

Test Case 3

Building Renovation/Urban Location: Multiple Buildings

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Security Design Problem

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INTRODUCTION

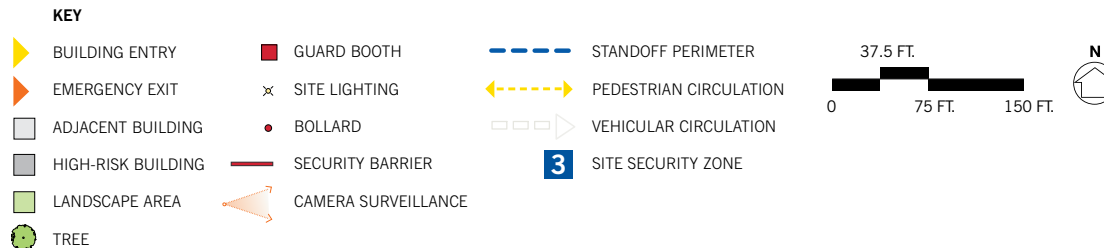
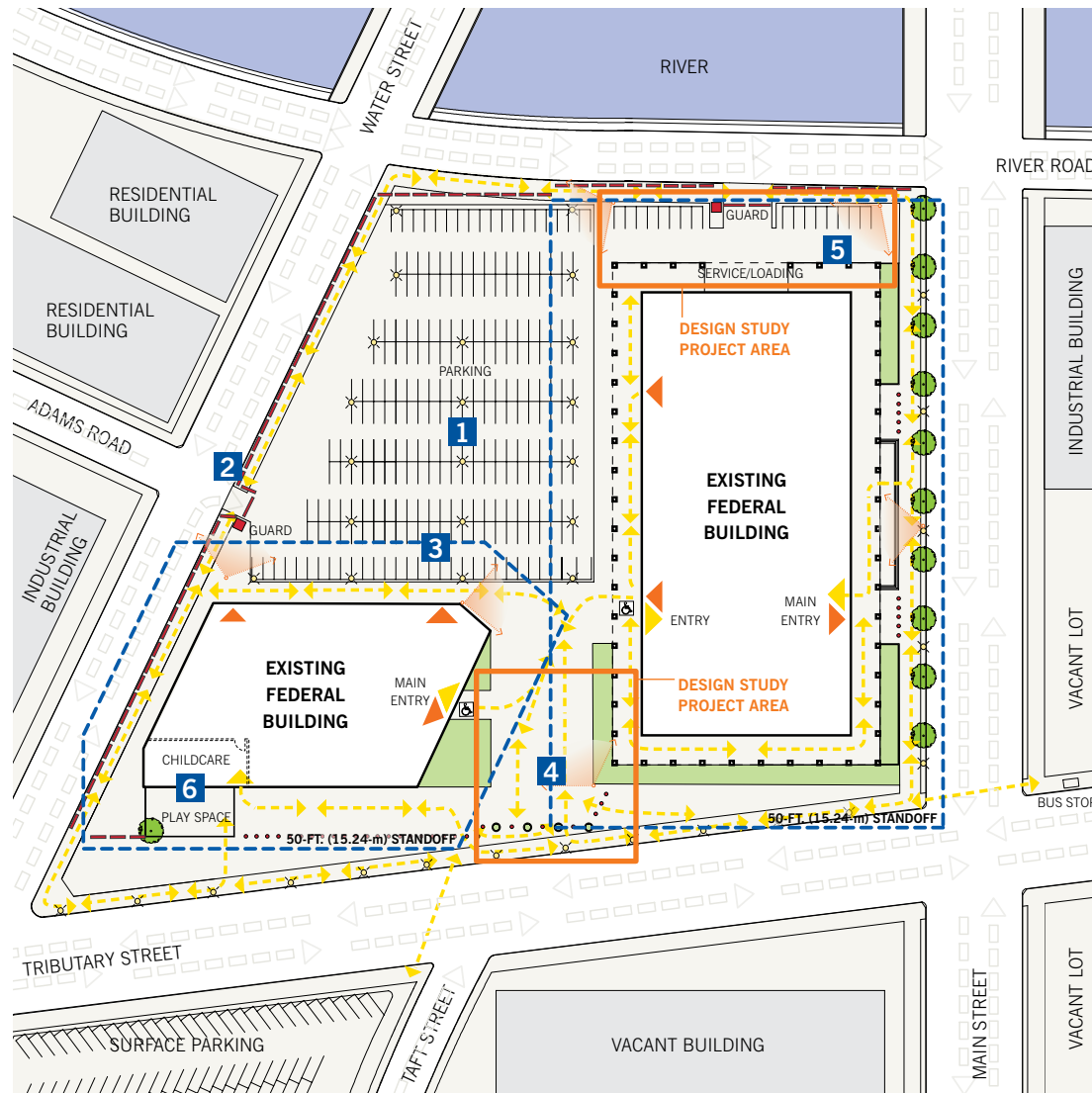
This test case describes two urban federal buildings that compose a small complex in a blighted downtown neighborhood. The federal buildings were designed and built in different eras in divergent architectural styles. The location of the buildings at the edges of the block and the fenced large surface parking lot in between disconnects the complex from the surrounding neighborhood.

