

Executive Summary

Summary of Research Results

Sidewalks in downtown Raleigh are undersized; a problem that is primarily experienced by traveling pedestrians. The area in which they walk is considered the pedestrian clearance zone, which runs parallel to the street and is protected through City policy from encroachments. Current policy only calls for a five-foot sidewalk clearance and private users generally observe these restrictions. Yet, research shows that five feet is inadequate.

In order to determine the appropriate pedestrian clearance width, multiple observations and analyses were made regarding pedestrian volume and patterns. The result was a range of widths that were identified to match existing and projected pedestrian use intensity.

In addition to clearance for pedestrians, sidewalks in a downtown area have other uses and its final width must take into account the space needed for object encroachments and non-traveling pedestrian behaviors that are associated with the urban environment.

These elements are designed to occur on either side of the pedestrian clearance zone and are located either along the curb or by the building. Together these three zones comprise the sidewalk corridor. The current City regulation of fourteen-foot sidewalks was found to be appropriate in some areas, but there are also many places where it is insufficient to accommodate current and projected urban uses.

This study identified a range of possible sidewalk corridor widths based upon existing and projected frontages, pedestrian behaviors, building uses, and other similar factors that would determine possible objects that would encroach the downtown sidewalk. This provided solutions that would be specific to the needs of each sidewalk.

Finally, there is a need to unify the City through its public realm treatment while allowing for distinct corridor and neighborhood character. To provide this structure with internal flexibility, four treatment typologies were identified throughout Raleigh that would act as a template for future sidewalk treatment.

Implementation Difficulties and Solutions

The greatest challenge to implementing the results of this research is that the needed sidewalk corridor widths is much greater than the actual available right-of-way. While these proposed widths are ideal to improve the pedestrian environment, the nature of downtown Raleigh will not allow for the full application of these ranges. Additionally, it would be difficult for City officials to implement such a wide range of sidewalk widths. A smaller range of width options will simplify the planning and design process.

To address these problems, it is necessary to prioritize needs and create a compromise between the available space, conflicting uses, and ideal widths.

The top priority of sidewalks in downtown Raleigh is to meet the needs of the volume of traveling pedestrians. The research determined that a five-foot pedestrian clearance is inadequate but in order to meet the limits of the space, it is most likely that the ideal clearance (maximum is over twelve feet) is unachievable in many cases. The existing pedestrian use map reveals that most areas require a six- to ten-foot pedestrian clearance. Eight feet falls in the center of that range; it would allow for three people to pass each other with relative comfort with a maximum capacity of four individuals. Additionally, the typical sidewalk corridor treatment has grated street trees, which would allow for nearly two extra feet of traversable space. Plus there is two feet of shy distance next to buildings which provides a little extra space. This means that while the official pedestrian clearance is eight feet where encroachments are not allowed, the usable width in most places will have a maximum of twelve feet total, or effective width of ten feet (see Figure 5.01). Therefore the eight-foot clearance works for most urban situations in downtown Raleigh and should be used as the new clearance standard where encroachments are prohibited.

