



A Tool for Communities, Planners, and Engineers



COLORADO
Department of Local Affairs



COLORADO
Department of
Transportation



COLORADO
Department of Public
Health & Environment

August 2016

Dear Reader:

Colorado is experiencing a steady increase in population and tourism, and with this comes an interest in revitalizing our downtowns and main streets. State agencies have been collaborating with local officials and organizations to help plan and redesign downtown streets for walkability and access to businesses while ensuring safe transportation infrastructures.

The Colorado Department of Public Health and Environment (CDPHE), the Department of Local Affairs (DOLA), and the Colorado Department of Transportation (CDOT) have realized that there is no single reference document available to connect information and best practices with applicable policies and processes. Until now.

We are pleased to introduce this guide, which has been designed to help local governments, community members, planners, and engineers communicate. We have included information from concepts and ideas to implementation that will support productive conversations and ultimately lead to more vibrant, accessible main streets and communities.

Every downtown street has an identity; it's where people live, shop, and visit. But they are also often on highways, or busy thoroughfares where creating an enjoyable and inviting space has its challenges. We hope that this Guide will facilitate important conversations between government, stakeholders, and residents who are rejuvenating their downtown and commercial districts, and help remove some of the barriers and provide answers to achieve a safe and healthy downtown for everyone to enjoy.

Sincerely,

A blue ink signature of the name 'Irv Halter'.

Irv Halter
Executive Director, DOLA

A blue ink signature of the name 'Shaileen P. Bhatt'.

Shaileen P. Bhatt
Executive Director, CDOT

A black ink signature of the name 'Dr. Larry Wolk'.

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Project Team

Colorado Department of Transportation



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Colorado Main Street Program



Community Builders



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Project for Public Spaces



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HOW TO USE THIS PUBLICATION

This publication is meant to aid both Colorado communities and the Colorado Department of Transportation (CDOT) in striking a balance between the many demands that face our downtown streets, particularly where a main street is also a state highway. It provides options for how to increase safety for all users across all modes of travel through creative and flexible design. It is important to note that there is no such thing as a cookie-cutter template for great street design: the design of every street must be tailored to its unique circumstances, as well as adhere to engineering standards and requirements. As such, this publication is not a substitute for the engineering process. Rather, it serves as a tool to aid in the development of thoughtful partnerships, compromise, and informed decision-making for improving Colorado's downtown streets.

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CHAPTER 1: WHY STREETS MATTER

Streets are the fundamental building blocks of successful communities. In addition to providing mobility and access, streets are the foundation from which communities grow and develop. They play a tremendous role in shaping the character of a community as well as its physical and economic growth.

But great streets are more than infrastructure: they not only connect places, they are places. They are our storefronts and sidewalk cafes; they are home to our central business districts, corner stores and farmers markets; they are where we walk our dogs and gather with neighbors; and of course, they are how we move people and goods around and through our communities, whether in vehicles, on bikes or on foot.

Nowhere are the many needs and demands we place on our streets more obvious than in our downtowns: the beating hearts and commercial centers of most communities. Savvy local leaders understand that a vibrant, walkable downtown is essential to a strong local economy and that great streets are essential to a successful downtown.

Unfortunately, many transportation facilities built in recent decades are singularly focused on moving cars quickly from place to place. For the safety and benefit of all users, consideration must be given to all modes of transportation. Facilities that allow for safe and comfortable multimodal use sets the stage for a healthy, vibrant and economically prosperous community.



THE CHANGING LANDSCAPE

Our economy is undergoing significant and often times rapid change. Technological, demographic, lifestyle and workplace trends are transforming how people live and work, and what they want from their communities, including their transportation systems. In this changing landscape, streets must be designed to achieve multiple benefits and serve all users: young and old, driver or cyclist, walker or wheelchair user, bus rider or business owner. The following are just some of the trends affecting how we design and build streets and other transportation facilities.

Less Funding, More Needs

Colorado's population growth is currently the **second** fastest in the nation, which is placing greater pressure on our streets and roads than ever before.¹ At the same time, transportation funding at every level of government is increasingly hard to come by. In 1991, CDOT's budget allowed about \$125.70 to be spent per state resident, but by 2015 that figure had dropped to \$68.94.² In short, it is increasingly difficult to afford the transportation infrastructure we have now, much less future needs as our communities grow. These realities are forcing state and local governments to think differently about transportation investments. As needs and demands grow, single-purposed solutions are increasingly difficult to afford. Transportation systems must be designed to meet multiple benefits, including safe and efficient transportation options for multiple of modes of travel as well as furthering community planning and economic development goals.

Changing Preferences

A growing number of people are interested in the convenience and sense of place offered by living in walkable places where it is easy to get to destinations on foot, bike or car. A survey of residents across the states of Colorado, Idaho, Wyoming and Montana revealed that 58 percent of respondents preferred a neighborhood with a mix of destinations within an easy walk versus a neighborhood where driving is the only way to reach businesses.³ These trends, which are transforming downtowns, main streets and other close-in neighborhoods across the country, are not only driven by changes in where people live, but also how they get around. As a result, these shifts and the ways they are transforming communities has relied upon and will continue to be driven by investments in multi-modal transportation facilities.

Driving is Up (But Also Down)

Looking at recent trends, it would appear that people are driving more miles. Nationally, the number of Vehicle Miles Traveled (VMT) has grown for 26 consecutive months, likely driven by affordable gas prices and a rebounding economy. This trend represents a shift from a longer-term decline in VMT. From 2000-2013, per capita VMT in Colorado dropped by 8 percent. Many people point to preferences of millennials as driving this trend - more millennials report liking walking than report liking driving than any other age group - but the trend is not new, nor specific to millennials.⁴ In fact, since the 1980's, there has been a continuous decrease in the percentage of persons with a driver's license for people aged 16 - 44.⁵

Despite a longer-term decline in VMT, growth in both population and truck traffic are increasing traffic volumes in much of the state. This is especially true for state highways, which run through the heart of many Colorado downtowns and serve the dual purpose of both highway and a walkable Main Street. Addressing the reality that both traffic volumes and preference for walking are growing in the state at the same time is difficult, but increasingly important to meeting local economic development goals.

BENEFITS OF GREAT STREETS



GREAT STREETS SUPPORT BUSINESSES AND ECONOMIC DEVELOPMENT

Streets provide the most immediate and consistent impression people receive about a community. They help define the character of the community and say a lot about whether it is a place worth spending time and money in. And in an era when businesses, entrepreneurs and the talent are seeking authentic and attractive communities with a high quality of life, the significance of a first impression goes well beyond whether passersby stop for lunch.

Great streets also support a community's existing businesses. In Glenwood Springs, the installation of outdoor dining and a widened pedestrian walkway on a popular downtown street contributed to a 10 percent increase

in revenues for bars and restaurants—despite the fact that some on-street parking spaces had to be removed to make room for improvements.⁶ This is due in part because shoppers who arrive by foot or bike spend an average of 8.5

- 25 percent more at businesses per month than do those arriving by car.⁷ Benefits of user-friendly streets don't stop with increased sales tax revenues. Increasing walkability also achieves higher property values.⁸ Even during the recession, a study of five markets across the Rocky Mountain West revealed that home buyers paid an average of 12.5 percent more for homes in walkable areas.⁹

GREAT STREETS SHAPE AND SUPPORT QUALITY DEVELOPMENT

Well-designed streets create a foundation from which communities can grow and develop. They set the stage for the type of investment and development a community wants to see in a given area. When streets are designed solely for vehicles or with an emphasis on higher speeds, they shape auto-oriented land uses that are set back from the street and have large surface parking lots, such as commercial strip malls and big box centers.

While these land uses may be a good fit for some areas, they do not support the type of environment that creates a successful downtown, main street or central business district. In downtowns, streets need to support social and economic land uses. If the street is designed to be safe and comfortable for people on foot and bike, land uses will join

with the street and be accessible by foot, bike or car. This promotes activity on the street, and encourages people to linger, spending more time and money at local businesses.

This is important because on a per-acre basis, downtowns and mixed-use central business districts generate far greater public wealth than conventional strip malls and big-box centers. In a study of nine communities across the Rocky Mountain west, the 2-3 story mixed-use development that is typical of Colorado downtowns generated 263 - 400 percent more county property tax per acre than single-use commercial development.¹⁰ Streets that enable walkable, mixed-use development help communities earn the most revenue possible from their most finite resource - land.



GREAT STREETS PROMOTE SAFETY

Safety has long been a priority in the design of streets and other transportation facilities. Unfortunately, while a variety of factors have increased safety on certain facilities—particularly

rural roadways—it is increasingly clear that we need to rethink how we design streets within our communities that are safe for all users. Since 2002, the percentage of crash-related pedestrian and bicyclist fatalities has been increasing in Colorado.¹¹ A growing body of research demonstrates the effectiveness of measures intended to increase the safety and mobility of pedestrians and bicyclists:

- Pedestrian crashes are more than twice as likely to occur in places without sidewalks and streets with sidewalks on both sides have the fewest crashes.¹²
- Installing raised medians and redesigning intersections and sidewalks reduce pedestrian risk by 28 percent.¹³
- On-road marked bicycle lanes consistently reduce risk of bicycling injuries and crashes by about 50 percent.¹⁴

Safety issues are not limited to bikes and pedestrians. How we design streets has a significant influence on the number and severity of vehicle crashes and collisions as well. Sadly, children are often the victims. In fact, CDC data indicates that motor vehicle accidents are, by a wide margin, the leading cause of unintentional injury and death for children aged 5 - 19.¹⁵



GREAT STREETS INCREASE ACCESSIBILITY

Most people will experience limited mobility at some point in their lives, whether it be due to injury, illness or aging. Accessible streets that are free from barriers and obstructions allow everyone to participate in the social and economic activity present there. Designing streets so that they are accessible for all users—including people with disabilities, seniors, children, parents with strollers, and everyone in between—results in a more vibrant community that is inclusive to everyone.



GREAT STREETS SUPPORT A HEALTHY ENVIRONMENT

Streets and transportation systems play an enormous role in shaping how our communities grow and develop. Single-purposed transportation facilities limit transportation choices, forcing people to drive in order to get around. This not only increases smog and other pollutants, it enables new development away from existing public facilities, which consumes excessive amounts of limited land and water resources.

Fortunately, streets can be designed to reap environmental benefits as well. Streets that encourage walking, bicycling, and transit use over private vehicle use reduce traffic, air pollution and greenhouse gas emissions. Additionally, streets can be designed to capture and clean stormwater runoff, which can help prevent pollution from entering Colorado's rivers, lakes and streams.



GREAT STREETS IMPROVE PUBLIC HEALTH

Regular physical activity is one of the most important things Coloradans can do to improve their health. An active lifestyle promotes healthy weight and reduces the risk of developing chronic diseases such as heart disease, diabetes and some cancers.^{16, 17} Despite this, 55 percent of the U.S. adult population falls short of recommended activity guidelines, and approximately 25 percent report being completely inactive.¹⁸ In Colorado, nearly six in ten adults are either overweight or obese.¹⁹

A growing body of research links this inactivity to community design that limits walking and biking. The connection is simple: people are less inclined to walk and bike in places that feel unsafe or unpleasant, which limits physical activity and social interaction. People who live in neighborhoods with sidewalks on most streets are 47 percent more likely to be active at least 30 minutes a day,²⁰ which meets the Center for Disease Control's recommendation for physical activity.²¹ They are also less likely to be overweight or obese than people that live in neighborhoods with low walkability.²² Our communities can promote active living by designing streets that are safe and attractive places to walk and bike.

KEY CONSIDERATIONS FOR

The vitality of our downtowns is dependent on an approach to street design that is sensitive to the multifaceted role that streets play. Successful street design incorporates these seven core considerations:

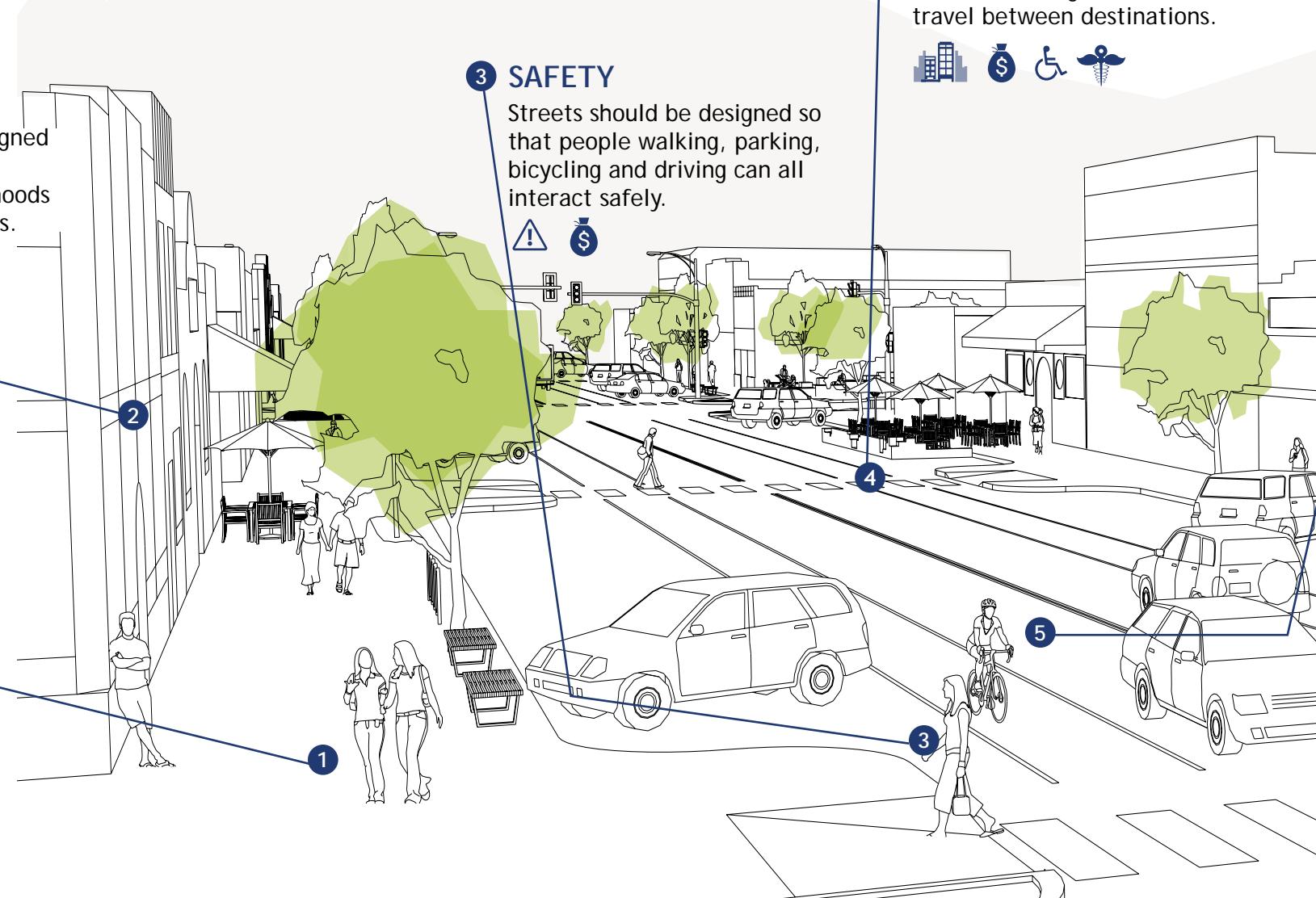
2 CONTEXT

Streets should be designed with an awareness of surrounding neighborhoods and adjacent land uses.



