

The Emerging Language of Highway Removals



Pedestrian and Bicycle
Information Center

Introduction

The Interstate Highway System, comprised of more than 46,876 miles of highways, provides connections to population centers, support for interstate commerce, and critical infrastructure for interstate freight movement.

But in some urban communities, highways have had unintended consequences, dividing neighborhoods, creating barriers to walking and bicycling, and occupying valuable developable land in the hearts of inner cities.

Over the past half-century, many highways have been re-thought, removed, or relocated for these reasons. Examples include a section of the Inner Loop in Rochester, NY; the Embarcadero in San Francisco;

Park East Freeway in Milwaukee; and the Central Artery in Boston, Massachusetts.

A common language and vocabulary is needed in order for communities to have informed conversations about these types of projects and a common understanding of what tools are available to them. The graphics below illustrate the differences between the various types of removals and mitigations.

Potential Micro-effects of Highways in Cities

Divided neighborhoods

Noise pollution

Unightly structures

Longer trip lengths for pedestrians and bicyclists

Potential Macro-effects of Highways in Cities

Air pollution

Increased auto dependence

Suburban sprawl

Health impacts

Mitigation versus Removal

Highway Mitigation

“Highway mitigation” means that the highway is not removed but is altered to reduce its negative effects locally. Highway mitigations help address the micro effects of highways, but generally do not address macro effects.

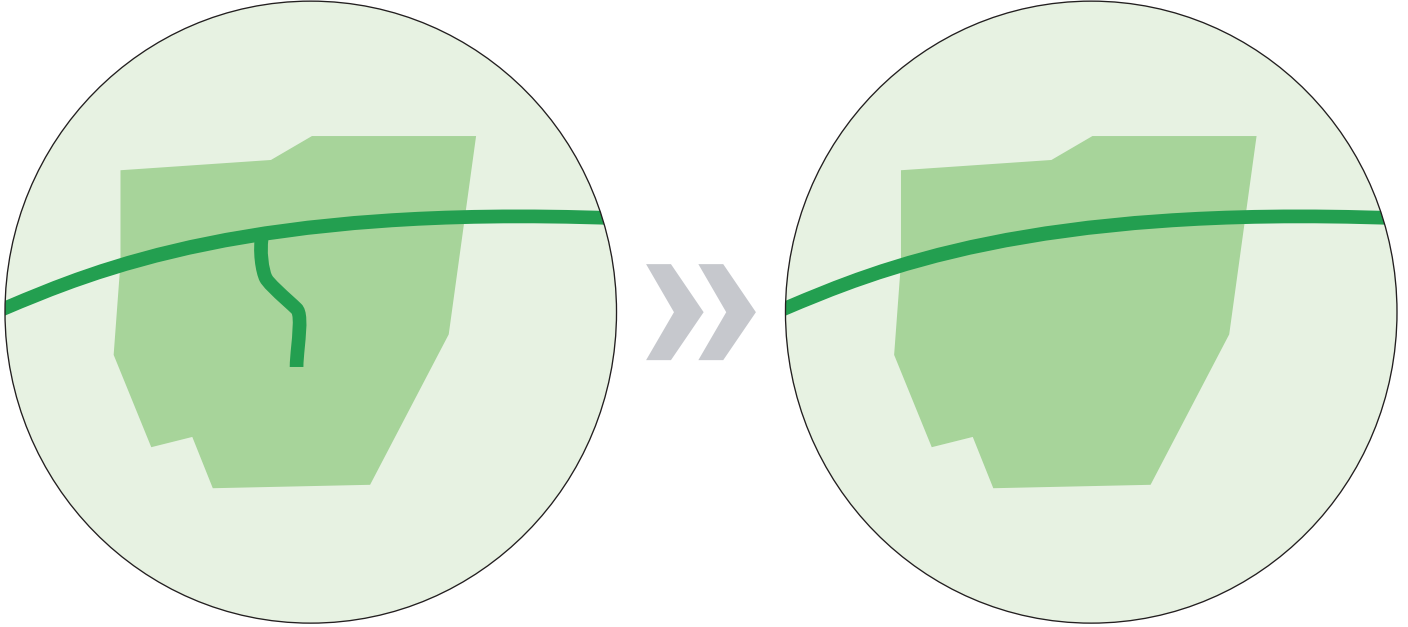
Highway Removal

“Highway removal” means that the highway is removed and the property is used for new purposes such as development, boulevards, a network of streets, parks, or some combination. Highway removals address both the micro and macro effects of highways on cities.

