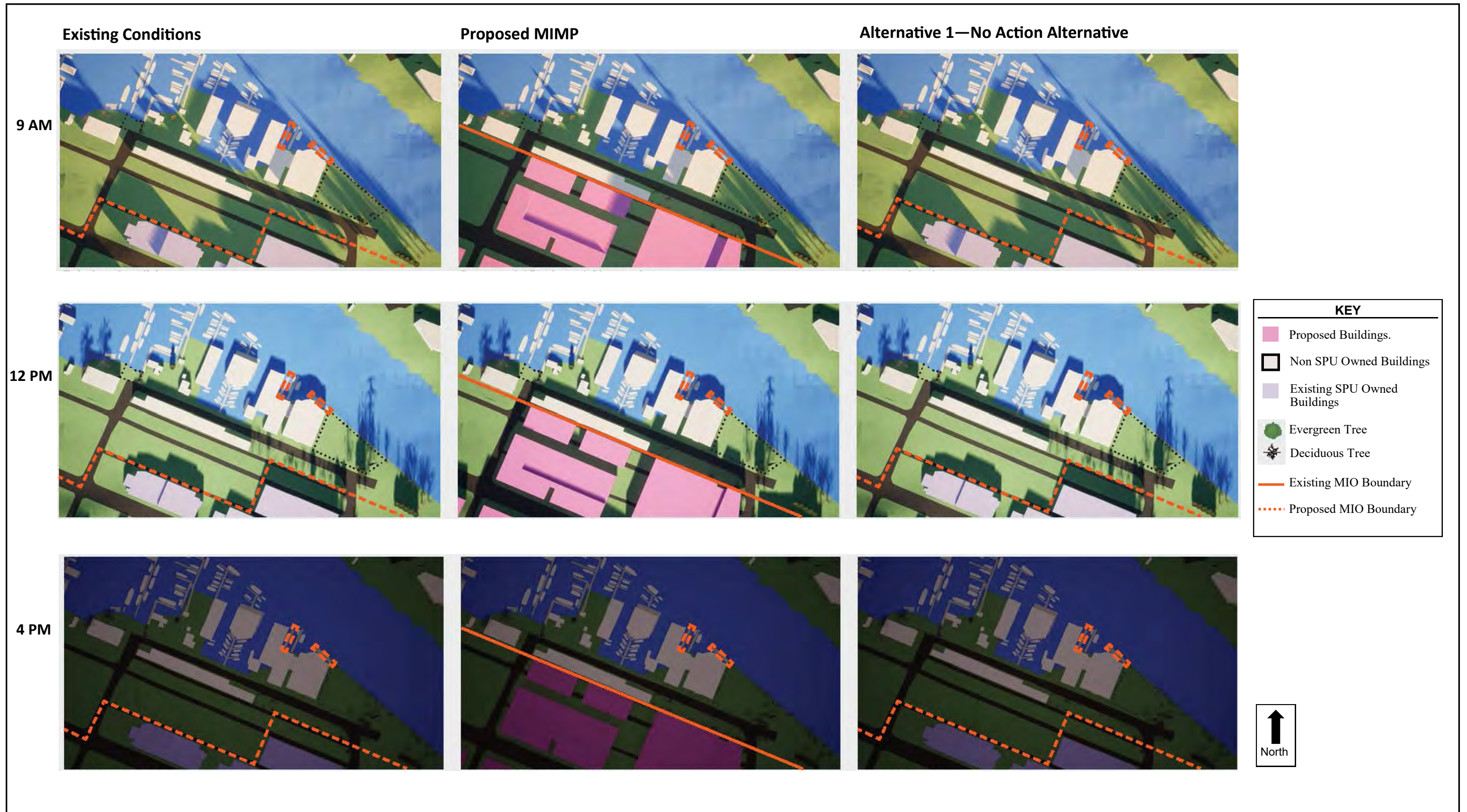
Off-Campus Open Spaces (see Figure 3.7-8)

- At **9 AM**, shadows from development associated with the **Draft MIMP** would extend in a northwesterly direction and could contribute a small amount of new shading to the southwest corner of West Ewing Mini Park. In general, however, the majority of the park is already shaded under existing conditions at this time of day (refer to **Existing Conditions** shadows in **Figure 3.7-8**), largely due to existing trees. Overall, less than 10 percent of shading to the park would be *new* shading caused by development associated with the **Draft MIMP**. The 6th Avenue W Street End is 100 percent shaded at 9 AM under existing conditions; no new shading to the street end would be caused by development associated with the **Draft MIMP**.
- At **12 PM**, shadows from development associated with the **Draft MIMP** would extend in a northerly direction and could contribute a small amount of new shading to the south end of West Ewing Mini Park.
- At **4 PM** shadows from development associated with the **Draft MIMP** would extend in a northeasterly direction. As demonstrated, the area is already largely cast in shadow at this time of day in the winter, and no significant new shading impacts would be anticipated to result from development associated with the **Draft MIMP**.