1 COLLABORATION

Street design should be inclusionary of all users.



SUCCESSFUL STREET DESIGN

5 MOBILITY

All modes should be able to easily move along the street.



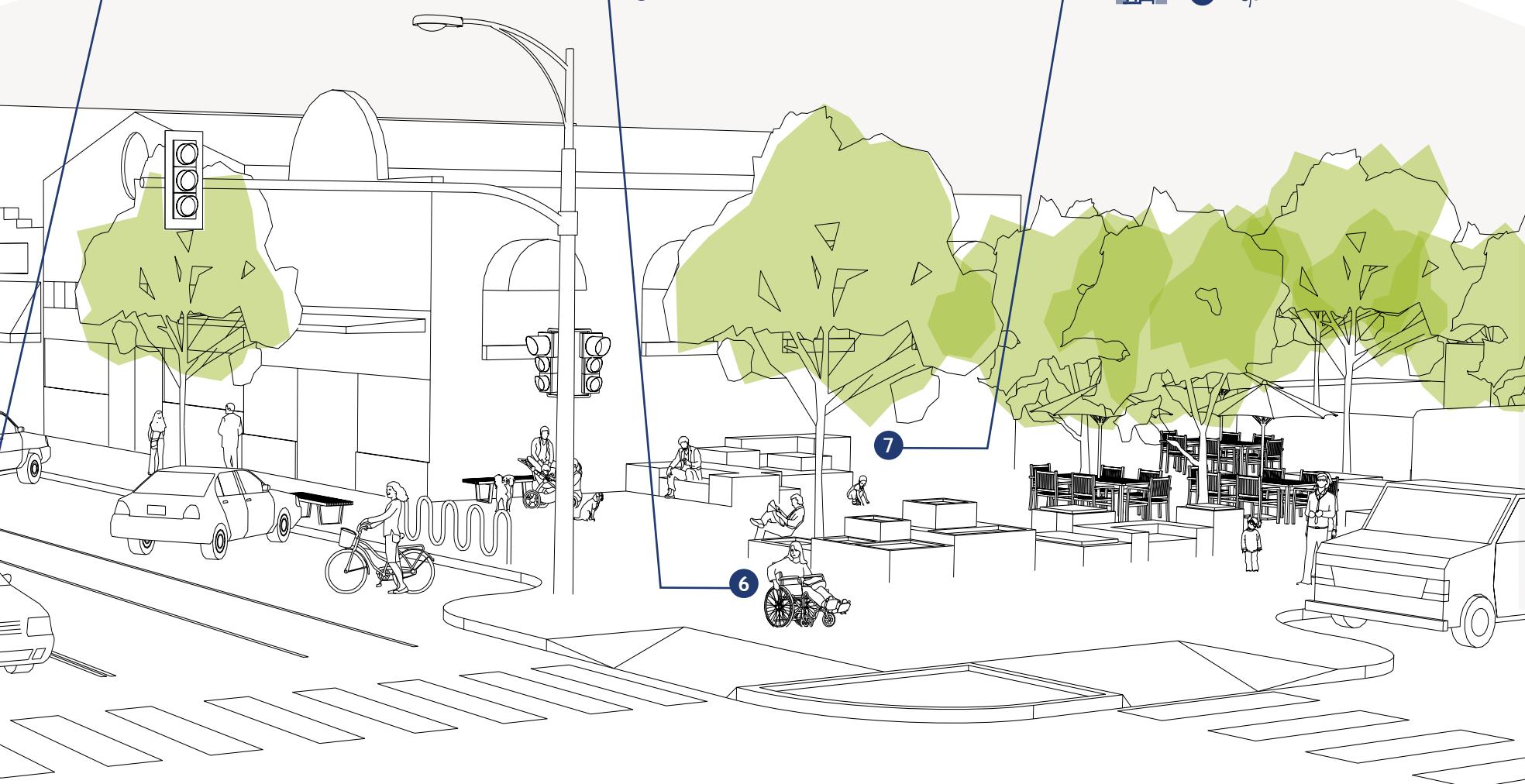
6 ACCESSIBILITY

Streets should provide comfortable access to destinations for all modes of travel and all types of people.



7 PLACEMAKING

Streets play a huge role in community life and should be designed as public spaces as well as areas for mobility.



CHAPTER 2: WHAT IS A STREET?

A street is a place. An address. A sense of identity.

A “main street” is a center of activity. A shopping destination. An employment center. A community gathering place. A visitor attraction.

Sometimes a street is also a state highway. A through route from point A to point B. A connector of destinations. A link between communities.

So how does a community balance these diverse attributes of its streets? It depends. It depends upon the context of the street: where it is located and who it is meant to serve. It also depends on the treatment of various design elements within parts of the street corridor. Great streets are created when a variety of these design elements and functions work together to balance diverse, and sometimes competing needs.



CORE PRINCIPLES FOR STREET DESIGN

In transportation planning, Context Sensitive Solutions (CSS) refers to a collaborative process that involves all stakeholders in providing a street that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions. The resulting street design serves all users and is compatible with the surroundings through which it passes.

To arrive at context sensitive designs for main street settings, communities will want to consider five core principles, summarized as follows:

- **Context** - making design decisions appropriate to street setting and surrounding land use
- **Safety** - including design elements to minimize injuries and fatalities for all users
- **Function** - balancing street widening and capacity projects with other community values
- **Intended Users** - designing for non-motorized modes and an appropriate "design vehicle"
- **Placemaking** - addressing how street design can move beyond utility and create great places within a community

CONTEXT

Context refers to a variety of characteristics that form the setting for a street or roadway, and allow it to be more fully understood and assessed during the planning and design process. As an example, rural roads that are located outside of municipal boundaries reflect the agricultural and open lands of Colorado's mountains and plains, and are designed to safely accommodate high speeds of travel and longer-distance vehicular trips. In contrast, within communities, context sensitive streets include elements that reflect the intended users of a community's transportation system – including cars, trucks, transit vehicles, bicycles and people on foot.

DOWNTOWN

The center of the community, most often mixed-use with ground-floor commercial and retail activity that is dependent on maintaining a pedestrian-friendly environment with on-street parking for businesses. Small towns in Colorado often have a single "main street" that also serves as a state highway corridor. Larger cities may have downtown streets that are a combination of a state highway route and/or local streets running either perpendicular or parallel to the designated state route.



TRANSITION

Locations where the design of a state highway or county road should change to adapt to the context of the surrounding land use. Design transitions should occur in multiple locations along a route, most notably at entrances to the community and again when approaching the downtown.



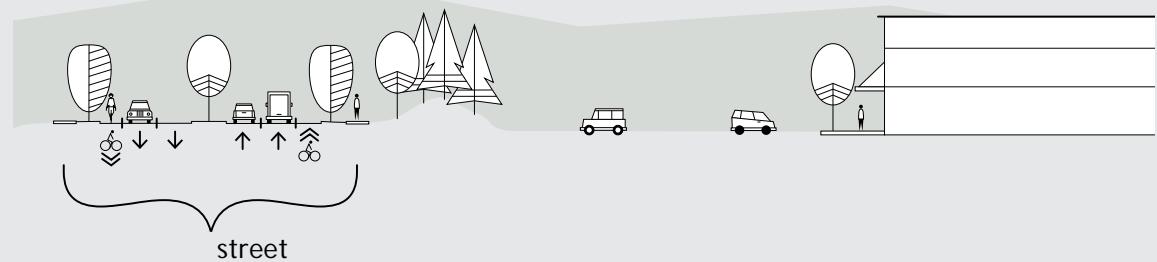
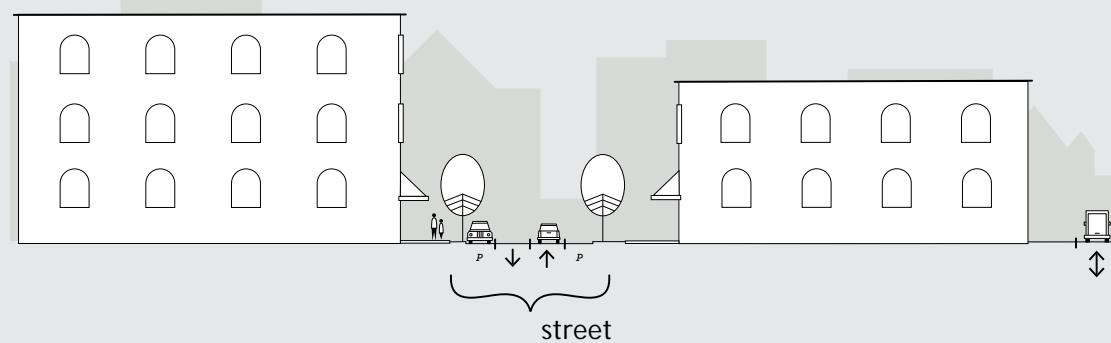
When state highways become main streets in Colorado communities, there are two distinct “contexts” for municipalities to consider:

DOWNTOWN

- Downtown streets should be designed to accommodate pedestrians and provide access to storefront businesses.
- Traffic moves slowly by design.
- On-street parking supports retail, service and other businesses.
- Furnishing zones include street trees and pedestrian furnishings to create high-quality walking environments. Small build-to setbacks with multi-story buildings frame the street corridor and provide interesting facades and additional pedestrian amenities.

TRANSITION

- Streets reflect the character of their environment, which often includes a mix of commercial land uses and residential neighborhoods.
- Design of the right-of-way components incorporate bicycle and pedestrian facilities.
- Design of the streetscape can encourage slower speeds than in less developed areas.
- Depending on context, on-street parking and transit stops may be present.
- Street trees enclose the street space and shade sidewalks.
- Setbacks vary, but in suburban settings they may be large with landscaped buffers and off-street parking.

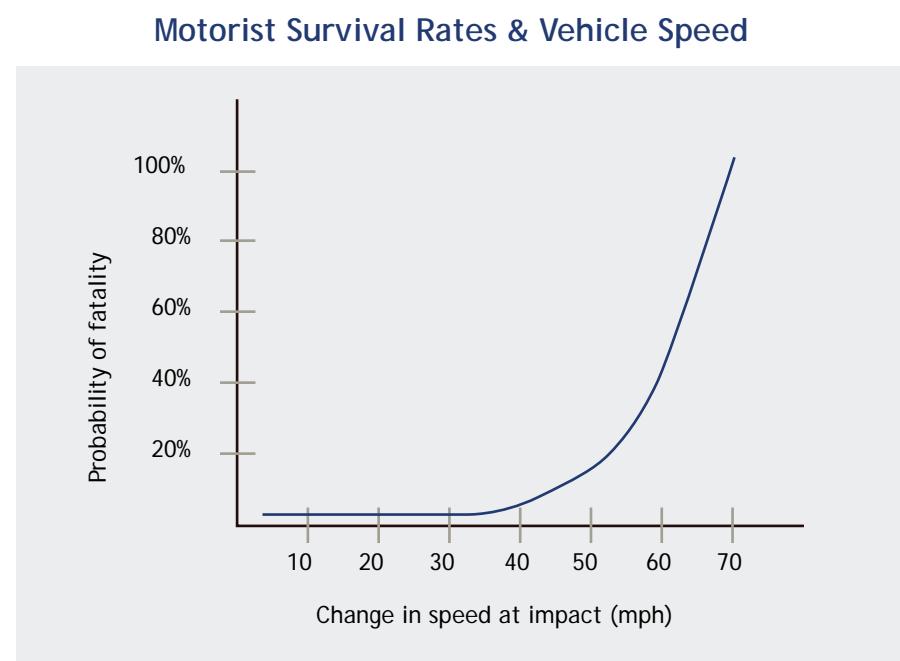


SAFETY

A successful context sensitive solution (CSS) produces designs that are safe for all users. Using CSS philosophy, CDOT maintains safety and mobility as priorities, yet recognizes that these are achieved in varying degrees with alternative solutions.