Types of Highway Removals

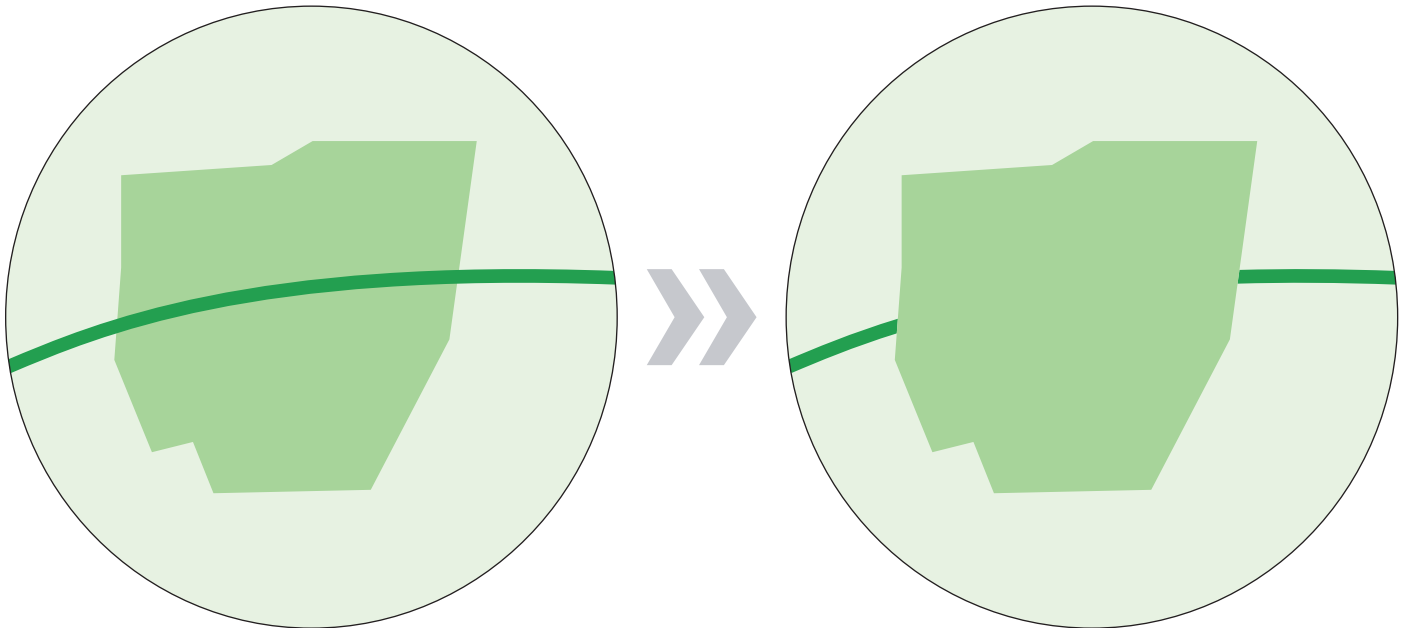
Spur Removal

A highway spur is a highway that enters the city for a distance and then ends by transitioning into city streets.