The building on Tributary Street houses two tenant agencies of equal risk and has a medium ISC security rating. The childcare facility's outdoor play space near the corner of Water and Tributary Streets is within the 50-foot standoff, as is some of the surface parking. The building facing Main Street houses one tenant agency and received a high ISC security rating after risk assessment. The progressive collapse analysis identified structural vulnerabilities with the open colonnade that surrounds the building. The multiple entries to both buildings make adequate security oversight difficult. There are a lot of unsightly, mismatched, temporary and permanent standoff barriers placed throughout the site.

Although the risk assessment indicated that no adjacent buildings present a high risk, the building tenants have problems with neighborhood crime, including vandalism, theft of cars from the parking lot, and harassment. The lack of street activity accentuates the perception of the neighborhood as "dangerous." Local community groups are active in the fight for healthy communities. The city has begun a revitalization program focused on adaptively reusing the obsolete, industrial riverfront and piers to the north of the site to create a river walk with retail and residential uses.

Traffic studies indicate that the Water Street sidewalks can be widened to increase standoff if necessary.

Test Case 3: Existing Conditions/Site Context



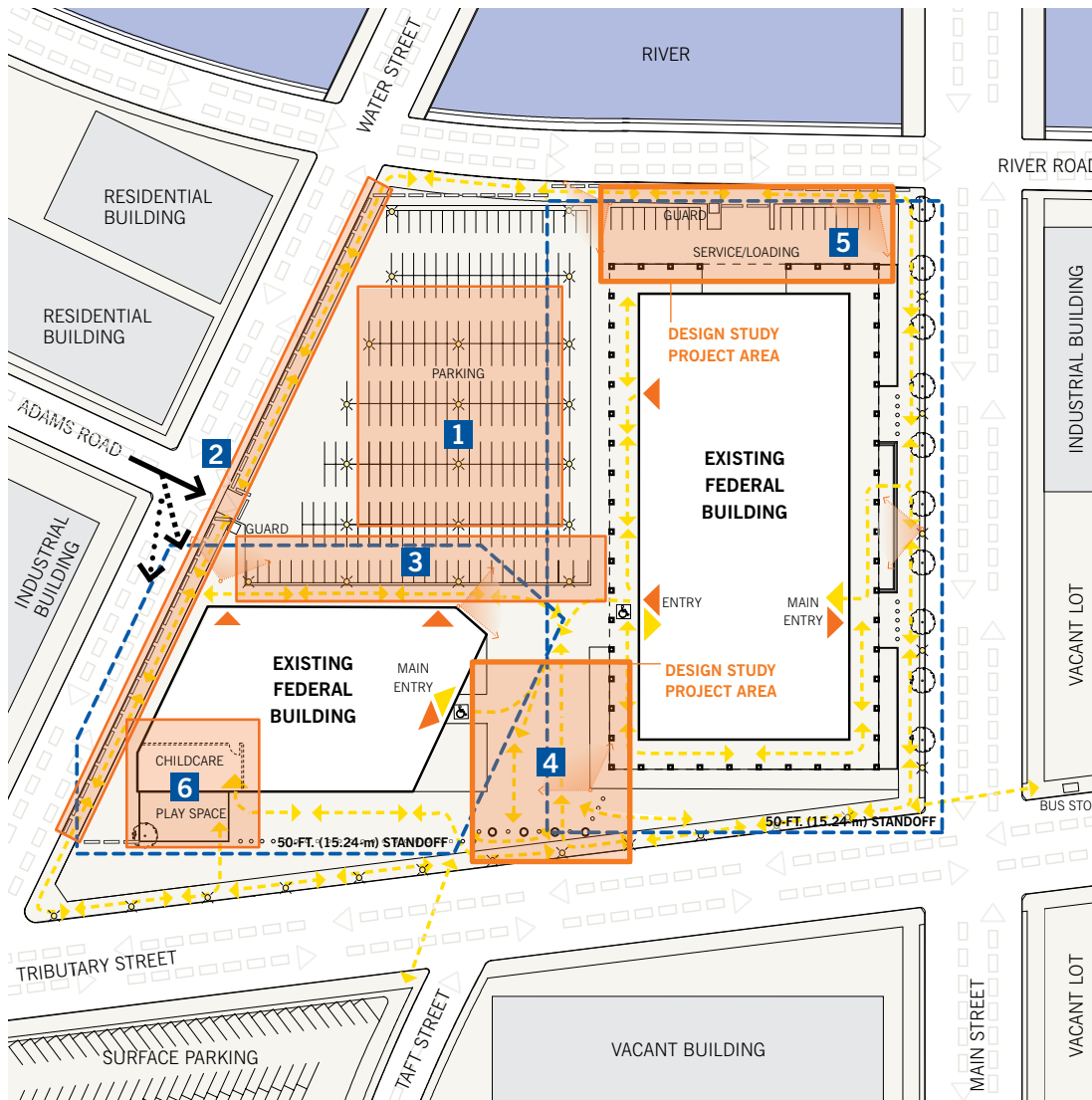
Test Case Assumptions

- 1 The large, on-site surface parking lot for staff and visitors to the two-building federal complex becomes a community farmers market during weekends.
- 2 Temporary barriers along the lengths of Water Street and River Road prohibit unauthorized vehicle entry into the parking lot.
- 3 Some of the parking spaces in the surface lot fall within the standoff zone of the existing federal buildings.
- 4 Because the two buildings were built at different times, their main entries are oriented to different parts of the site; an off-site bus stop is located to the east, across a busy street.
- 5 The building on the east side of the site has a colonnade, which allows pedestrians to circulate beneath the building's upper floors.
- 6 There is an on-site childcare facility with a separate public entry located off Tributary Street.

Existing conditions include a large site plan, a colonnade at one building that allows circulation under the upper floors, and required pedestrian and vehicular access.