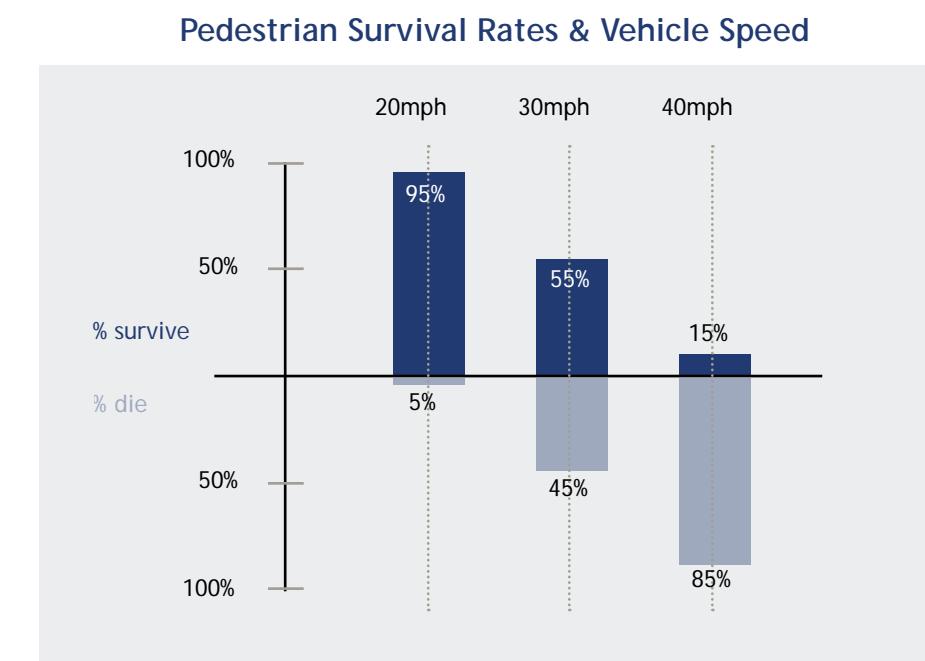
Outside of communities, roadway safety considerations address high speeds of travel to reduce the incidence and severity of motor vehicle crashes and the associated human and economic loss. In these types of places, intersections are the major points of conflict, with medians, protected left-turns, phasing of signals, and auxiliary lanes used as safety measures.

Within towns and cities, streets are designed to accommodate both vehicular mobility (the ability to travel distances) and multimodal circulation, safety and access (the ability to move around within a community to reach a variety of destinations).

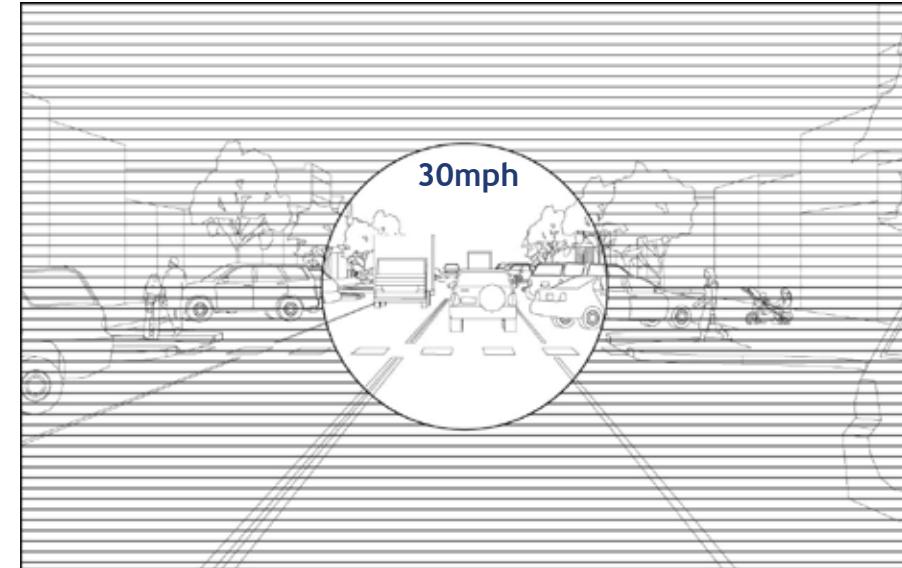
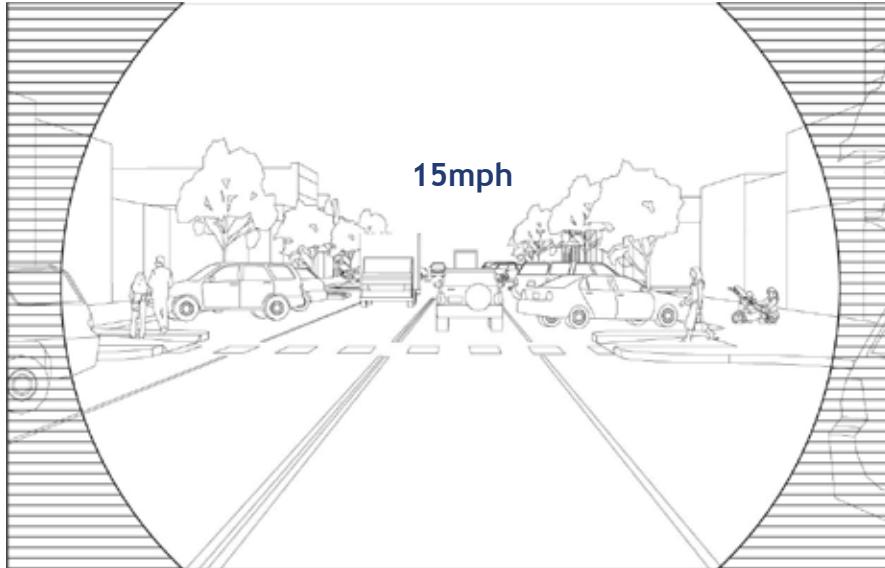


In this context, slowing speeds is one way of helping to achieve safety.

All users of a community's transportation system benefit from managing travel speeds through design. Intersections remain high conflict areas within communities and downtowns, but vehicular capacity, signal timing and the need for auxiliary turn lanes can be balanced with the ability to allow bicyclists and pedestrians to safely cross streets that are of reasonable width, with traffic traveling at reasonable speeds. **Managed traffic speeds are critical to reducing the vulnerability of bicyclists and pedestrians.** High-speed collisions result in incapacitating and fatal injuries to both drivers and people on foot or bike. Slower travel speeds increase the driver's field of vision, which increases awareness of surrounding activities and the ability to stop and avoid collisions.



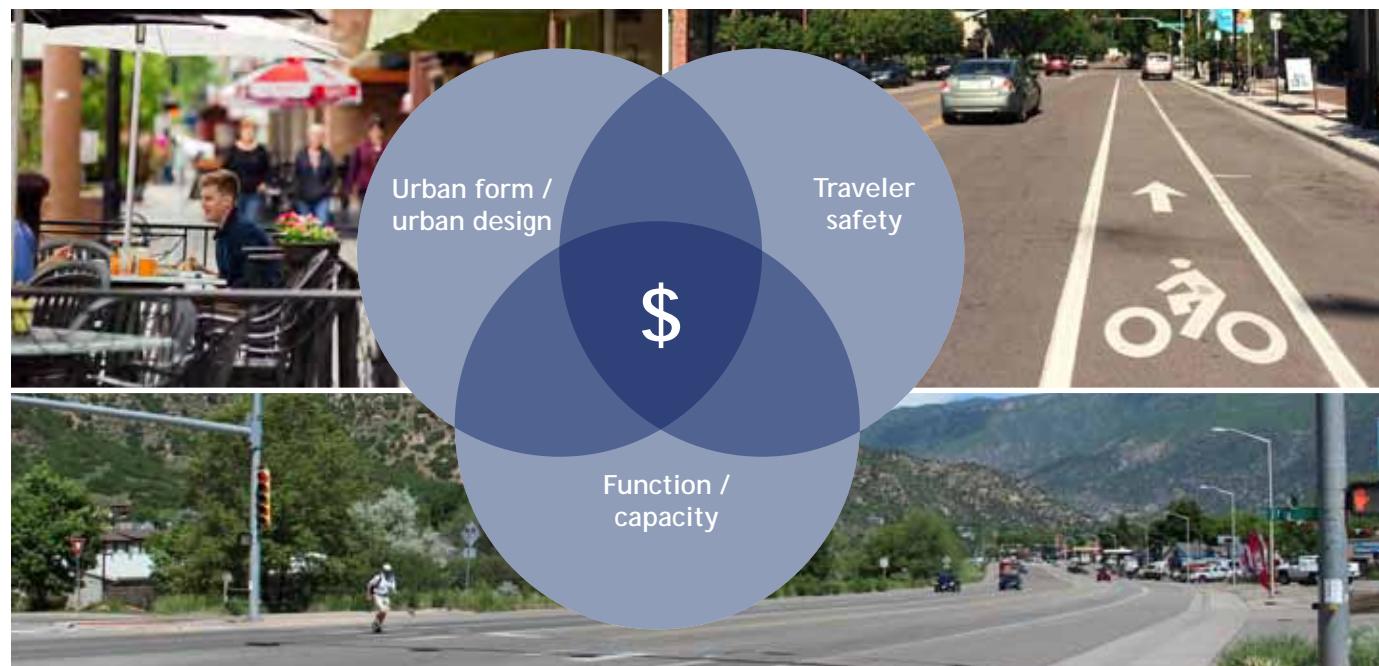
A Driver's Peripheral Vision is Significantly Greater When Travelling at 15mph than 30mph



WHAT IS A STREET?

FUNCTION

Outside of municipal boundaries, the functions that CDOT highways are primarily designed for are mobility (the ability to travel distances) and capacity (the number of vehicles it can accommodate). However, within communities, a more complete approach to transportation infrastructure is often desired. This includes balancing public expenditures for capacity improvements with prioritizing safety for all users and supporting good urban form within main street environments. This is important both within larger cities and small towns to strengthen sense of community and sustain downtown businesses.



INTENDED USERS

DESIGN VEHICLES

Many street design decisions are based upon the largest users - trucks and buses - and the smallest, most vulnerable users - bicyclists and pedestrians.

Fire trucks and other emergency vehicles need safe passage. Some streets are also designated transit and truck routes. Many Colorado main streets are part of the State Highway system. Sometimes truck traffic may be redirected onto a designated route around the central business district but sometimes this is not possible, bringing truck traffic directly through the downtown. How to accommodate wider vehicles and longer wheel beds depends on how frequently they use a street.

The concept of "design vehicle" is a key principle affecting lane width and size of turning radii. If a street regularly functions as a bus or truck street route, consider providing 11' minimum width traffic lanes to accommodate the widest vehicles. If oversized vehicles will only occasionally be using a street, consider narrowing traffic lanes to 10'.

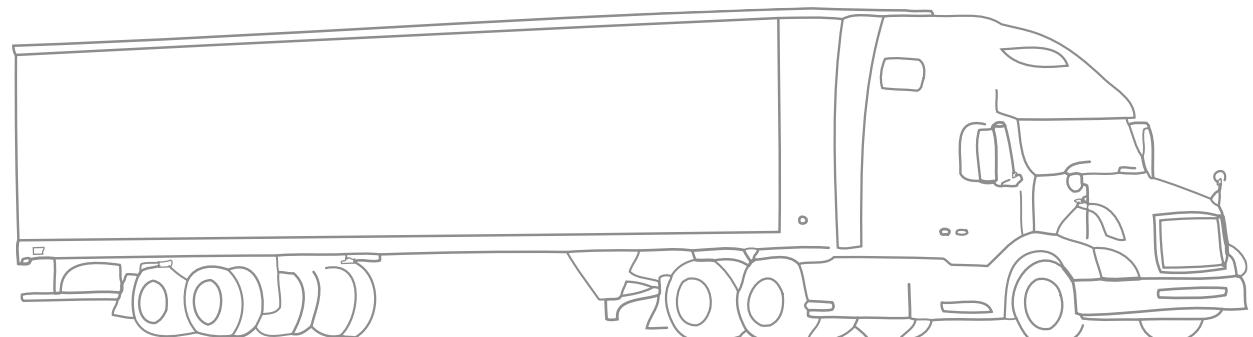
Similarly, at intersection corners with frequent right turning bus and truck traffic, provide a larger turning radius (typically 25') to comfortably and safely accommodate a large design vehicle without encroachment into adjacent or opposing lanes. However, if right turns by

oversized vehicles are infrequent, or if there are bicycle lanes or on-street parking present, provide smaller curb radii (10'-15'). The design of all curb radii must balance vehicular needs with pedestrian needs. Large turning radii increase the length of crosswalks and hence the exposure of pedestrians to vehicles. They permit vehicles to take turns faster, which is also detrimental to pedestrian safety. Conversely, if curb radii are too small, large vehicles will frequently travel over the curb into the pedestrian realm, jeopardizing safety and degrading the curb.

The *ITE Context Sensitive Solutions in Designing Major Urban Thoroughfares* manual supports this practice by recommending that curb return radii "be designed to accommodate the largest vehicle type that will *frequently* turn the corner. This principle assumes that the occasional large vehicle can encroach into the opposing travel lane."



Buses and transit are important to accommodate in street design. Basalt.



PEDESTRIANS

Outside of communities, trip distances are long and pedestrian traffic is typically light. Walking may be accommodated on paved shoulders on rural roads, or on separated shared-use paths. Within street right-of-way inside of city limits, pedestrian considerations should address user safety and convenience, and should include provisions for sidewalks, Americans with Disability Act (ADA) access requirements, and street crossings.