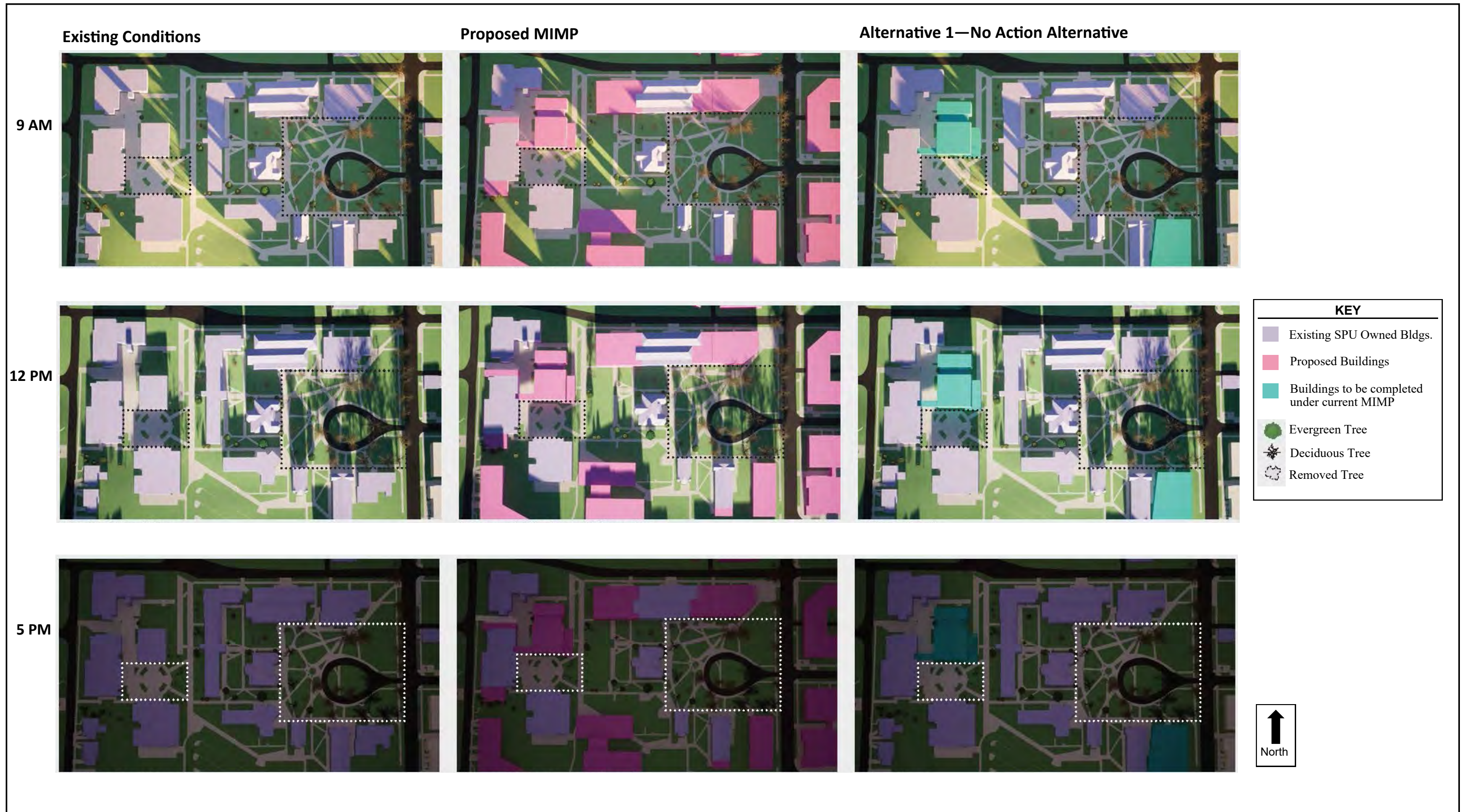
On-Campus Open Spaces (see Figure 3.7-9)

- At **9 AM**, shadows from development associated with the **Draft MIMP** would extend in a northwesterly direction and some additional new shading would occur to Martin Square, which is nearly 50 percent shaded under existing conditions. Overall, less than approximately 25 percent of the shading would be new shading caused by development associated with the **Draft MIMP**. Overall the additional new shading would not be considered significant, given the time of day and year that it is occurring. Tiffany Loop is already nearly 100 percent shaded at this time of day under existing conditions and no new shading impacts to Tiffany Loop would occur.
- At **12 PM**, shadows from development associated with the **Draft MIMP** would extend in a northerly direction and no new shading would affect Martin Square or Tiffany Loop. Martin Square is already nearly one hundred percent shaded under existing condition and would remain shaded from an existing building that would remain under implementation of the **Draft MIMP**. Slightly less shading would occur to the southeast corner of Tiffany Loop under the **Draft MIMP** due to the demolition of one existing building and construction of a narrower building directly southeast of Tiffany Loop.
- At **4 PM** shadows from development associated with the **Draft MIMP** would extend in an easterly direction. As demonstrated, the area is already largely cast in shadow at this time of day in the winter, and no significant new shading impacts to Tiffany Loop or Martin Square would be anticipated to result from development associated with the **Draft MIMP**.