Test Case 3: Site Security Assessment Plan



Security and Site Design Topics

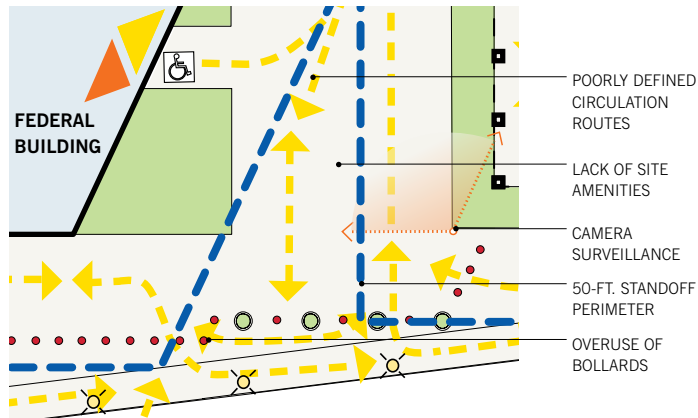
- 1 A site with federal buildings located at the edges of a large urban block may act as an island, cut off from the surrounding environment. Large areas of surface parking generate storm water runoff that must be managed, particularly when a natural water resource is nearby.
- 2 Perimeter locations with direct run-up access may expose the building to high-speed vehicular approach, while mid-block areas may preclude high-speed access. Temporary barriers would not provide sufficient vehicle stopping performance in either case.
- 3 Parking areas on the site that fall within the required standoff should be restricted to government vehicle parking only.
- 4 Multiple building entries around the perimeter of a large urban block can make navigation and circulation around the site difficult, especially when public transportation is located across a wide street and there are no wayfinding cues.
- 5 A building with a colonnade poses a security risk because of the vulnerability of exposed columns; if one column is undermined, then the entire building can fail because of progressive collapse.
- 6 When a childcare facility exists on-site, its location should be assessed relative to the risk factors of the buildings it serves.

Test Case 3: Conceptual Strategy Plan

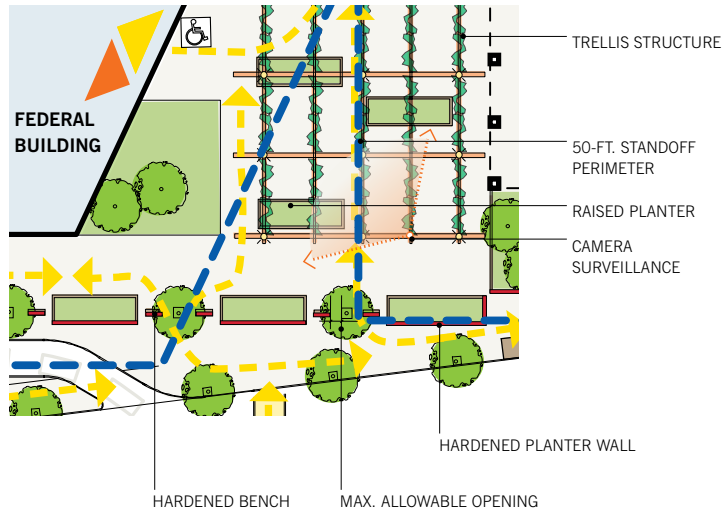


Project Area: Zone 4

Existing Conditions Plan



Design Solution Plan



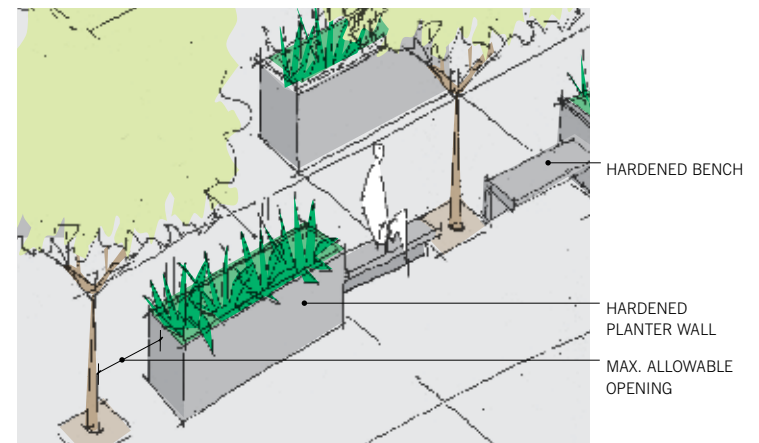
Security Design Problem

Multiple building entries around the perimeter of a large city block can make navigation around the site difficult and confusing. The lack of a central public space with common entries to the buildings decentralizes security oversight and increases the risk of blind spots. Repetition of a single obstruction, such as bollards, makes the site edge feel oppressive and unwelcoming. Traditional site amenities, for instance, benches, bus stops, light fixtures, and planting areas, can be hardened for use as security measures.