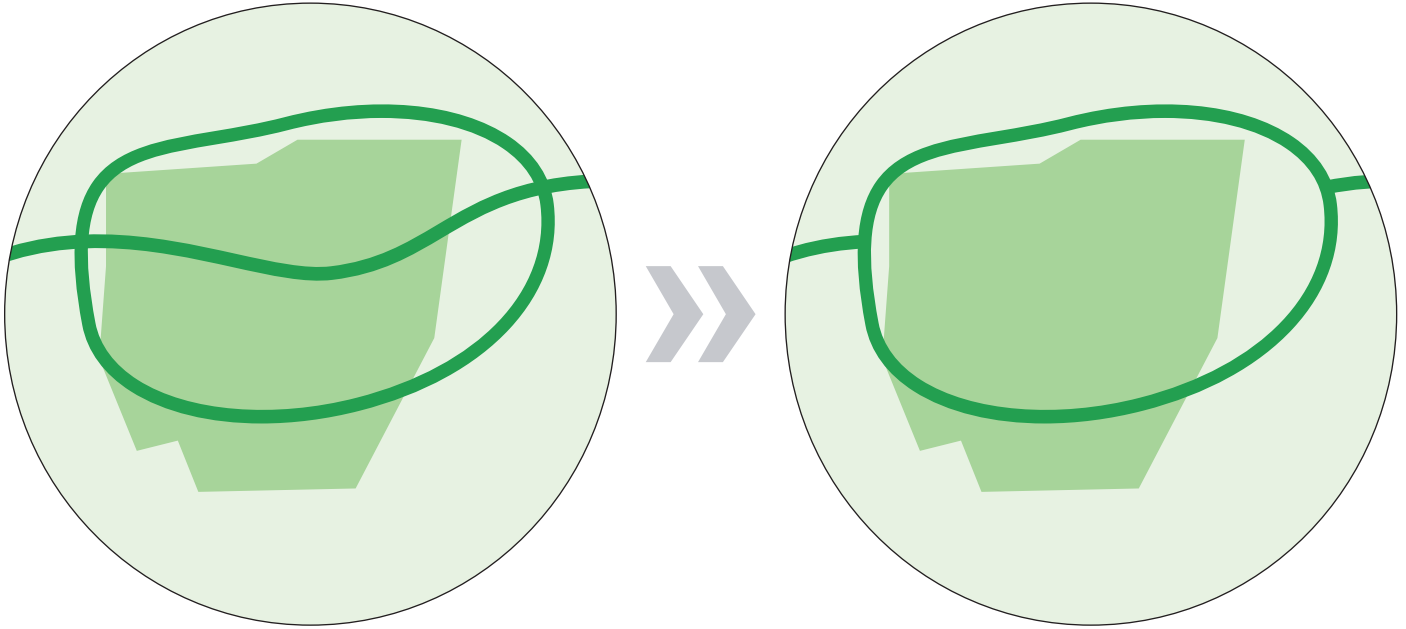
Section Removal

A section removal occurs when a highway cuts through a city. The removal involves transitioning the highway, at both edges of the city, into city streets, a boulevard, or some combination such that the highway is no longer within the city.



Redundant Section Removal

A redundant section removal is the same as a section removal, except that there are one or more other routes that through-motorists can use if they wish to stay on highways and not use city streets.



Relocation

Relocation occurs when a highway is removed from a city and rebuilt along a new route.