Intersection design on both rural roads and city streets must carefully consider the safety needs of both bicyclists and pedestrians.



Pedestrians stroll along the sidewalk. Lyons.

BICYCLES

Bicyclists should be expected on all streets and roadways within Colorado except those where their use is prohibited. Chapter 14 of the *CDOT Roadway Design Guide* contains detailed guidance for accommodating bicycle travel on a variety of facility types in various contexts.

Since bicycles are vehicles, on-road bicycle facilities are the most common options. On lower volume, lower speed roadways, shared lanes are acceptable. Paved shoulders with bicycle-friendly rumble strips may be provided on rural roads outside of municipal boundaries, with shared-use paths occasionally developed parallel to a roadway along the right-of-way edge. Within communities, the toolkit of on-street bicycle facility design options greatly expands to include the above as well as bike lanes, marked shared lanes, buffered bike lanes, protected bike lanes (cycle tracks), and bicycle boulevards.



Bicyclists should be expected on all streets - and in all types of weather. Durango.

What is a Right-of-Way?

A right-of-way (ROW) is an easement for public travel. It usually is wider than the street and includes space for sidewalks and public utilities. It is important to understand that ROW may be under the jurisdiction of several different entities, especially on state highways. For example, CDOT may have jurisdiction over the portion of the ROW from curb-to-curb, but a municipality or a county may have jurisdiction over the ROW between the curb and the private property line.

PLACEMAKING

Rural roads outside of municipal boundaries are defined by the natural environments through which they pass. In contrast, town and city streets are defined by man-made elements and design decisions that create a sense of place. Placemaking—which celebrates streets as public spaces for people as well as facilities for traffic and transportation—is critical to successfully creating vibrant environments that are safe and inviting for people walking, shopping, parking and driving in a downtown context. Successful placemaking creates places for people young and old—places where people age 8 to 80 feel comfortable and welcome walking and strolling past storefronts, meeting and greeting friends and neighbors. Successful placemaking also requires innovation and design techniques that go beyond those presented in traditional roadway design manuals, and are thus addressed in detail in this publication. For more information on streets as places, reference The Project for Public Spaces' web resource.



Art and sculpture is a fun, beautiful way to introduce placemaking into the streetscape. Edwards.



Benches, flower pots and two forms of public art—sculpture and wall mural—result in a pedestrian-friendly space. Carbondale.



STREETSCAPE COMPONENTS

STREETSCAPE COMPONENTS

Streetscape components are the various sections that make up a street.

Pg 24 TRAVELWAY

DESIGN ELEMENTS

Design elements are parts of the streetscape components. They can be thought of as tools to optimize the functionality of the street.

Pg 36 TRAVELWAY EDGE

Traffic Lanes	Turn Lanes	Raised Medians
Pedestrian Refuge Islands	Crosswalks	Bicycle Lanes
Midblock Crossings	Other Bicycle Accommodation	Traffic Signals

Pg 42 FURNISHINGS ZONE

On-Street Parking	Curb Extensions
Parklets & Bike Corrals	Bus Stops

Street Trees	Lighting	Utilities
Amenities	Public Signage	

Pg 50 PEDESTRIAN THROUGHWAY ZONE

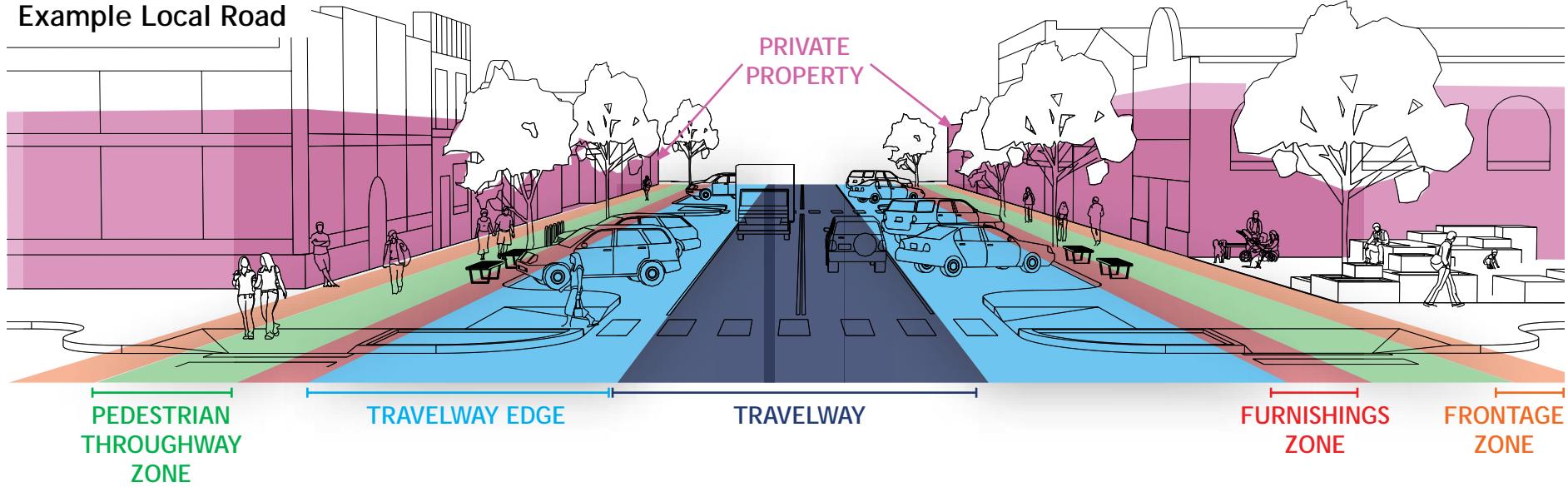
Sidewalks
Curb Ramps

Pg 56 FRONTAGE ZONE

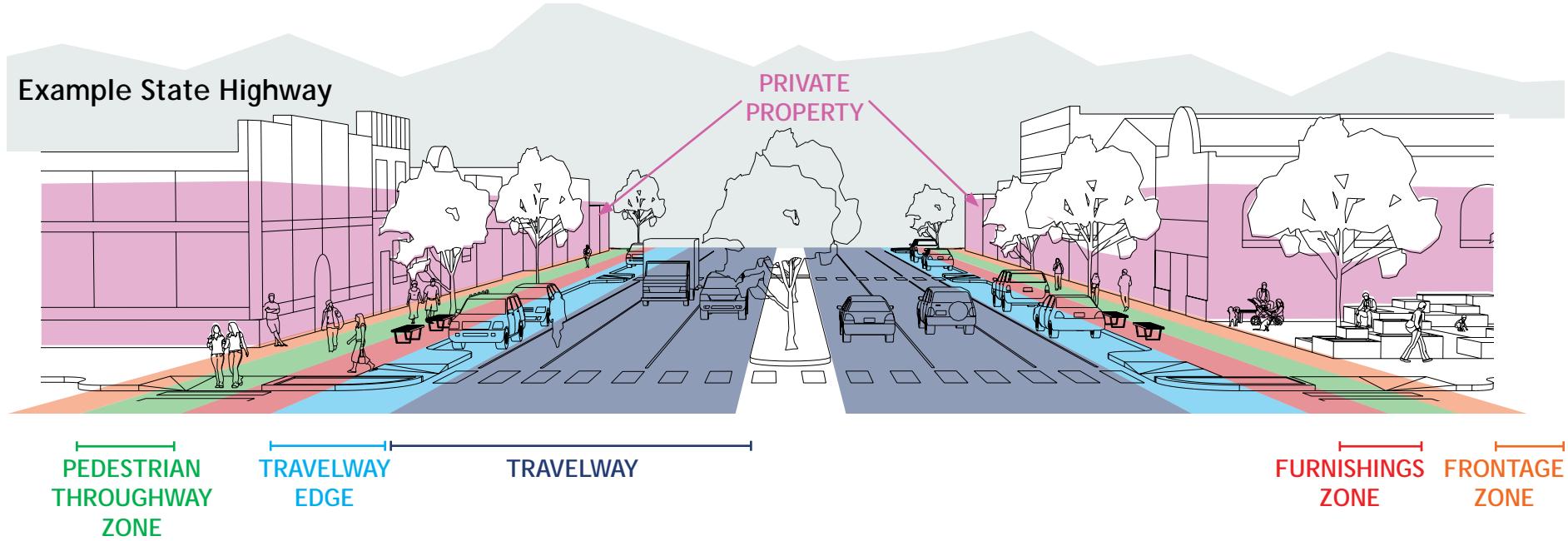
Storefronts	Outdoor Dining
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Pg 60 PRIVATE PROPERTY

Example Local Road



Example State Highway

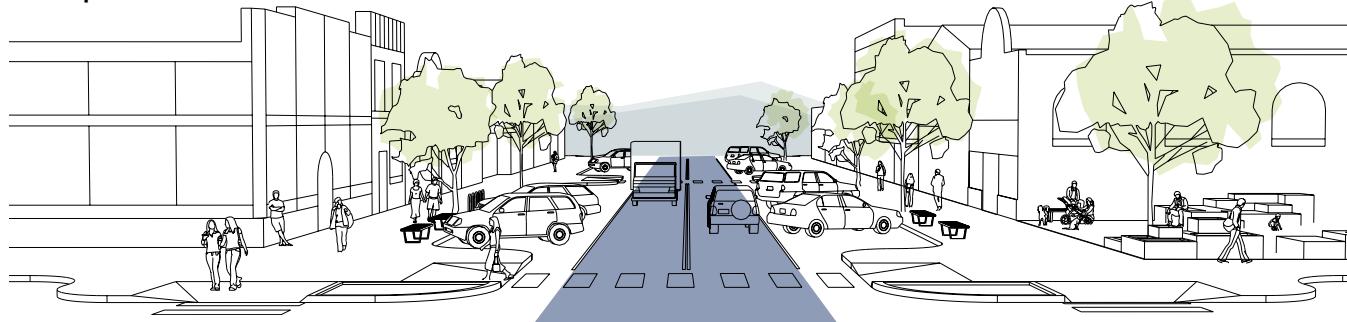


TRAVELWAY

Definition

The travelway is the part of a street or highway dedicated to the movement of vehicles. It includes through lanes, turn lanes and auxiliary lanes (for merging); bicycle lanes, high-occupancy vehicle (HOV) lanes and bus lanes; but excludes shoulders and parking lanes (which are part of the "travelway edge").

Example Local Road



Example State Highway



Similar Terms:

- Traveled way
- Travel lanes
- Street
- Thoroughfare
- Roadway
- Highway

Travelway Design Elements

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COMPONENT OVERVIEW

The travelway within downtown contexts needs to be sensitive to all modes of travel. Many times, streets and intersections have been widened with the primary purpose of moving traffic and minimizing congestion. Communities should examine ways to balance the needs of through motor vehicle traffic with local needs for getting around town by car, and on foot and bike. Best practices include developing strategic approaches for when and where to eliminate congestion, where to add turn lanes or restrict turning movements, where to enhance non-motorized facilities, and where to modify intersection designs to provide safer street crossings.



The travelway is dedicated to moving vehicles.
Monte Vista.

DOWNTOWN CONTEXT

- Many different uses compete for right-of-way space on downtown streets. Consider **narrowing traffic lanes** to 10' widths (11' minimum if truck/bus route) to slow traffic and accommodate on-street parking, bicycle space and/or an enhanced pedestrian realm.
- Turn lanes** are not always needed to remove turning vehicles from through-moving traffic streams in the downtown context. For increased pedestrian safety and comfort, consider replacing right turn lanes with curb extensions and provide left turn pockets only where warranted.
- Through the downtown core, **bicycle travel** may be accommodated in two primary ways: If there is space within the right-of-way, striped bicycle lanes may be provided. If vehicular speeds can be managed through low-speed design, bikes and cars can share travel lanes.
- When pedestrian travel is given the highest priority in the downtown context, **crosswalks** should be frequent to encourage trips on foot, with **signals** timed to accommodate safe crossings. Special **pavement designs** may be used within intersections to improve pedestrian safety and to help create and enhance downtown identity.
- Median islands** may be used to create gateways in areas leading into the downtown core and to manage left turns.

TRANSITION CONTEXT

- As a roadway transitions into a street, the design of the travelway should address **multimodal needs** and accommodate the community's bike, transit and pedestrian systems.
- Creating gateways at the point where a state highway enters the city limits will create sense of place and signify a reduction in travel speeds. A **landscaped median** is one design option that can be used to narrow the perceived width of a transition street corridor and help to establish a sense of arrival.
- Providing on-street **bike lanes**, a parallel multi-use trail with the right-of-way, or routing on a parallel street are all ways that street design may accommodate the needs of the municipality's bicycle system. (Note that painting sharrows within shared travel lanes is not recommended for bicycle accommodation on heavily-traveled state highway routes).
- Intersection design** must accommodate multiple modes. Communities may extend bicycle lanes to and through intersections, provide marked crosswalks, make accessible connections from sidewalk to street, and appropriate signal spacing and timing as a way to create safe street crossings for people on foot and bike.

TRAFFIC LANES

Definition:

Traffic lanes are the portion of the street ordinarily designated for motorized travel. They can include lanes designated for through traffic or turning lanes.

Benefits:

Traffic lanes guide drivers and reduce potential traffic conflicts. They influence users' speed and the perceived traffic volumes on the street. Narrower traffic lanes minimize pedestrian crossing distance, encourage safe driving behavior, and provide extra right-of-way to be designated for other purposes, such as parking, bike lanes, or sidewalks.

Application:

Each lane width discussion should be informed by a balanced understanding of the goals for slowing down traffic and minimizing crossing distance as well as providing adequate space for larger vehicles, such as trucks and buses. Both pedestrian and vehicular traffic volumes are key considerations. For more information, see pages 18-19.