Proposed Security Design Solution

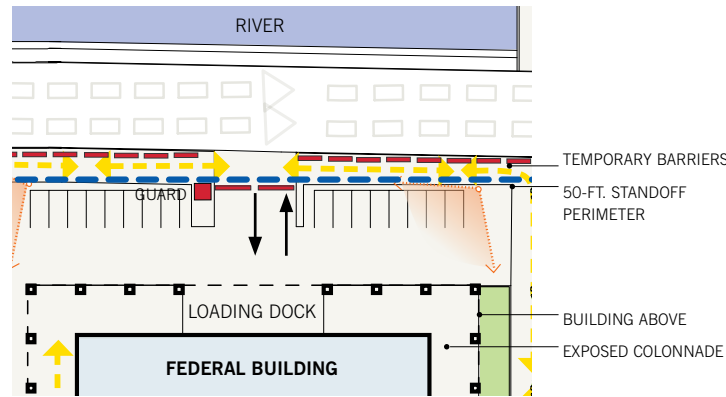
Moving the main entries to the two buildings centralizes all visitor circulation through the new entry plaza. The pergola houses site lighting to define the public space at night and provide clearly lit paths to the parking area and bus stop. Trees and staggered reinforced planters delineate the entry to a central public plaza. The raised planter element continues into the plaza, creating comfortably scaled outdoor rooms, while serving as barricades to prevent vehicular entry. Layered security elements provide the same security as bollards but are less obtrusive. Planters on the plaza interior that do not serve as barriers do not require hardening.