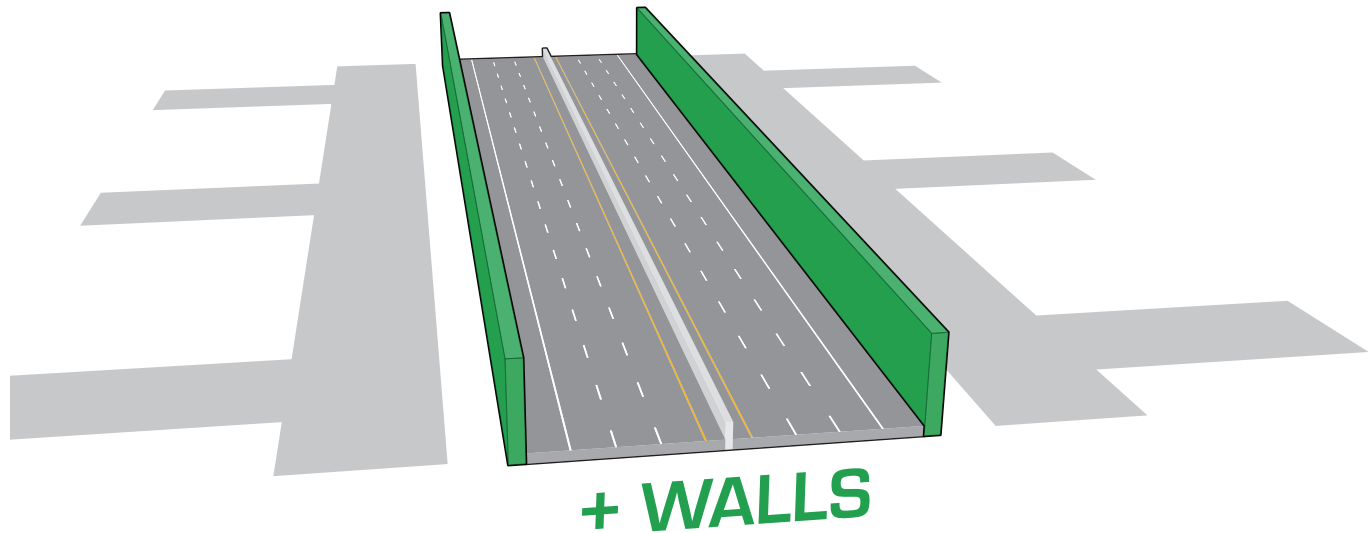


Types of Highway Mitigation

Different types of mitigation are listed on the following pages in order from moderately expensive to very expensive.

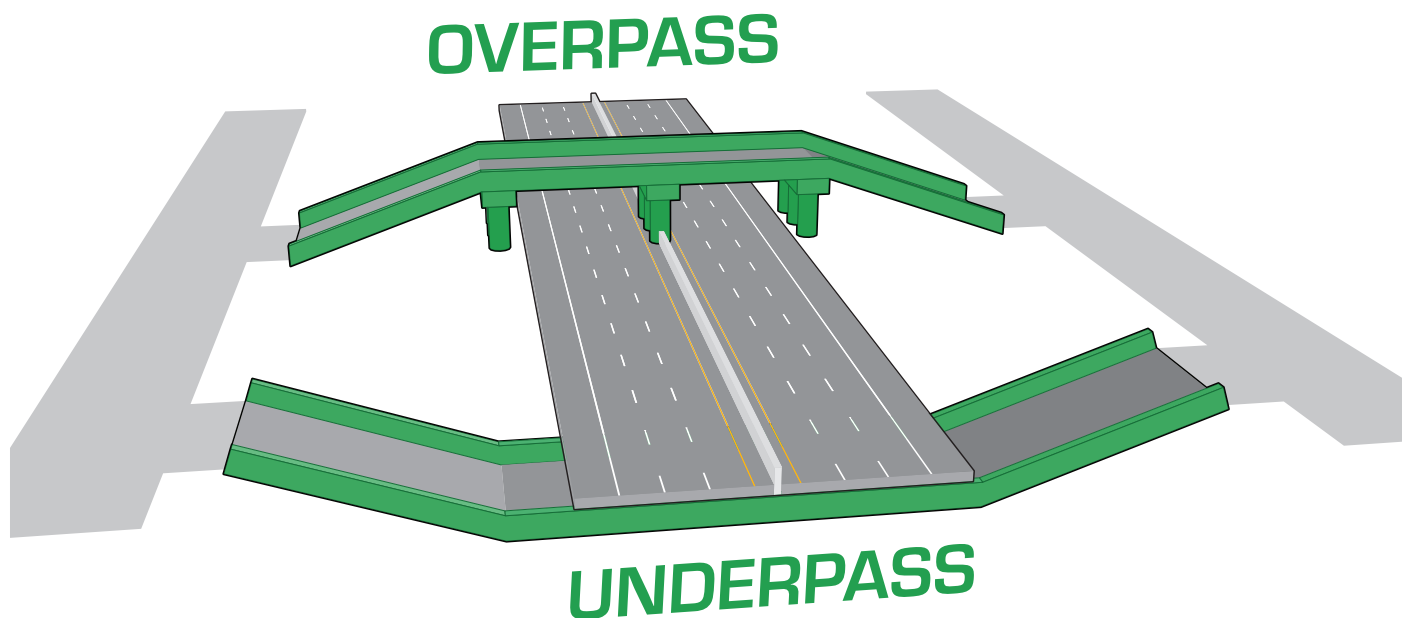
Sound Walls and Screening

Highways are generally unattractive and noisy. Sound walls help reduce the noise in the vicinity of the highway and screening helps to block the view of the highway.