Design Considerations:

- In the downtown context where pedestrian activity is prominent and desired, 10' lanes can provide safety benefits; however 11' lane widths may be needed if the street is a designated bus or truck route.²³ For more information, reference NACTO's *Urban Street Design Guide*.



Traffic lanes help guide vehicles and establish order within the travelway. Leadville.

TURN LANES

Definition:

A turn lane is a traffic lane designed to separate turning vehicles from through vehicles.

Benefits:

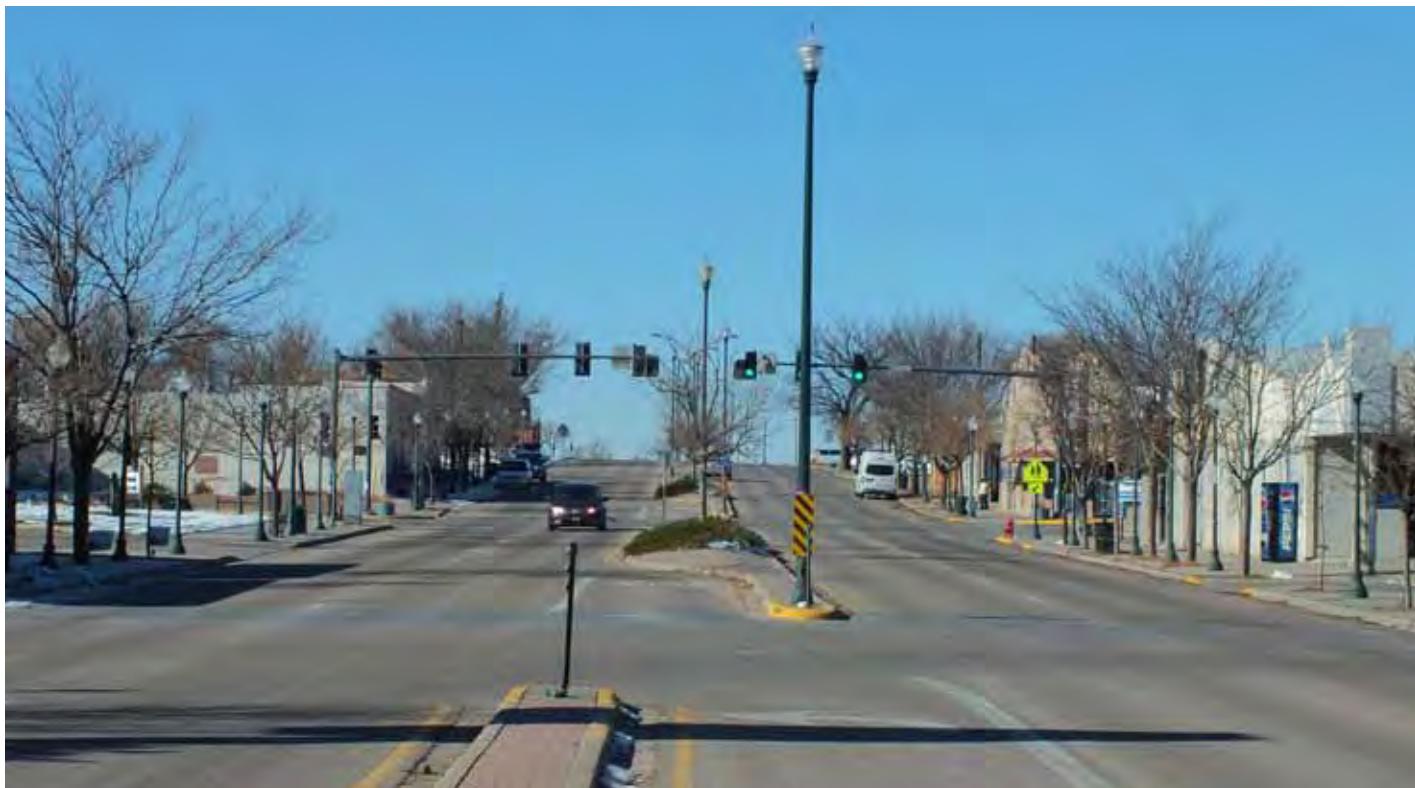
Turn lanes provide designated space for vehicles to slow down and wait to make turning movements apart from through vehicles, allowing through vehicles to maintain speeds. Left-turn lanes at intersections increase the capacity of the traffic lanes by eliminating cars waiting within a traffic lane to make a left turn, which would block traffic.

Application:

Determining the number of turn lanes at critical intersections requires evaluation of trade-offs between vehicular capacity, pedestrian crossing distance and exposure to traffic.

Design Considerations:

- Turn lanes that are 10'-11' wide may be appropriate in downtown areas with target speeds of 35 mph or less.²⁴
- Continuous two way left turn lanes for long uninterrupted stretches can be avoided by reallocating space to a median, even if only painted, to limit unpredictable turning movement or the illegal use of the turn lane as a traffic lane for through travel.
- Where operational or safety considerations allow, right turn lanes may not be needed within the downtown context.



Turn lanes separate turning vehicles from through vehicles. Limon.

RAISED MEDIANS

Definition:

A raised area within the travelway separating traffic lanes that extends for most or all of a street block or at spot locations to create gateways or provide protection for mid-block crossing.

Benefits:

Raised medians reduce the risk of left-turn and vehicle head-on collisions. They can also slow down traffic by visually narrowing the roadway. Additionally, they enhance pedestrian safety and accessibility by reducing crossing distances and providing refuge for pedestrians to cross the street in stages. If designed to incorporate trees and/or plantings, they can also beautify the streetscape and can improve environmental quality. They also provide a place for snow storage when necessary.

Application:

In the downtown context, wide streets of four or more lanes can benefit from a raised median to improve overall street appearance, operation, and safety—especially for pedestrians. In the transition zone where a 5-lane highway often leads into downtown, medians can provide a useful alternative to a continuous center turn lane by better controlling access and encouraging slower speeds as vehicles enter the downtown environment.

Design Considerations:

- The width as well as design of raised medians can vary widely and should be determined based off the utility the median will provide as well as available right of way. If the median is to serve as a pedestrian refuge island, the minimum width should be 6'.²⁵ For medians that will include larger tree plantings, a minimum width of 10' is recommended. Narrow medians (4' or less) should only be used to restrict turning movements, to separate opposing directions of traffic and to provide space for traffic control devices or small plantings, such as shrubbery.²⁶



Raised medians reduce the risk of collisions, help slow down traffic and enhance pedestrian safety. Woodland Park.

PEDESTRIAN REFUGE ISLANDS

Definition:

Refuge islands are protected areas within crossings where pedestrians or bicyclists can stop before finishing crossing a street.

Benefits:

While in downtowns it is desirable that streets have short crossings, on wide streets, refuge islands provide a location for pedestrians or bicyclists to wait partially through their crossing and break up crosswalks into shorter and easier portions for pedestrians to cross.

Application:

Refuge islands are most useful at intersections and midblock crossings where people who walk more slowly, such as the elderly and children, may need to cross.²⁷ CDOT's Chapter 14 of the *Roadway Design Guide* recommends that raised median pedestrian refuge islands be installed at all midblock crossing locations where the pedestrian must cross four or more lanes of traffic.²⁸

Design Considerations:

- An angled cut through the median provides additional space for pedestrians to stage. The cut should be angled toward oncoming traffic in each direction to encourage pedestrians to pause and look toward traffic before traversing the second half of the crossing as well as encouraging them to look toward oncoming traffic.
- The crossing should be fully accessible, including ramps with the appropriate slope.
- It is preferable that the median be raised on each side of the crosswalk in order to provide a physical barrier from vehicles.
- The minimum raised separation width between travel lanes for a pedestrian refuge island is 6' but 8' is preferred to provide space for multiple pedestrians and strollers.
- For more information, reference the Federal Highway Administration University Course on "Bicycle and Pedestrian Transportation Lesson 11: Pedestrian Design at Intersections Section 11.9".



Pedestrian refuge islands help people cross four or more lanes of traffic. Longmont.



Refuge islands provide a protected area for pedestrians within the travelway. Fort Collins.

CROSSWALKS

Definition:

Marked crosswalks direct legal pedestrian movements to desirable and safe crossing points. Marked crosswalks can be located at either intersections or mid-block and contain a variety of design features to enhance safety and visibility, including painted markings and distinct materials from the rest of the street.

Benefits:

Safe and frequent crosswalks support a walkable environment by reinforcing pedestrian right-of-way at intersections.

Application:

Crosswalks are appropriate in the following locations:

- At signalized intersections
- At key crossings along designated school walking routes
- At certain types of uncontrolled crossings to indicate a preferred pedestrian crossing location
- To alert drivers to an often-used pedestrian crossing
- In all locations where a multi-use path crosses a street at-grade

Design Considerations:

- All signalized crossings should be striped to reinforce yielding of vehicles turning during a green signal phase.
- Stripe the crosswalk at least as wide as the sidewalk it connects to and align it to the pedestrian through zone to avoid unnecessary deviations.
- High visibility ladder crosswalk markings are preferable to standard parallel markings and have been shown to improve yielding behavior.²⁹
- Accessible curb ramps are required by the Americans with Disabilities Act (ADA) at all crosswalks.
- For more information, reference the Federal Highway Administration University Course on "Bicycle and Pedestrian Transportation Lesson 11: Pedestrian Design at Intersections Section 11.3".



Marked crosswalks reinforce pedestrian right-of-way at intersections, enhance safety and visibility, and can be located at mid-block crossings as well. Leadville.

MIDBLOCK CROSSINGS

Definition:

Midblock crossings are marked pedestrian crosswalks that do not occur at intersections.

Benefits:

Midblock crossings enable safe pedestrian crossing to places people want to go that are not located at formal intersections.

Application:

The AASHTO *Guide for the Planning, Design and Operation of Pedestrian Facilities* recommends midblock crosswalks under the following circumstances:

- Already substantial number of midblock crossings present in the community
- Due to existing and planned destinations, pedestrians are highly unlikely to cross the street at the next intersection
- Spacing between adjacent intersections exceeds 660'
- Adequate sight distance is available

Design Considerations:

- Vertical elements such as trees, landscaping, and overhead signage help identify midblock crosswalks to drivers but should not obscure visibility.
- Medians or safety islands are recommended to create a safe two-stage crossing.
- Raising the crosswalk is recommended for maximum visibility.
- For more information, reference the AASHTO *Guide for Planning, Design and Operation of Pedestrian Facilities*.



In the appropriate locations, midblock crossings provide safe, visible locations for pedestrians to cross the street away from intersections.
Rifle.

Crossing Can Be Complicated

An FHWA Report, *Safety Effects of Marked vs Unmarked Crosswalks at Uncontrolled Locations*, concludes that there is no difference in safety between marked and unmarked midblock crosswalks on two-lane roads, and that marked midblock crossings on multi-lane roadways are actually less safe than unmarked midblock crossings. The report concludes that crosswalks, by themselves, should not be installed at uncontrolled crossing locations on two-lane roadways with average daily traffic (ADT) above 12,000, and multi-lane roadways with ADTs above 9,000. In these instances, more substantial engineering treatments need to be considered, including raised medians, pedestrian signals, and signs and markings.

BICYCLE LANES

Definition:

Bicycle lanes are a designated portion of the travelway marked off with painted lines for exclusive use by bicyclists.

Benefits:

Bike lanes provide separation from motor vehicles, improve accessibility and connectivity between destinations, discourage wrong-way riding, and increase mobility for bicyclists—a benefit especially critical for a community's youth population.

Application:

Bicycle lanes are most appropriate on streets that are part of a community-wide bicycle network, and are the preferred treatment to create major cross-town bicycling corridors that will benefit both advanced and less experienced cyclists. Bike lanes work in corridors with or without on-street parking, are typically implemented as one-way facilities located on both sides of a street, or on one side as a climbing lane heading up steep grades.

Design Considerations:

- Though 4' is the minimum required bicycle lane width, a minimum of 6' provides space for bicyclists to avoid conflicts with opening doors from cars parked on the street. 13' is appropriate for shared bike/parking lane.
- CDOT requires bike lanes be designated with the bicycle symbol, and encourages use of a directional arrow to better communicate the requirement for bicyclists to ride with traffic.³⁰
- Dashed merge areas, green colored pavements, bike boxes and intersection crossing markings should be considered to guide bicyclists through intersections and increase motorist and cyclist awareness within potential conflict areas.³¹
- For more information, reference Chapter 4 of AASHTO³² Chapter 14 of the CDOT *Roadway Design Guide*, and the NACTO *Urban Bikeway Design Guide*.³³



Bike lanes help provide separation between bicyclists and motor vehicles. Breckenridge.



Bike lanes designate portions of the travelway exclusively for bicyclists. Breckenridge.

OTHER BICYCLE ACCOMMODATION

Definition:

Shared lanes are lanes of the travelway open to both bicycle and motor vehicle use. "Sharrows" are shared lane markings that may be used to indicate an appropriate bicycle positioning within a shared vehicular traffic lane and indicate to drivers that bicyclists may take the full lane.

Protected bicycle lanes, also called cycle tracks or separated bicycle lanes, are exclusive bicycle facilities physically separated from motor vehicle traffic and distinct from the sidewalk. Where on-street parking is present, protected bicycle lanes are located between the curb and the parking lane, with careful attention paid to intersection design.

Benefits:

Bicycles are allowed on all streets and roadways in Colorado except where specifically prohibited such as some interstates. Adding sharrow pavement markings and/or Bike Route signs to select streets can aid cyclists in wayfinding and proper lane positioning, and enhance driver awareness of cyclist use of a corridor. However, these treatments do not provide enhanced space for bicyclists, thus bike lanes are the preferred facility type on busier streets.