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Summary

As demonstrated by the shadow graphics, new buildings constructed under the **Draft MIMP** would not be expected to contribute to significant additional shading of off-campus open space areas where shadow impacts may be mitigated per SMC 25.05.675 (West Ewing Mini Park and the 6th Avenue W Street End). Some additional new shading could occur to the key on-campus open space areas of Martin Square and Tiffany Loop. However, the new shading would not be considered significant given the small amount of additional shading that would occur, and as compared to the shading conditions that already occur under existing conditions. In some cases, slightly less shading would occur to Tiffany Loop or Martin Square under the **Draft MIMP** due to the proposed demolition of buildings that would occur in proximity to these open space areas.

Alternative 1 -- No Action Alternative

Under the **No Action Alternative** no new planned or potential building development would occur other than development and renovation consistent with the current MIMP. Overall, it is anticipated that two Education & General projects could be built without exceeding the maximum developable gross floor area and FAR, adding approximately 188,400 sq. ft. of total development to the existing campus. These two projects would include a building located to the north of Martin Square (up to four-levels in height), and an assemblage of three structures located on and adjacent to the existing surface parking lot located south of Tiffany Loop (four-level buildings).

Off-Campus Open Spaces

No boundary expansions would occur under the **No Action Alternative**, and no new development would be built in the vicinity of the West Ewing Mini Park or the 6th Avenue W Street End. Shadow conditions on these two off-campus open space areas would remain the same as under existing conditions and no new shading impacts would occur (refer to **Figures 3.7-2 to 3.7-9** for shadow graphics depicting the **No Action Alternative**).

On-Campus Open Spaces

No new shading would occur to Martin Square under the **No Action Alternative**. Although a new building could be built directly to the north of Martin Square, this building would not contribute to new shading because shadows do not extend to the south. Some new shading could occur to Tiffany Loop, primarily in the southwest or southeast portion of the Loop. This would occur due to the construction of a new building directly southeast of this open space area. However, minimal shadows from the building would be experienced as new shading due to the presence of existing trees in the southeast portion of Tiffany Loop; the trees already contribute to background shading conditions in this area of campus.

Alternative 2 – No Boundary Expansion and No Change to Height Limits

Under **Alternative 2**, no boundary expansion and no change to height limits would occur. In order to accommodate space demands and support student enrollment and programming, 11 additional buildings and/or building wings would need to be fit into the campus over and above development that would be accommodated under the **Draft MIMP** program. These 11 additional structures would be necessary to accommodate approximately 444,200 sq. ft. of development space that

would be lost as a result of not expanding the campus boundaries or increasing the MIO height limits.

Off-Campus Open Spaces

Without a boundary expansion on the north portion of the SPU campus, there would be somewhat less new development built in the immediate vicinity of the West Ewing Mini Park and the 6th Avenue W Street End, as compared to the *Draft MIMP*. In general, however, shading impacts to off-campus open spaces would be the same as described under the *Draft MIMP* (refer to **Appendix E** for shadow graphics depicting development under *Alternative 2*).

On-Campus Open Spaces

Under *Alternative 2*, additional buildings would need to be fit within the existing campus boundaries to meet space requirements, over and above the new development that would be constructed under the *Draft MIMP*. The additional development would include a new building to the east of Martin Square, and two new buildings within Tiffany Loop. Overall shadow impacts to these two open space areas would, therefore, be much greater than would occur under the *Draft MIMP*. Shading impacts to Tiffany Loop would be especially significant due to the construction of two buildings within the open space area.

Alternative 3 – Boundary Expansion and No Change to Height Limits

Under *Alternative 3*, the three campus boundary expansions would occur, but there would be no change to height limits. In order to accommodate space demands and support student enrollment and programming, six additional buildings and/or building wings would need to be fit into the campus over and above development that would be accommodated under the *Draft MIMP* program. These six additional structures would be necessary to accommodate approximately 318,400 sq. ft. of development space that would be lost as a result of not increasing the MIO height limits.