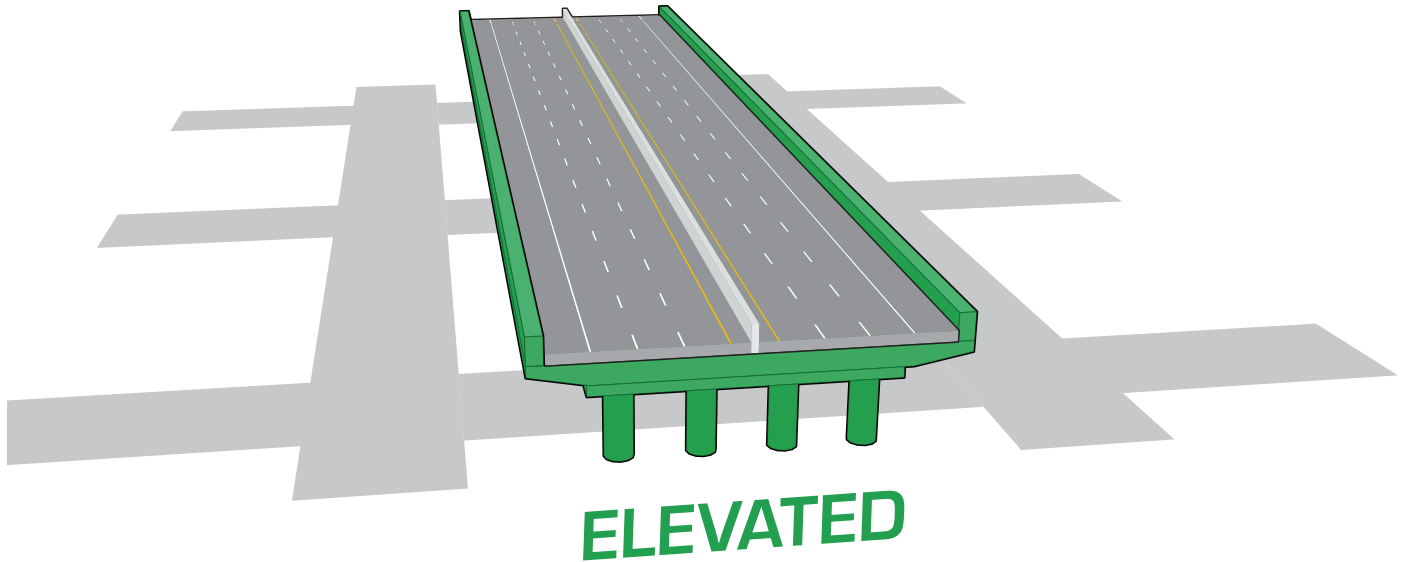
Underpasses and Overpasses

Building overpasses and underpasses helps maintain perpendicular connections across highways. However, they are expensive, and generally uncomfortable for people walking or bicycling.