Application:

In many Colorado towns, bicycle lanes are not found within the downtown core, as rights-of-way are often limited, on-street parking is needed and there is not enough room to provide both parking and bike lanes. Though not ideal, in these places, if traffic is moving less than 35 mph, both drivers and cyclists can share lanes that are marked with sharrows.

Conversely, some Colorado highways may have been built as wide streets with extra capacity within communities. These corridors may be candidates for reallocating street space to provide protected bicycle lanes, especially if traffic is moving between 30 and 40 mph.

Design Considerations:

- Sharrows pavement markings should be placed within the center of the travel lane, or at minimum, no closer than 4' from curb face, or 11' where on-street parking is present.³⁴
- Protected bicycle lanes may be configured in numerous ways, but should be physically separated from traffic by a raised island or parked cars, and located adjacent to the street curb instead of adjacent to a vehicular travel lane. Refer to the *NACTO Urban Bikeway Design Guide* and Chapter 14 of the *CDOT Roadway Design Guide* for more information on protected bike lanes.



"Sharrows" provide notice to motorists that bicyclists may share the lane with moving vehicles. Frisco.

TRAFFIC SIGNALS

Definition:

Traffic signals are a set of automatically operated colored lights, typically red, yellow, and green, for controlling traffic at intersections and crosswalks.

Benefits:

Traffic signals manage through and turning movements efficiently, reduce some types of crashes, and provide some security for pedestrian crossing.

Application:

The *Manual on Uniform Traffic Control Devices* provides a designated list of warrants, and at least one must be met to justify the installation of a traffic signal.

Design Considerations:

- Short signal cycles minimize pedestrian delay in the downtown environment, reducing wait times in all directions and creating more frequent crossing opportunities.
- Ensure crossing times are sufficient for all pedestrians to cross the street in one cycle based on a minimum crossing speed of 2.5 feet per second.³⁵
- Countdown timers should be used for pedestrian crossing intervals.
- Adjusting timing for peak and off-peak volumes can accommodate different needs throughout the day.
- Fixed-time signals ensure consistent opportunities for pedestrian crossings and cross traffic.
- If activated signals are used, ensure activation buttons are available at every signal.
- For more information, reference the Federal Highway Administration University Course on "Bicycle and Pedestrian Transportation Lesson 11: Pedestrian Design at Intersections, Section 11.8".



Traffic signals manage turning movements, and control traffic at intersections and crosswalks. Grand Junction.

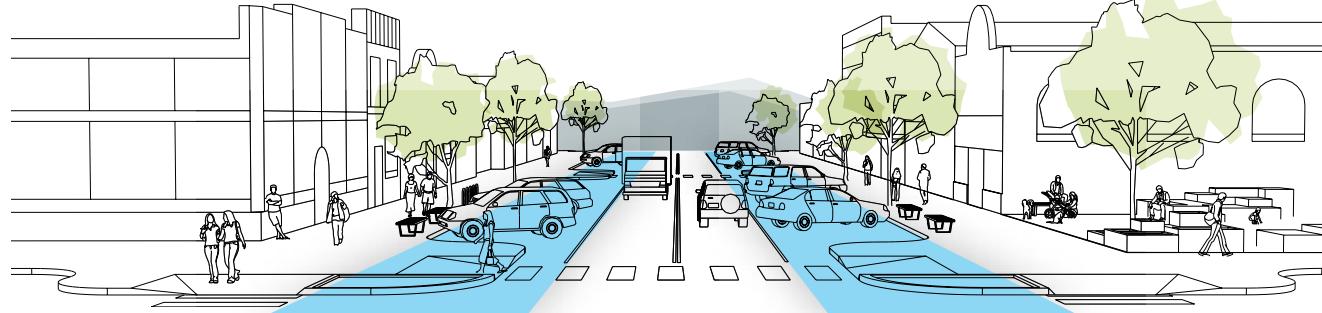


TRAVELWAY EDGE

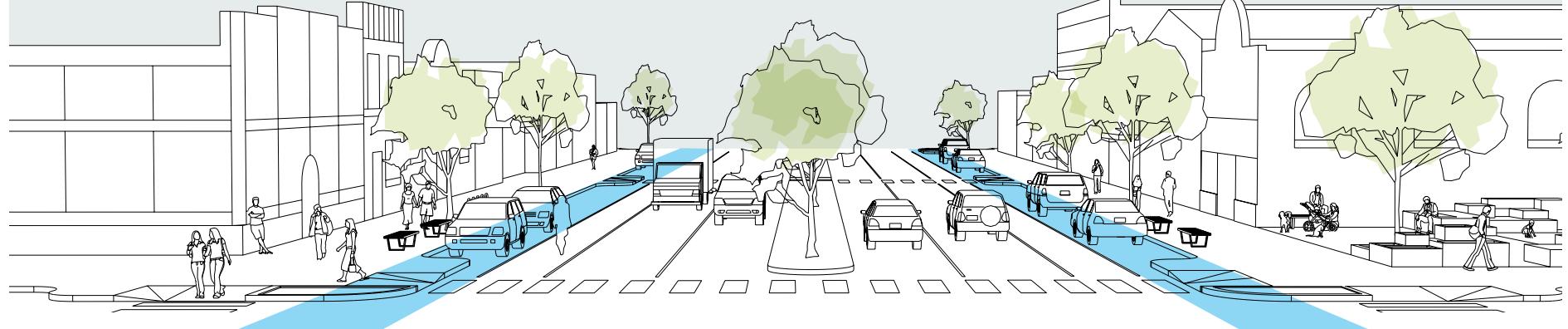
Definition

The travelway edge is the outside portion of a street or roadway that is not used for vehicular travel, but is typically included as part of street and road construction. Depending on context, the travelway edge may consist of shoulders, curb-and-gutter, on-street parking lanes, cycle tracks, bus stops, or delivery unloading areas.

Example Local Road



Example State Highway



Similar Terms:

- Edge zone
- Curb zone

Travelway Edge Design Elements

On-Street Parking	38
Curb Extensions	39
Bus Stops	40
Parklets & Bicycle Corrals	41

COMPONENT OVERVIEW

When a Colorado state highway enters the downtown and becomes a main street, the travelway edge is one of the right-of-way components that should change by design. Design of roadways outside of municipal boundaries should provide safety elements for high-speed travel—including edge treatments such as shoulders, horizontal clearances to obstacles and sufficient sight distances. However, within municipalities, the travelway design can focus on edge treatments that can slow traffic speeds and increase safety for all users.

Designing streets with vertical curbs provides separation between the travelway and adjacent activities. Where present, on-street parking provides additional buffering. Sight distance remains a critical design element, but the focus shifts from assuring safe and efficient operation of vehicles on a highway to prioritizing pedestrian safety and visibility at intersections.

Communities will want their travelway edge treatments to vary, reflecting and supporting various activities that occur throughout transition areas and downtown blocks. On-street parking opportunities should be maximized, but in strategic locations, the edge lane may transition into curb extensions, parklets or other design treatments that narrow the street and expand the pedestrian realm into the parking lane.

Many Colorado main streets will not have width for protected bicycle lanes, but in select corridors, municipalities may propose this type of bicycle facility be located along the travelway edge through transition areas where parking lanes can be used to buffer cyclists from vehicular travel. (See bike accommodation on page 33). When local and/or regional transit service routes are on main streets, municipalities should incorporate modern bus stop design into their streetscapes to support and encourage transit trips.

DOWNTOWN CONTEXT

- The travelway edge should be viewed as a **buffer** between vehicular traffic and pedestrian activity, and should include design elements that help to slow traffic speeds within the downtown context.
- Downtowns have **multiple competing uses** for right-of-way space. Careful consideration of trade-offs is important to arrive at an acceptable balance of space allocation for travel and turning lanes, bicycle accommodation, on-street parking and enhanced sidewalk space.
- On-street parking** is necessary for placemaking. The decision to provide parallel or diagonal parking should be balanced with the ability to create quality spaces for pedestrian activity. Diagonal parking requires more space than parallel parking, and may leave less space available for other amenities.
- Curb extensions** are an important consideration where on-street parking is present. This treatment narrows streets, shortens pedestrian crossing distances and improves crossing visibility. Curb extensions may be located at intersections, in strategic midblock crossing locations, or at bus stops.
- The travelway edge also offers opportunities to creatively introduce **amenity space** into the downtown context. Individual parking spaces may be converted into parklets, bicycle parking corrals or street tree planting space.

TRANSITION CONTEXT

- When a CDOT highway enters a **municipality**, the facility design should change from a roadway with shoulders to a street with curb-and-gutter.
- The need for **on-street parking** will largely be determined by adjacent land uses. In more suburban portions of transitional corridors, on-street parking may not be appropriate due to access management, adjacent land development patterns, large setbacks and off-street parking provisions. However, through residential neighborhoods and approaching a municipality's downtown, on-street parking should be introduced as the route transitions into the community core.
- In corridors with adequate right-of-way, **protected bicycle lanes** located between parking and curb may be appropriate at the travelway edge (see page 33).
- Transit stops** may be provided curb side, on curb extensions, or in bus bays. All bus stops should be designed to provide a continuous pedestrian access route to the street edge for accessible boarding and alighting.

ON-STREET PARKING

Definition:

On-street parking is space designated for vehicles to be parked, and may be provided either in front or back-in diagonal spacing or parallel spacing.

Benefits:

The presence of on-street parking significantly impacts the pedestrian environment. On-street parking provides an additional buffer between the traffic lanes and the sidewalk, improving pedestrians' perceptions of safety and comfort. Additionally, on-street parking often results in reduced traffic speeds, further improving the pedestrian environment. It also supports local businesses by providing convenient access.

Application:

On-street parking is appropriate and needed to support the function of downtown streets. Traffic speeds should be lower than 35 mph in corridors where on-street parking is present. Determining where on-street parking should be located is dependent on the context of the street, the needs of adjacent land uses and applicable local policies and plans for parking management. On-street parking should be provided within the downtown context, and should be considered within transition areas where adjacent development patterns will generate cars parked along the street.

Parallel parking is best suited for high-volume streets, though angled parking may be used on low-speed, low-volume, two-lane streets with ground floor commercial uses. However, angled parking is prohibited on state highways according to statute 42-4-1205. A local jurisdiction can create an ordinance allowing it, but CDOT still has to pass a resolution for approval.³⁷

Design Considerations:

- On-street parking cannot be located within 20' of an unsignalized crosswalk or intersection or within 30' of a traffic light. Curb extensions should be considered to restrict parking near intersections and midblock crosswalk locations and shorten crossing distances for pedestrians.
- The recommended width of a parallel on-street parking lane is 8' on commercial streets but 7' can be acceptable depending on other street geometrics and widths.³⁶
- Back-in angled parking provides motorists with better vision as they exit a parking space and enter moving traffic. Back-in angled parking also eliminates the risk of a motorist opening the car door into the path of a bicyclist that is present in parallel parking situations.



Parallel parking can help support the function of downtown streets, and back-in angle parking provides motorists better vision. Denver.

CURB EXTENSIONS

Definition:

Curb extensions (also called bulb-outs) extend the line of the curb into the travelway edge, reducing the width of the street. Curb extensions typically occur at intersections but can be used at midblock locations to shorten pedestrian crossing distances.

Benefits:

Curb extensions encourage pedestrian crossing movement at desired locations by reducing crossing distances and improving both pedestrian and motorist sight lines. They can also be used to slow down traffic by narrowing the width of the street or to provide extra space for tree plantings.

Application:

Curb extensions can be an important consideration where on-street parking is present and the distance between curbs is greater than what is needed for traffic lanes. Curb extensions, combined with appropriate turning radii, may serve as a traffic-calming measure for managing speeds of turning traffic. In all locations, the design vehicle (see page 18) that will be making turns at a given corner should be considered in determining the design of curb extensions and the selection of an appropriate curb return radius. On streets where there are frequent periods of underutilization of parking lanes, consider midblock curb extensions to reduce the perceived width of the street. In considering where curb extensions may be applied, it is important to know whether the locations are in CDOT's right-of-way or under local jurisdiction. For more information on right-of-way, see page 19.

Design Considerations:

- The curb line should be extended 6' when parallel parking is present, but the curb extension should not extend into traffic or bicycle lanes.³⁸
- For more information, reference Federal Highway Administration University Course on "Bicycle and Pedestrian Transportation Lesson 11: Pedestrian Design at Intersections, Section 11.7".



Curb extensions, also known as "bulb outs", make pedestrians more visible at intersections. Carbondale.

BUS STOPS

Definition:

A place where a bus regularly stops. Bus stops include both the location within the travelway where the transit vehicle stops, and the placement and design of pedestrian waiting and loading areas.

Benefits:

Bus stops provide a safe location for transit riders to queue while waiting for the bus. They can enhance the quality of the street when they are designed to include key features such as quality bus shelters, wayfinding maps, benches, plantings or art.

Application:

The majority of bus stops are located at intersections. Provide riders with the station name, route map and schedule at the bus stop on a provided bus shelter or other posted sign.

Design Considerations:

- Farside bus stops (which allow a bus to pass through an intersection before stopping) are the preferred design treatment in most locations because the view of the departing transit passenger is not obscured as that passenger becomes a pedestrian in a crosswalk.
- All bus stops are required to meet ADA standards and must have safe access via sidewalks and crosswalks. A continuous pedestrian access route to a paved landing area must be maintained free of obstacles and protruding objects for a 4' minimum width. This includes a 4' minimum space in front of shelters, benches and other waiting amenities.
- Bus stops should be equipped with transit shelters whenever possible to make transit more attractive and safe by protecting riders from the elements.
- Adequate lighting should be installed around the bus stop to ensure personal safety and security.³⁹
- For more information, reference the NACTO *Urban Street Design Guide*.