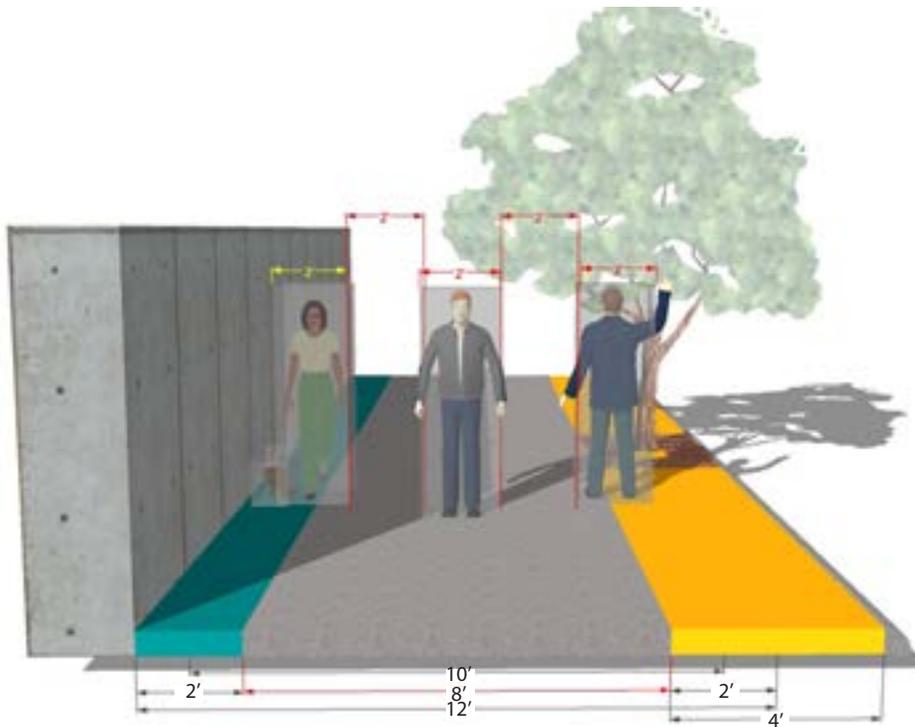


Figure 5.01 Reality of the eight-foot sidewalk clearance

The eight-foot sidewalk clearance standard effectively reduces the sidewalk corridor width requirements, but it is still necessary to simplify the range. Most of the downtown core will be treated with street trees, which require four feet of sidewalk width along the curb and by providing the minimum two-foot setback clearance for a building we reach a sidewalk width of fourteen feet. While this is the existing required width, the existing encroachment will need to be reduced to allow for pedestrian flow to continue on the sidewalk. This space would allow for a two-top table in the curbside zone, a small bike

rack, a news rack, a mail drop box and other such small urban elements. This works for many sidewalks downtown because of the limited right-of-way and also because these areas do not have an abundance of urban sidewalk life at the moment. However, in areas where there is more activity or such activity is planned, it is necessary to require a wider sidewalk corridor.

Adding six feet of space to be shared between the building and curbside zone will enable many more urban sidewalk activities. This would bring the total sidewalk width to twenty feet and would allow for four-top tables, bicycle racks, benches, small bus shelters, or queuing in the sidewalk corridor. This works well for areas with more intense urban use on the sidewalk, such as where there are sidewalk cafes, restaurants, bars, and shop fronts. This distinction of sidewalk use is mapped out in Figure 5.04.