Off-Campus Open Spaces

Under *Alternative 3*, it is assumed that the same campus boundary expansions as proposed under the *Draft MIMP* would be implemented. Similar development would be built in proximity to West Ewing Mini Park and the 6th Avenue W Street End, and overall shadow impacts would be the same as described for the *Draft MIMP* (refer to **Appendix E** for shadow graphics depicting development under *Alternative 3*).

On-Campus Open Spaces

Under *Alternative 3*, additional buildings would need to be fit within the existing campus boundaries to meet space requirements, over and above new development that would be constructed under the *Draft MIMP*. The additional development would include one new building to the east of Martin Square, and one new building within Tiffany Loop. Overall shadow impacts to these two open space areas would, therefore, be greater than would occur under the *Draft MIMP*. Shading impacts to Tiffany Loop would be especially significant due to the construction of a new building within the open space area; overall shading impacts to Tiffany Loop would be

similar to but somewhat less than under **Alternative 2**. Shading to Martin Square would be the same as described for **Alternative 2**.

Alternative 4 – No Boundary Expansion and Increased Height Limits

Under **Alternative 4**, no campus boundary expansions would occur, but increased height limits would. In order to accommodate space demands and support student enrollment and programming, six additional buildings and/or building wings would need to be fit into the campus over and above development that would be accommodated under the **Draft MIMP** program. These six additional structures would be necessary to accommodate approximately 201,600 sq. ft. of development space that would be lost as a result of not expanding the MIO boundaries.

Off-Campus Open Spaces

Without a boundary expansion on the north portion of the SPU campus, there would be somewhat less new development built in the immediate vicinity of the West Ewing Mini Park and the 6th Avenue W Street End, as compared to the **Draft MIMP**. In general, however, shading impacts to off-campus open spaces would be the same as described under the **Draft MIMP** (refer to **Appendix E** for shadow graphics depicting development under **Alternative 4**).

On-Campus Open Spaces

With increased height limits accommodated under **Alternative 4**, no additional buildings over and above development assumed under the **Draft MIMP** would need to be built within Tiffany Loop, and development surrounding Tiffany Loop would be generally similar to the **Draft MIMP**. Shadow impacts to Tiffany Loop would be the same as described for the **Draft MIMP**. However, without the boundary expansions, an additional building would need to be built to the east of Martin Square. Consequently, shading impacts to Martin Square would be greater than the **Draft MIMP** at 8 AM and 9 AM during all four key solar days of the year.

Alternative 5 – Boundary Expansion, Increased Height Limits and No Street Vacations

Under **Alternative 5**, both the campus boundary expansions and increased height limits would occur, however, no street or alley vacations would be accommodated. Without the potential street or alley vacations, four new buildings and or building wings would need to be fit into the SPU campus over and above development that would be accommodated under the **Draft MIMP** program. These four additional structures would be necessary to accommodate approximately 145,100 sq. ft. of development space that would be lost as a result of not implementing the potential street and alley vacations assumed under the **Draft MIMP**. As well, the buildings north of W Nickerson Street (west of 3rd Avenue W) would be segmented into a number of smaller, narrower buildings as compared to **Draft MIMP** program (compare to Buildings #'s 43, 44, 45, 46 in **Figure 2-4** under the **Draft MIMP**).

Off-Campus Open Spaces

Shading impacts to West Ewing Mini Park and the 6th Avenue W Street End would be similar to or slightly less than the **Draft MIMP**, because the buildings on the north edge of the campus would

have to be set back further from the MIO boundary due to the lack of a street vacation (refer to **Appendix E** for shadow graphics depicting development under **Alternative 5**).

On-Campus Open Spaces

Under **Alternative 5**, no additional buildings over and above development assumed under the **Draft MIMP** would need to be built within Tiffany Loop, and development surrounding Tiffany Loop would be generally similar to the **Draft MIMP**. Shadow impacts to Tiffany Loop would be the same as described for the **Draft MIMP**. However, without the boundary expansions, an additional building would need to be built to the east of Martin Square. Consequently, shading impacts to Martin Square would be greater than the **Draft MIMP** at 8 AM and 9 AM during all four key solar days of the year.

3.7-3 Mitigation Measures

Although no significant adverse shadow impacts are anticipated under the **Draft MIMP**, the following mitigation measures could further minimize the potential for impacts from shadows:

- Future new building design could consider the final orientation, siting, and massing to minimize the potential shadow impacts to these open spaces.

3.7-4 Significant Unavoidable Adverse Impacts

Shadow impacts associated with development of the **Draft MIMP** and **Alternatives 1-5** would not be expected to result in significant impacts to off-campus open spaces (West Ewing Mini Park and the 6th Avenue W Street End). **Alternatives 2** and **3** could result in significant unavoidable adverse impacts to on-campus open spaces.