Bus stops include both the space within the travelway where the bus stops and the placement of the pedestrian waiting and loading areas. Roaring Fork Valley.

PARKLETS & BICYCLE CORRALS

Definition:

Parklets are curbside parking spaces that have been converted to public seating platforms. Bike corrals are curbside parking spaces that are dedicated to bicycle parking areas.

Benefits:

In many locations, right-of-way space for expanded sidewalk functions, such as outdoor dining or bike parking, is limited. Conversion of select on-street parking spaces to other uses may help to meet this need. Parklets increase public space and have been shown to increase revenues for nearby businesses.⁴⁰ Bike corrals make bicycling more convenient for employees and patrons to bike to area businesses, increasing both foot and bicycle traffic on the street. Bike corrals have also been shown to have a positive impact on business.⁴¹

Application:

Parklets are typically applied where narrow or congested sidewalks prevent the installation of outdoor seating for businesses, or where local businesses and residents see a need to expand public space on a street. Bike corrals are appropriate in locations where demand for bike parking outstrips the available sidewalk space. Parklets and corrals can be removed in the winter to prevent conflicts with snow removal operations. In considering where parklets or bike corrals may be applied, it is important to know whether the locations are in CDOT's right-of-way or under local jurisdiction. For more information on right-of-way, see page 19.

Design Considerations:

- Parklets are converted from at least one parallel parking space or 3-4 diagonal parking spaces and are a minimum of 6' wide, or as wide as the parking lane.
- Parklets should be located at least 1 parking space away from an intersection corner.
- Parklets must be buffered using a wheel stop at a distance of 4' from the parklet to safely separate it from neighboring parking spaces.
- Consider portable barriers such as curbs and vertical panels to protect the installations and enhance visibility.
- Parklets should be built flush with the sidewalk and curb to provide easy access and prevent tripping hazards.
- Bike corrals are differentiated from the street through the use of paint or bollards, and generally provide 12-14 U-shaped bike racks.
- Bike corrals should be as wide as the parking lane and one to two parking spaces long, remaining level with the street.
- Corrals can be located at corners to increase visibility of pedestrians at the intersection to motorists.



Bike corrals occupy street space to create centralized safe-keeping for multiple bicycles.
Fort Collins.



Parklets create temporary, "pop up" public spaces. Louisville.

FURNISHINGS ZONE

Definition

The furnishings zone is the area of the right-of-way that provides a buffer between pedestrians and vehicles, and contains landscaping, public street furniture, transit stops, public signage, and utilities.

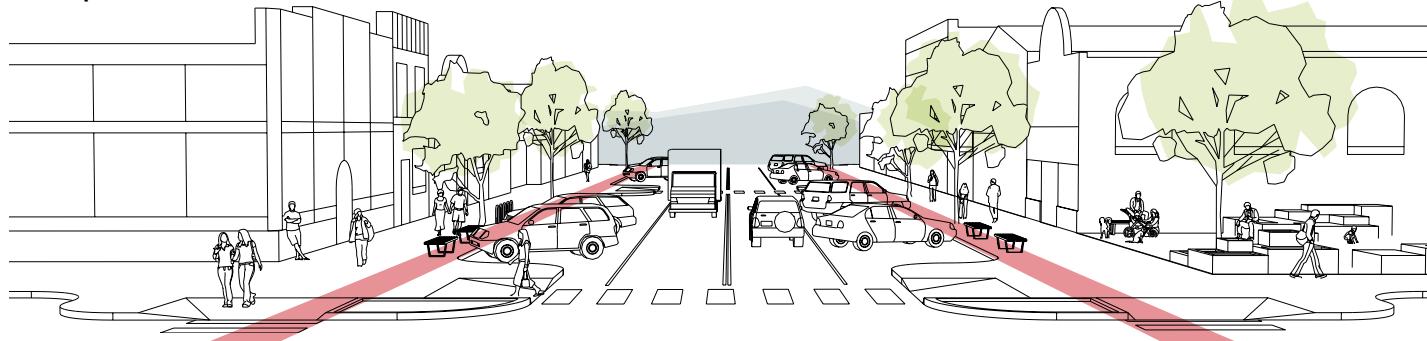
Similar Terms:

- Pedestrian buffer
- Planting strip
- Roadside
- Parkway
- Buffer zone
- Amenity zone
- Street furniture zone

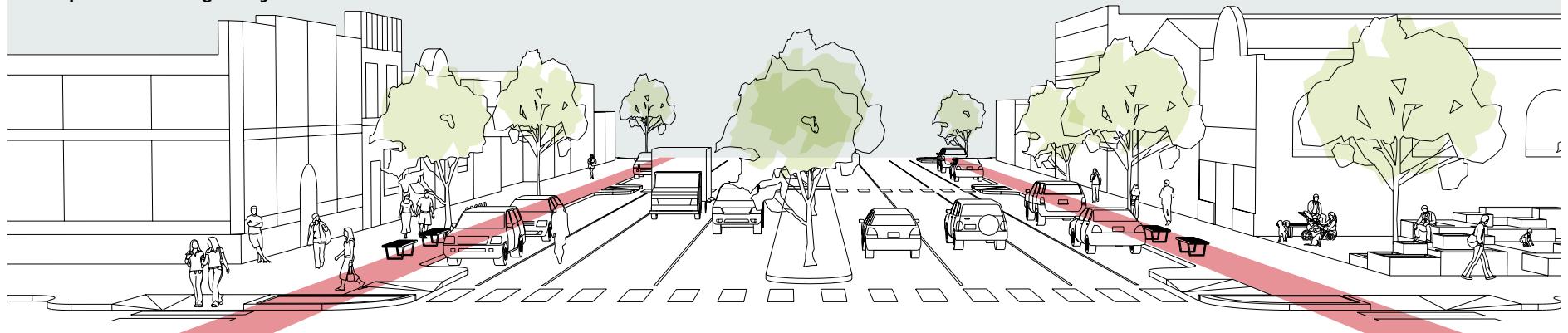
Furnishings Design Elements

Street (Shade)	Trees	44
Lighting		45
Utilities		46
Amenities		48
Public Signage		49

Example Local Road



Example State Highway



COMPONENT OVERVIEW

The furnishings zone is a critical component of the street. It provides separation between the street and the sidewalk and supports features of both the travelway and adjacent properties. Depending on the adjacent land use context, furnishing zones provide space for traffic signs, traffic signal posts, underground and/or overhead utilities, mailboxes, streetscaping, street lights, bus stops, bicycle parking racks, parking meters, newspaper stands, and benches. Where furnishing zones cannot be provided and attached sidewalks are constructed, these functions need to be located somewhere other than on the sidewalk to ensure safe and accessible passage for sidewalk users. See page 52.

Ground floor land use is an important consideration when designing furnishings zones. Landscape and lawn treatments are appropriate in residential neighborhoods; hardscape treatments are appropriate in front of downtown mixed-use and commercial buildings.

The desired width of the furnishings zone will be dependent upon adjacent travelway traffic volumes and speeds. Sidewalks can be located closer to curbs in corridors with managed travel speeds, but increased separation will be desired where there is faster moving traffic. Consider the space needed for healthy street tree growth, as well as the space required to accommodate slopes for pedestrian access ramps that meet ADA guidelines. Furnishing zones that are 6' wide will accommodate both, as most Colorado municipalities construct streets using 6" vertical curbs which require 6' long curb ramps to meet the 1:12 (8.3 percent) ADA standard for running slopes.

Plant furnishing zones with regularly spaced street trees to provide shade for sidewalks and narrow the perceived width of the street corridor. Use species that are suitable for the local plant hardiness zone and tolerant of street-side micro climates.

DOWNTOWN CONTEXT

- To support mixed-use and first-floor commercial activity within downtowns, construct hardscape furnishing zones as part of a **wider paved sidewalk** area that connects on-street parking to the pedestrian throughway, with street trees planted in tree wells within the furnishing zone.
- Provide a mix of **pedestrian amenities** that support local businesses and contribute to the vitality of the downtown environment.
- To provide space for amenities and aid in meeting running slope requirements of ramps for **ADA accessibility**, a 6' minimum width is desired for the furnishings zone.
- Locate pedestrian amenities, lighting, signage, utilities and transit stops in furnishings zones. Where less width is available than desired, ensure that amenities and utilitarian functions **do not block or narrow the sidewalk** to a width less than the minimum to accommodate an ADA pedestrian access route (PAR).

TRANSITION CONTEXT

- Construct **detached sidewalks** whenever possible to provide space for a furnishings zone and to buffer sidewalks from vehicular travel lanes. If attached sidewalks are constructed, sidewalk width should be 7' minimum from back-of-curb.
- In transition areas with **residential land use**, provide furnishing zones in the form of landscape strips planted with street trees. A 6' minimum width is desired.
- In transition areas with **commercial land use** where buildings face and embrace the street, provide furnishing zones as part of a wider paved sidewalk, with street trees planted in tree wells. In more suburban commercial areas with large setbacks and off-street parking located in front of buildings, provide landscaped furnishing zones.
- Adjacent to **busier streets**, consider increasing the width of furnishings zones to provide additional buffering for pedestrian travel.
- Provide **amenities** appropriate to context.
- Locate **signage, utilities and transit stops** within furnishings zones. If detached sidewalks cannot be provided, locate these elements behind the PAR and/or widen attached sidewalks in spot locations as needed to ensure that minimum ADA requirements for a continuous PAR can be met.
- At the entrances to city limits, the furnishings zone can provide space to modify the character of roadside landscaping and introduce welcome signs, public art and other elements to create **community gateways**.

STREET (SHADE) TREES

Definition:

Street trees are trees that are planted within the furnishings zone to provide shade and enhance the character of the street environment.

Benefits:

Street trees create a more pleasant walking environment by providing shade and creating a sense of enclosure for pedestrians. They have also been proven to slow traffic, increase property values and enhance the downtown environment.

Application:

Street trees are a critical component of downtown streets and should be integrated wherever possible. However, placement must be done strategically so as to not interfere with overhead and underground facilities, sight distances, or the pedestrian throughway. A maintenance plan is essential for street trees to thrive.

Design Considerations:

- Select appropriate species that will thrive in local climates and will be appropriate for streetside conditions.
- Trees should not be installed anywhere where they would reduce the pedestrian throughway to less than 4' wide.⁴²
- In Colorado's climate, installed irrigation helps trees to thrive.
- In the downtown context, street trees are generally planted 15'-20' apart to provide continuous shade.⁴³
- Trees should be placed so that pedestrian visibility is not obscured.
- Avoid planting species that may buckle sidewalks with growth or drop fruit.



Street trees provide visual interest, shade for pedestrians and help enclose the pedestrian throughway zone and travelway. Estes Park.

LIGHTING

Definition:

Lighting provides safety illumination of the travelway, intersections and the pedestrian through zone.

Benefits:

Lighting enhances both pedestrian and motorist comfort in the downtown context and can contribute to placemaking with creative design and banner arms.

Application:

Lighting improvements may require that the local government agency be willing to pay a significant percentage of or wholly finance the lighting installation, especially if architectural style is important. These considerations may include banner arms, signs, and seasonal lighting receptacles.

Design Considerations:

- On municipal streets, mounting height for lighting is typically between 20' and 30'.
- When beginning a design, CDOT recommends starting with a 5:1 spacing to mounting height ratio.
- “Warm” color LED lighting can provide energy-efficient lighting while minimizing light pollution and glare.
- Luminaires should be applied 6'-10' away from crosswalks to provide illumination on pedestrians while limiting glare to drivers.⁴⁴



Lighting provides a sense of safety at night and can be ornamental, decorative and add attractive character. Buena Vista.

UTILITIES

Definition:

Utilities are a set of services provided by various organizations and consumed by the public. Public utilities are a frequently overlooked element of street design, despite the significant implications their placement, maintenance, and design have on street functionality and cost. Both underground and overhead utilities occupy substantial space within street rights-of-way - including telephone, cable television, overhead lighting and electricity. Water, natural gas, irrigation, sanitary sewer and storm sewer are underground.

Benefits:

It is in the public interest for utility facilities to jointly use the right-of-way of public roads and streets when such use and occupancy does not adversely affect traffic safety or impair the street or its aesthetic quality. The opportunity for such joint use avoids the additional cost of acquiring separate right-of-way for the exclusive accommodation of utilities. As a result, street rights-of-way are often used to provide public services to abutting properties as well as to serve conventional infrastructure needs. See page 19 for more information about right-of-way.

Design Considerations:

Note that utility services are commonly located both within the travelway and the furnishings zone, as discussed following.