Figure 5.02 Illustration of a fourteen-foot sidewalk corridor



Figure 5.03 Illustration of a twenty-foot sidewalk corridor

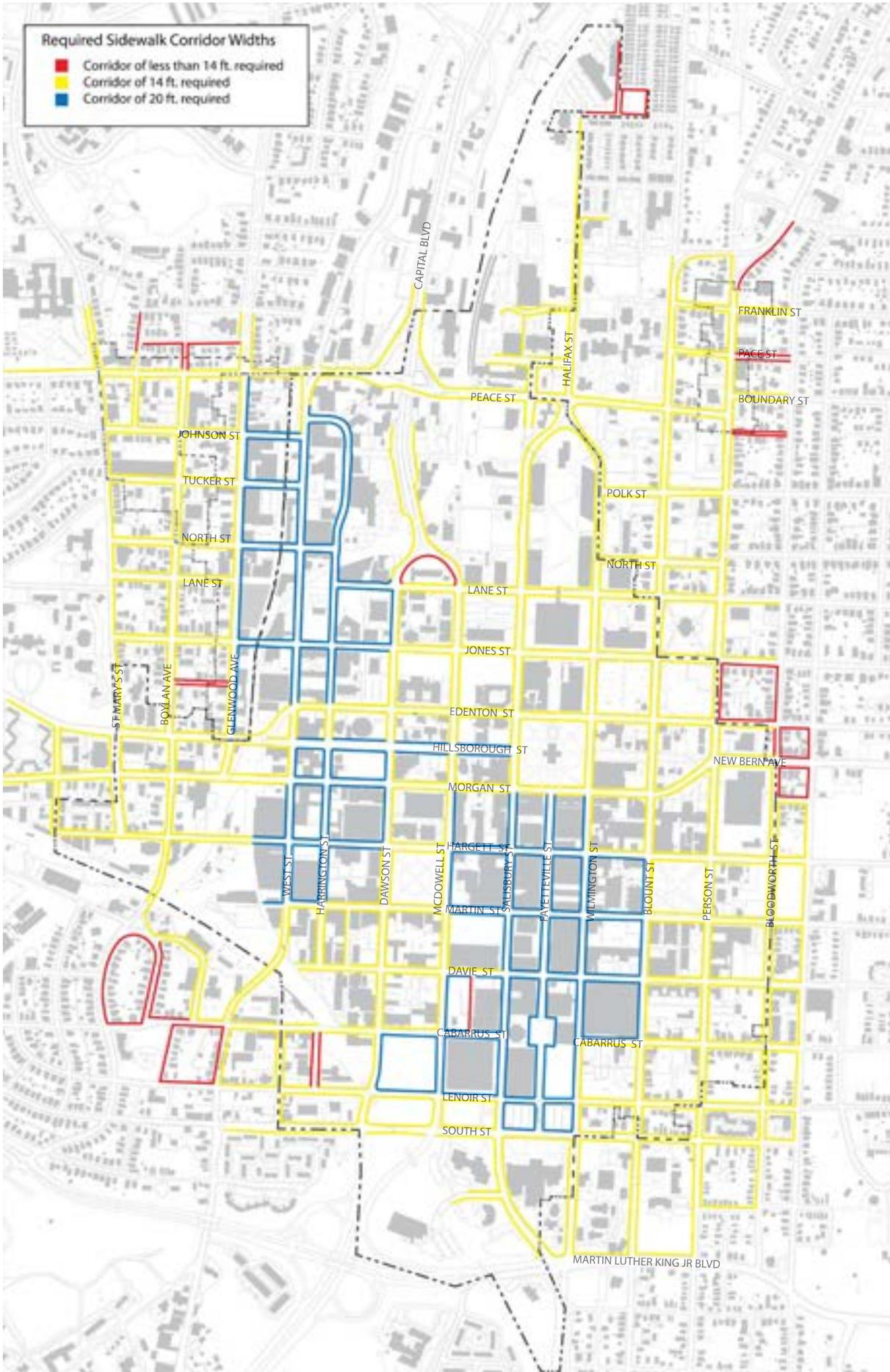


Figure 5.04 Final Map of Required Sidewalk Corridor Widths

Implementation Strategies & Tools

This simplification of sidewalk corridor widths creates a new map that can be used by the City to evaluate development proposals for needed sidewalk width (see Figure 5.04 – Required Sidewalk Width Map on page 56). This map can be correlated to urban objects that are allowed to encroach the sidewalk, providing a means for the City to reevaluate encroachment permits (see Table 5.1 and Figures 5.07 and 5.08 on page 59). The map of widths can be coupled with the previously defined sidewalk corridor treatment plan for the evaluation of development proposals for appropriate design features (see Figure 5.05 – Illustrations of Sidewalk Treatment Typology and Figure 5.06 – Required Sidewalk Corridor Widths & Treatment Map). Lastly, another result of this study is the comparison of needed sidewalk corridor widths and available right-of-way. This highlights areas where there is opportunity for a Capital Improvement Plan (CIP) projects and when and how sidewalk widening may occur in downtown Raleigh (see Figure 5.09 on page 60).

Figure 5.05 Recommended sidewalk corridor treatment typology (repeat of Fig. 3.15)