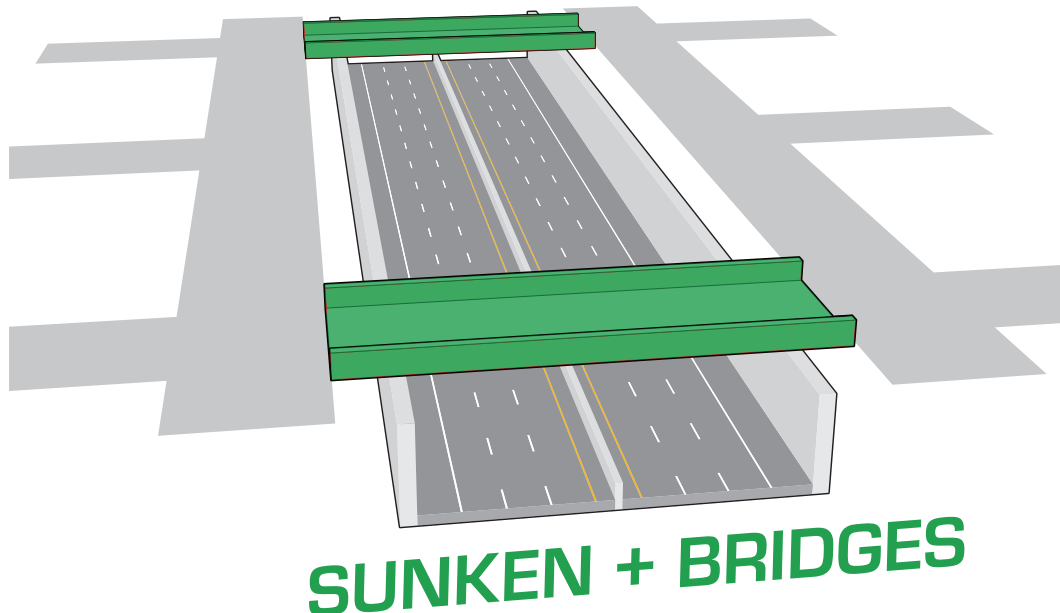
Elevated Highway

Highways can be elevated onto continuous bridge-like structures or onto earthen berms with bridges over the perpendicular streets. The street network can continue underneath, uninterrupted. Furthermore, people walking and cycling do not have to go up and down grades as they do with the underpasses and overpasses. However, elevated highways can still create the perception of a barrier as they often interrupt the continuity of the area and lack aesthetic qualities. In addition, elevated highways require significant maintenance and will eventually require replacement.



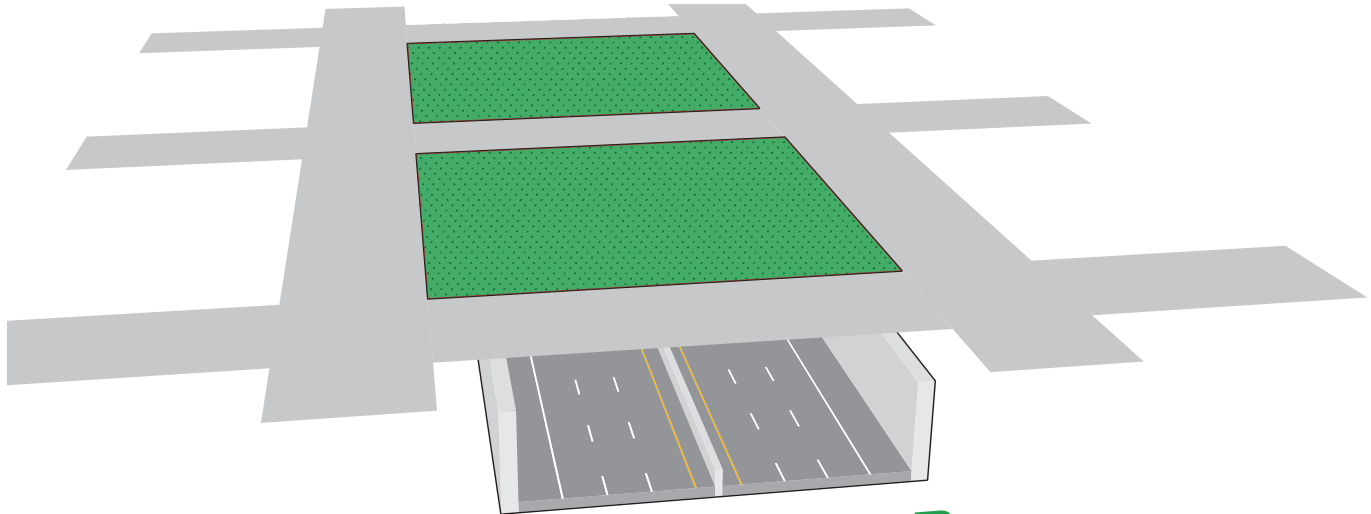
Depressed Highway

Highways can be built at the bottom of trenches. However, every perpendicular street is blocked unless a bridge over the highway is provided. From a network connectivity perspective, it's best to connect all of the streets. However, these structures require expensive maintenance and, occasionally, replacement.