Bird's-Eye View

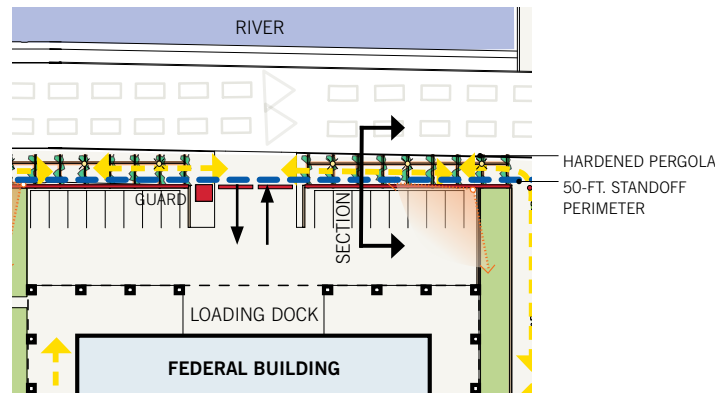


Project Area: Zone 5

Existing Conditions Plan



Design Solution Plan

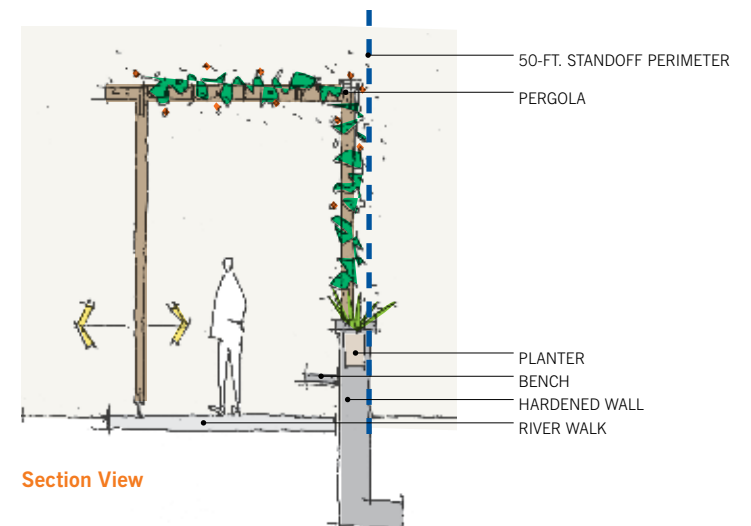


Security Design Problem

The exposed colonnade around the federal building on the east side of the site is a security concern because a blast could target a column and undermine the entire structure by triggering progressive collapse. A colonnade can be difficult to secure because the original design intent is to provide open circulation space around the building. In this case, the loading dock poses the most significant risk because it is a large open area that allows vehicular access near the first floor of the building.

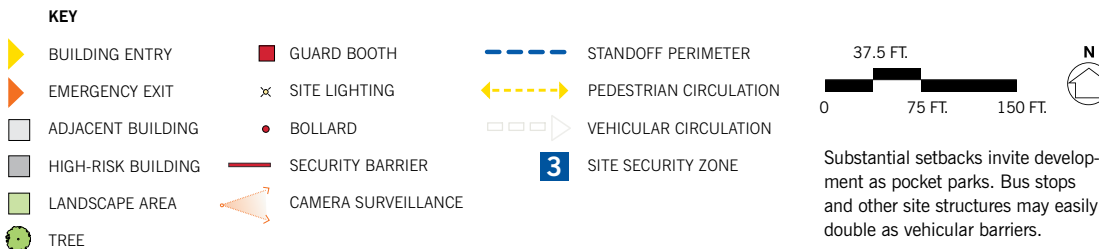
Proposed Security Design Solution

A hardened pergola guides pedestrian circulation, while providing a beautiful barrier between River Road and the loading dock. A hardened site wall, with integrated planting areas and seating, supports a light-framed structure that houses site lighting. Climbing vines decorate this pergola, which provides a continuous barrier to vehicular entry and creates a formal promenade along the riverfront. Although pedestrian access is not completely restricted, the nature of the structure and the provision of limited openings guides circulation through points with security oversight. Surveillance cameras could also be mounted on the pergola.



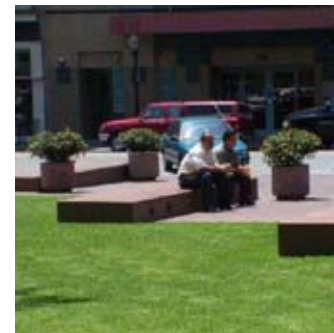
Section View

Test Case 3: Final Concept Plan



Security and Site Design Solutions