Treatment A Grated street trees, brick band along curb, scored concrete



Treatment B Open tree pit, brick band along curb, scored concrete



Treatment C Planted verge



Treatment D No buffer vegetation, paved to back of curb, brick band along curb

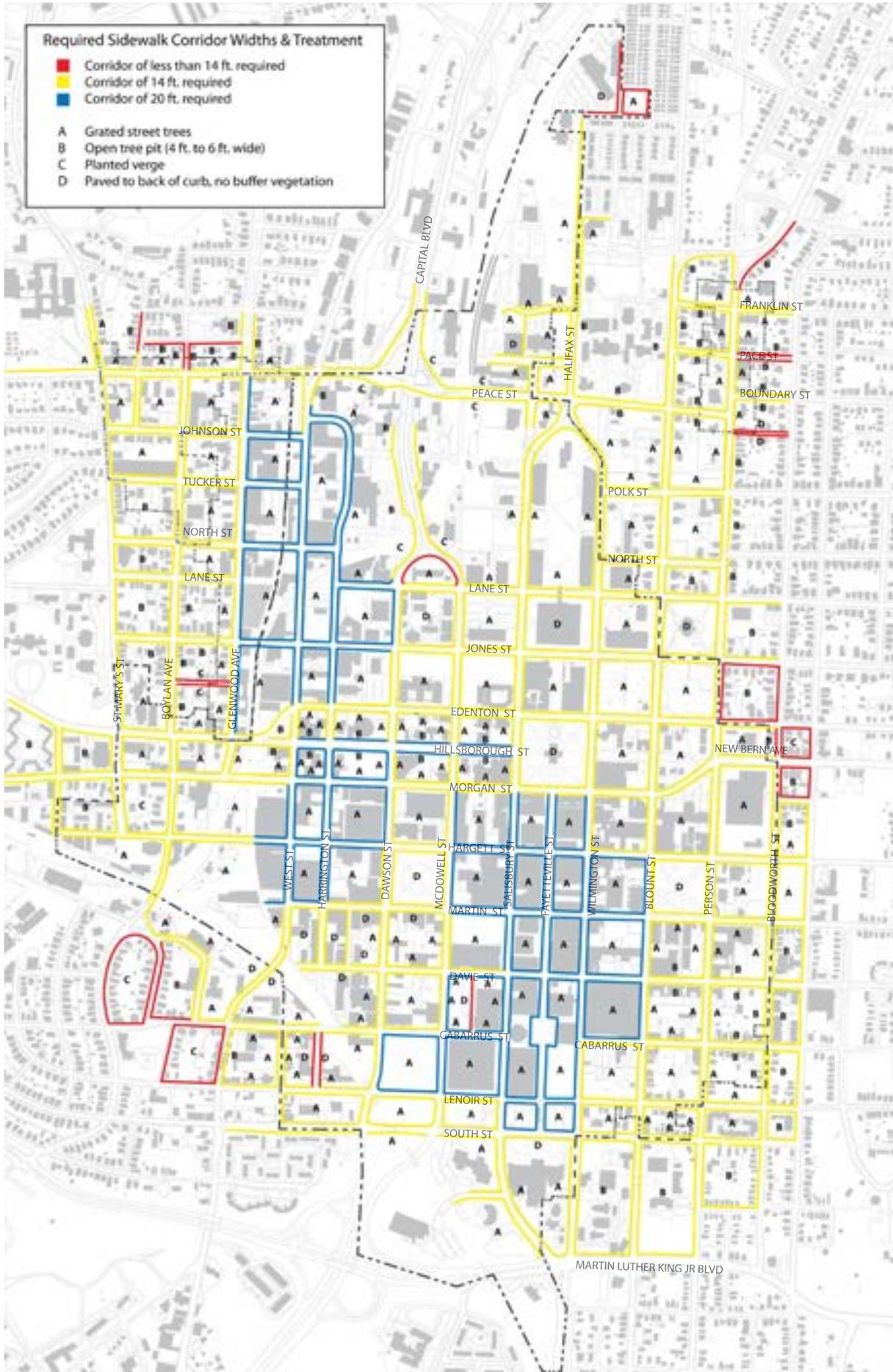


Figure 5.06 Final Map of Required Sidewalk Corridor Widths & Treatment

Table 5.1 Required clearance width for various urban elements (colors coordinate with colors in Figures 5.04 and 5.06)

	Door Swing	Trash Can	Fire Hydrant	Small Utility Box	Small Planter	Signage	Parking Meter	Street Tree	Street Lamp	Traffic Light	Utility Pole	Small Bike Rack	Two-Top Table	Shrubs & Plantings	Mail Drop Box	News Rack	Bench	Street Performer	Large Utility Box	Queuing	Four-Top Table	Large Bike Rack	Bus Shelter	
Curbside																								
4 ft.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-
6 ft.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8 ft.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10 ft.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Building																								
2 ft.	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 ft.	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
6 ft.	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8 ft.	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 5.07 Curbside zone for urban elements (repeat of Fig. 4.01)

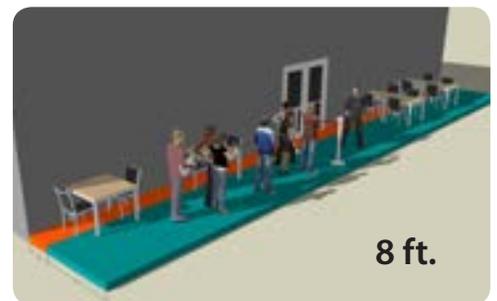
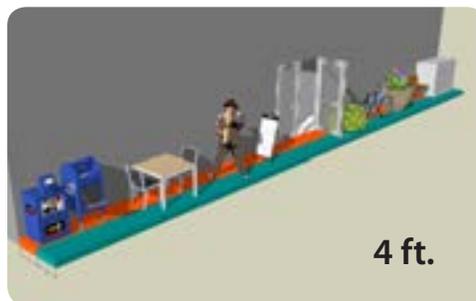