Highway Cap

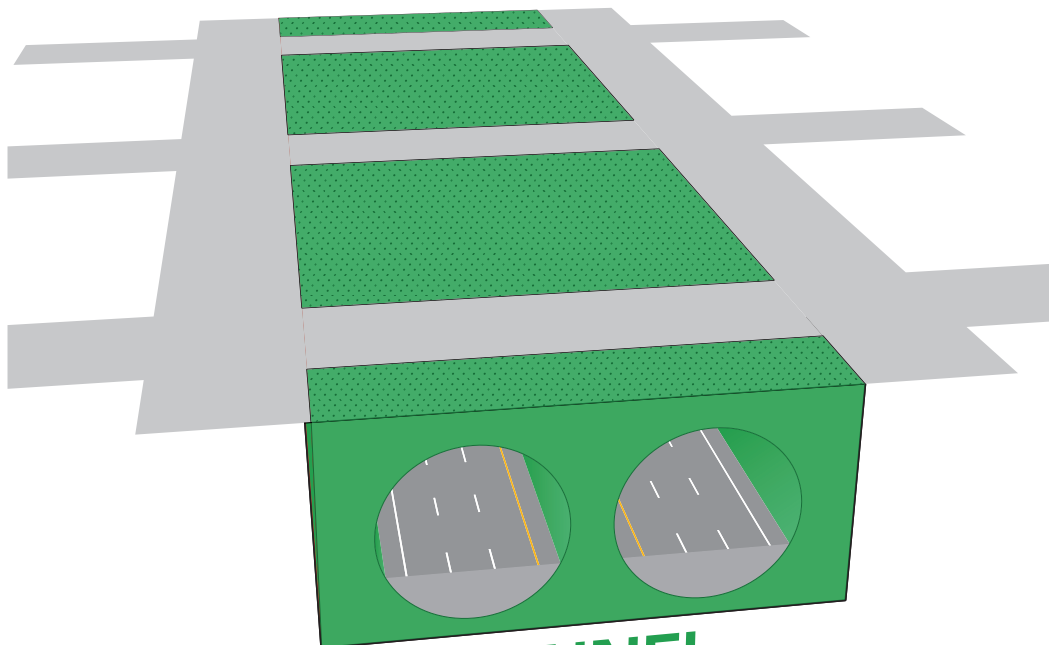
A highway cap is used to mitigate part of a depressed highway to a higher degree than just a bridge. The cap is actually a very wide bridge, except that in addition to a street going over the bridge, many other things can be placed on top of the cap such as parks, plazas, and small buildings. Caps typically range in length from a few hundred feet to a block or more. Caps hide much more of the highway from view than a bridge. These structures require expensive maintenance and, occasionally, replacement. Highway caps are wider than bridges but shorter than tunnels. Typically caps do not need special ventilation of exhaust pipe emissions, unlike tunnels.



SUNKEN + CAP

Tunnel

A highway in a tunnel can be built in two ways: the highway and tunnel can be built in a trench and then buried, or the highway and tunnel can be built within a tunnel that is bored through the earth. The tunnel mitigates in a similar fashion to the cap except for longer distances. Buildings can often be built above tunnels. Tunnels and their mechanical and electrical systems require expensive ongoing maintenance.



TUNNEL



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Since its inception in 1999, the Pedestrian and Bicycle Information Center's mission has been to improve the quality of life in communities through the increase of safe walking and bicycling as a viable means of transportation and physical activity. The Pedestrian and Bicycle Information Center is maintained by the University of North Carolina Highway Safety Research Center with funding from the U.S. Department of Transportation Federal Highway Administration.



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