



# Social and Environmental Resource Analysis

As part of the National Environmental Policy Act process, the lead agencies:

- Study the effects of the project on social and environmental resources
- Analyze how to avoid, minimize, or mitigate adverse impacts on resources



Key resources to be studied for the 16th Street Mall include:

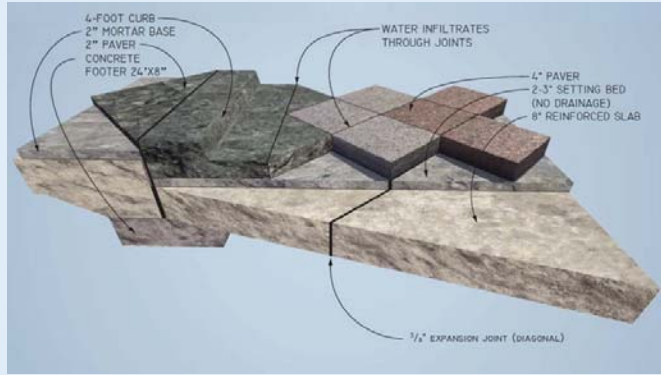
- **Historic Resources.** The Mall is considered historically significant because of its design, engineering, and role in helping revitalize downtown Denver.
- **Visual/Aesthetics.** The Mall’s iconic design has high visual and aesthetic quality.
- **Economics.** Businesses and residences line the Mall, and commercial enterprises (e.g., food trucks, retail kiosks) operate on the Mall.
- **Recreational Resources.** Skyline Park crosses the Mall.
- **Safety and Security.** The design and operation of the Mall considers safety—risk of accidents, vehicle/pedestrian conflicts, and emergency access; and security—protection from crime.
- **Water Quality.** Current regulations require treatment of surface stormwater runoff to remove pollutants and sediment.

Other resources include environmental justice, air quality, noise, transit operations, pedestrian mobility, and hazardous materials.



# Problems on the 16th Street Mall

## Failing and Outdated Infrastructure Causes Frequent, Disruptive Maintenance



Pavement system traps water, causing paver failure.<sup>1</sup>

**A poorly constructed and failing pavement system** is unable to handle the wheel loads (weight of buses) and lacks drainage under the pavers.



**28%**  
Of trees have died and not been replaced

**23%**  
Of trees are not in good health

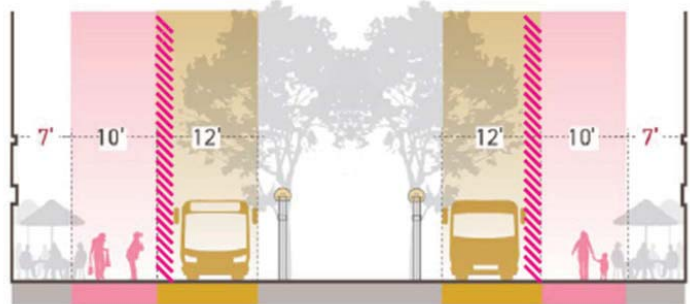
**Root boxes 300%**  
smaller than current best practices

**The outdated underground tree structure** does not allow for conditions which support tree health.<sup>2</sup>

## Safety Issues Due to Layout & Surface

**Pedestrian walks are narrow and immediately adjacent to transit lanes**, causing pedestrian/vehicle conflicts.

**The slick paver surface** causes pedestrian slips/falls and lack of bus traction.



<sup>1</sup>Final Report: 16th Street Mall Pilot Repair, Block 11, Denver, Colorado; Atkinson-Noland and Associates, Inc.; April 15, 2014.

<sup>2</sup>16th Street Transit Mall Tree Assessment; Urban Trees + Soils; September 7, 2017.

# Problems on the 16th Street Mall

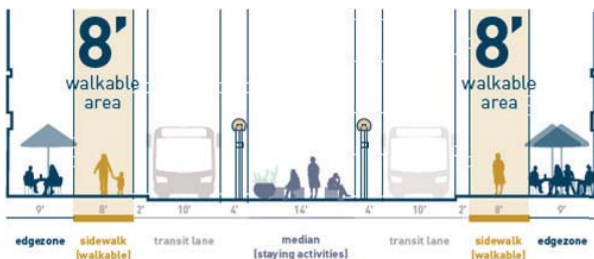
## Mobility Inefficiencies Caused by Sidewalk Size, Maintenance

### **Over capacity sidewalks**

are unable to accommodate current and projected pedestrian volumes on weekdays.<sup>1</sup> By 2040, downtown employment will grow by 32% and population by 137%.<sup>2</sup>

### **Frequent maintenance disrupts transit shuttle operations.**

Shuttle ridership will nearly double by 2035.<sup>3</sup>



3,840 people/hour on two 8-foot walks<sup>1</sup>

8' walks narrower than 10' recommended width for pedestrian volumes and individuals with disabilities<sup>4</sup>

## Lower Public Use than Desired

### **Median spacing, size, and frequent shuttle service on either side discourages public use.**

Lower public use draws undesirable activity (panhandling, loitering, crime).

### **Less than 1% of weekday users stop to spend time on the Mall**

If pedestrian walking areas were widened within the current layout, there would not be enough room for patios—which draw more people to gather on the Mall than any other activity.<sup>1</sup>



Less than 3' clear at median fountain<sup>5</sup>

<sup>1</sup> Downtown Denver 16th Street Mall: Small Steps Towards Big Change; Gehl Studio; February 2016.

<sup>2</sup> U.S. Census American Community Survey, Denver Regional Council of Governments, and Colorado Department of Labor and Employment.

<sup>3</sup> Free MallRide Forecast Ridership; RTD; August 23, 2017.

<sup>4</sup> Draft Public Rights-Of-Way Accessibility Guidelines; U.S. Access Board; November 23, 2005.

<sup>5</sup> A Discussion of Accessibility Issues for the 16th Street Mall Project; Meeting the Challenge, Inc.; March 10, 2010.