Figure 5.08 Building zone for urban elements (repeat of Fig. 4.02)

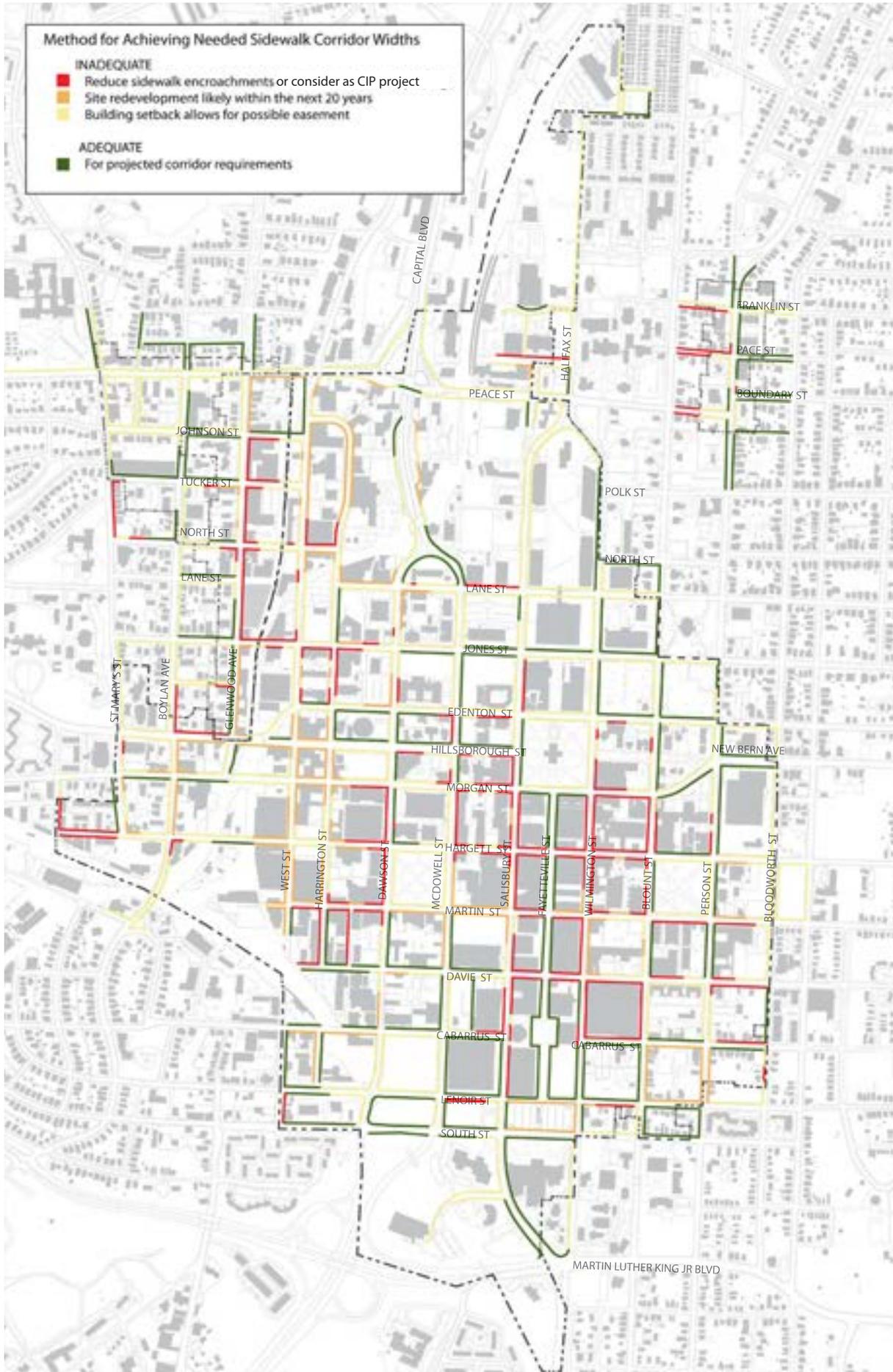


Figure 5.09 Map of Method for Achieving Needed Sidewalk Corridor Widths