- 1 A new urban pocket park along the Water Street edge creates an opportunity for the community to better utilize the site throughout the week, while providing shaded seating areas that can be used when the farmers market meets. Bioswales, landscape elements designed to remove silt and pollution from surface runoff water, direct storm water from the parking lot to the park.
- 2 To increase standoff along Water Street, the sidewalk is widened and new parking restrictions are implemented. In response to vector analysis, robust perimeter barriers prevent approach from Adams Road, while less obtrusive hardened streetscape elements protect the middle of the block.
- 3 Tenant and visitor parking is removed from the buildings' standoff zones. Site walls and a pergola define and guide circulation.
- 4 Shifting the entries to the two buildings centralizes circulation through a new entry plaza. Moving the bus stop to the curb in front of the plaza brings public transportation directly to the site.
- 5 The pergola completely restricts vehicular access to the exposed building columns of the colonnade from the loading dock area and creates a pleasant promenade along the riverfront. Extra hardening at the corner accounts for increased possibility of vehicular approach.
- 6 The childcare facility and its associated outdoor play space are relocated to a safer location on the interior of the site.





Effective security must be more than meets the eye. Strategically placing the most robust elements only where analysis determines they are needed makes the most efficient use of the overall project budget and affords greater design flexibility throughout the site. Where security measures can be less robust, there is opportunity to make them appear instead as seating, shade, or other amenities.