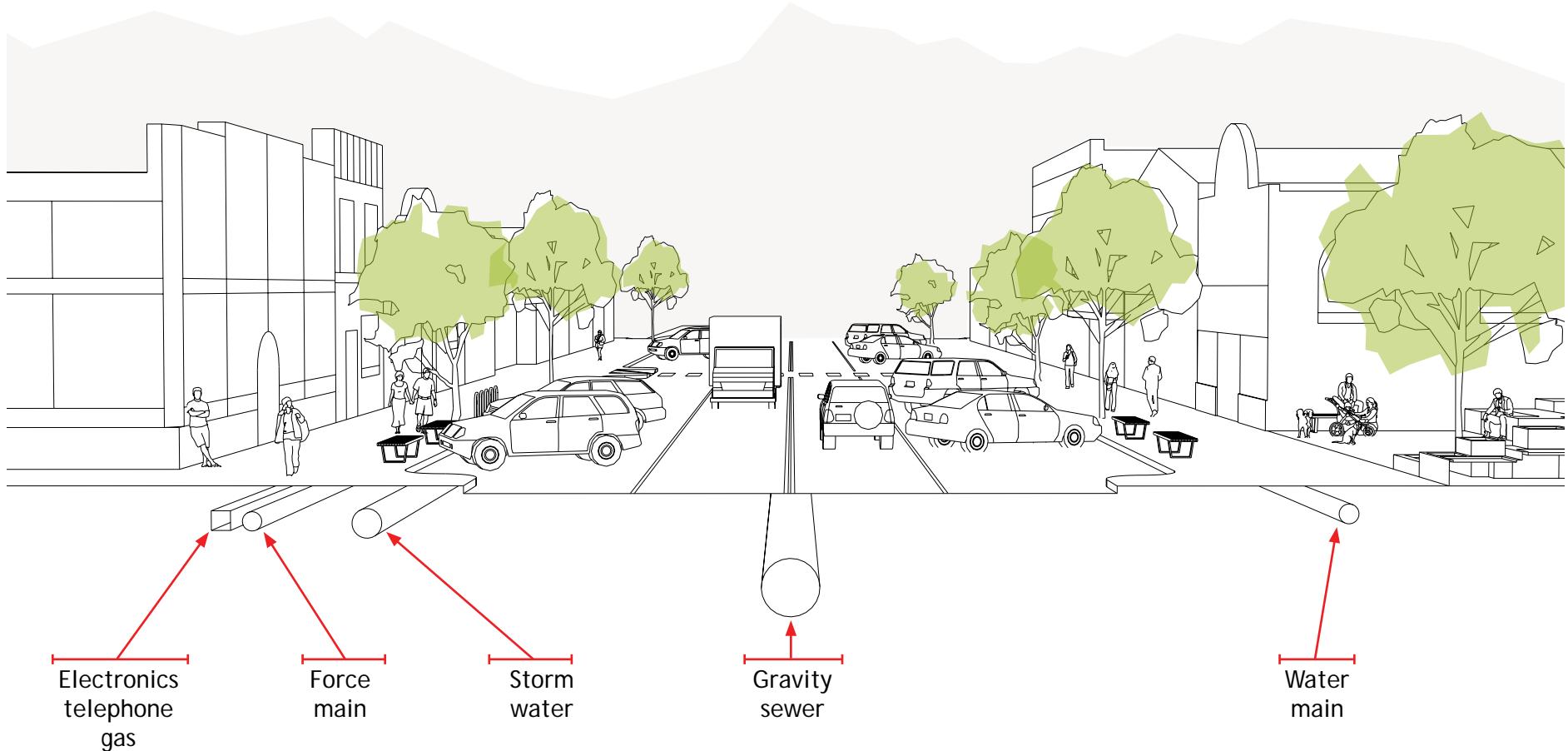
- Overhead, the poles used to support utilities can present a roadside safety risk. Specifically, 10 percent of all fatal, fixed-object crashes are a result of motor vehicle collisions with utility poles supporting overhead utility lines.⁴⁵ If utilities must be overhead, it is imperative that the poles and cabinets are located in the areas where they are least likely to be struck by an errant vehicle. FHWA and AASHTO offer several design considerations for maximizing safety when overhead utilities are present, including:
 - Bury power and telephone lines underground.
 - Increase lateral pole offset - typically 18" minimum between back-of-curb and the street.
 - Reduce the number of utility poles along a street by increasing pole spacing and/or combining multiple utilities on a single pole.
 - Use vertical curbs to shield poles and/or use a breakaway pole design.
- Placement of overhead utilities must preserve minimum pedestrian throughway widths.
- There are simple, innovative ways to transform utility hardware into attractive streetscape enhancements. Utilities may be maintained as amenities with the addition of flowers and plants, lights and seasonal decorations.

Application:

Utility coordination is an essential component of the planning, design and maintenance of all streets. Most streets have a number of utilities, each of which may be owned and managed by a different agency. Frequent and early coordination with these agencies can save time and money, improve design, lower street construction and utility improvements costs, and minimize impacts associated with construction, particularly for adjacent property owners.

There are also a variety of simple, innovative ways to transform utility hardware into attractive streetscape enhancements with the addition of flowers and plants, lights and seasonal decorations.

COMMON LOCATION OF UTILITIES



AMENITIES

Definition:

Important pedestrian, bicycle and functional amenities can be provided in the furnishings zone, including parking meters, bicycle parking, planters and street furniture.

Benefits:

Amenities in the furnishings zone enhance the downtown's pedestrian environment, commercial viability and also can provide important facilities to improve the functionality of downtown streets. For example, benches both increase pedestrian comfort and promote age-friendly streets by providing places for people to linger and rest. When creatively designed, amenities can identify an area as a special and distinct place for all users by adding to the visual appeal and character of the downtown.

Design Considerations:

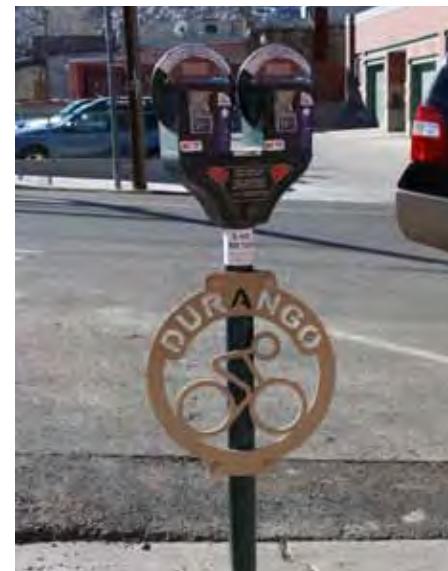
- Maintaining an 8' pedestrian throughway is preferable in the downtown environment.⁴⁶
- Any amenities in the furnishings zone must not reduce the pedestrian throughway to less than 4' in width.
- Secure and convenient bicycle parking racks should be located within downtown furnishings zones. The recommended style is an "inverted U" rack that allows bicycles to be secured with a solid, U-shaped lock or cable lock.
- Planters can add visual appeal as well as serve as a sound barrier from traffic for pedestrians when placed between the sidewalk and the street.

Application:

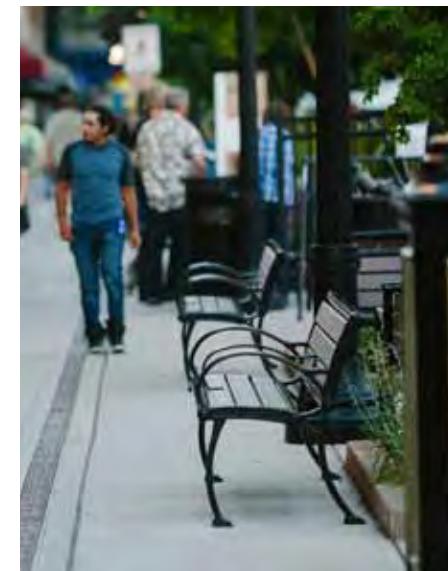
Street furniture and bike parking should not be placed at regular intervals along the street but where they are most likely to be used due to nearby land uses. Site observation is important for determining these locations. Common areas where these amenities may be required include bus stops, near quick-stop food shops, and by parks and plazas.



A wood bench is a simple and affordable street amenity. Edwards.



Even parking meters can add to the appeal of downtown. Durango.



Ornate benches are beautiful and inviting. Grand Junction.

PUBLIC SIGNAGE

Definition:

Signs convey information, instruction, or warnings to users of the street.

Benefits:

Signs orient people to where they are or need to go, and also guide traffic behavior by bringing awareness to speed limit, stopping or yield points, and potential dangers.

Application:

Signage needs to be used strategically and carefully. People tend to obey signs that reinforce what they are experiencing and ignore those that don't. Over-signing can be ineffective, distract drivers, and clutter the streetscape. To avoid clutter, group signs together on one post in strategic locations where possible. Key locations to apply signage are where a behavior may not normally be expected, such as pedestrian crossing at mid-block locations.

Design Considerations:

- Size, color, placement, and the type of signage to use in specific locations is highly standardized, and signage requirements for highways are detailed in the *Manual on Uniform Traffic Control Devices' Standard Highway Signs* document.
- For pedestrian signage, official standards have not been developed. In general, these signs need to be lower, smaller, and in the pedestrian's line of sight. Distances given in measurements meaningful to pedestrians, such as blocks or average walking time, are the most useful.



Signs convey information and instructions to pedestrians and motorists alike. Alamosa.

PEDESTRIAN THROUGHWAY ZONE

Definition

The pedestrian throughway zone is the sidewalk area that must remain clear, both horizontally and vertically, for the movement of pedestrians.

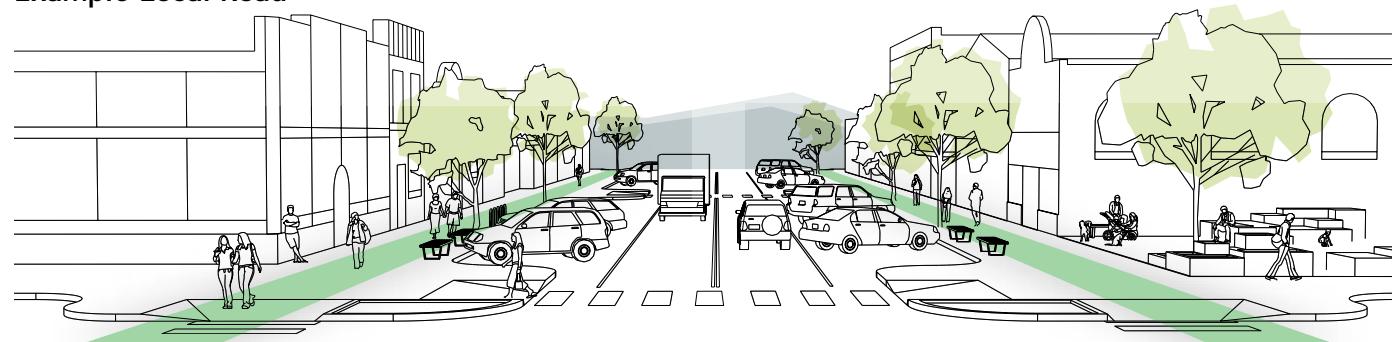
Similar Terms:

- Sidewalk
- Walkway
- Pedestrian access route (PAR)
- Pedestrian travelway

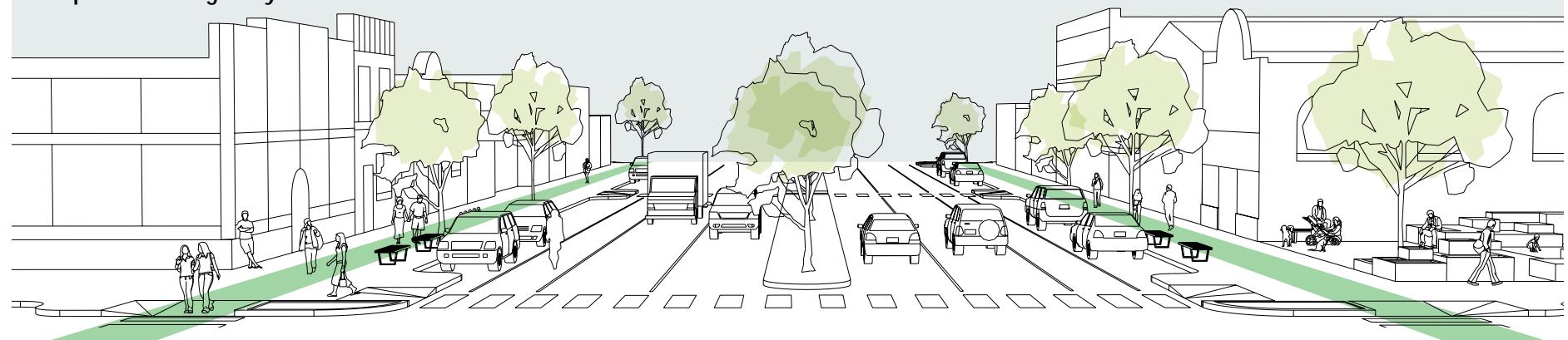
Pedestrian Throughway Design Elements

Sidewalks	52
Curb Ramps	54

Example Local Road



Example State Highway



COMPONENT OVERVIEW

The pedestrian throughway is essentially the sidewalk. Every trip made in Colorado communities, including transit and automobile trips, begins and ends with walking. Sidewalks are therefore as much about a sense of place (gathering spaces for conversation, enjoying art and public spaces, sidewalk cafes and window shopping) as they are for accommodating the most basic form of travel.

Sidewalks in many communities are often too narrow, failing to meet the basic needs of people with mobility impairments and barely accommodating desired levels of pedestrian activity within downtowns. Therefore, thinking of sidewalks in terms of three individual components—a furnishings zone, a pedestrian throughway, and a frontage zone—will allow municipalities to create great streets where adequate space within each zone is provided appropriate to the surrounding land use.

Context and anticipated levels of pedestrian activity should ultimately determine sidewalk widths. At minimum, accessibility standards of the 1991 Americans with Disability Act (ADA) should be met. Mountain communities may face challenges meeting desired grades, but Title II of the ADA should be followed for minimum sidewalk widths to accommodate users with mobility challenges.

In most contexts, exceeding ADA minimum sidewalk width requirements will be necessary to strengthen placemaking. Within downtowns, an 8' wide pedestrian throughway is considered desirable to allow pedestrians to meet, pass and window shop, with additional width provided on either side of the through walkway in the form of sidewalk furnishing and frontage zones. (See pages 52 and 56, respectively).

DOWNTOWN CONTEXT

- The **throughway** portion of active downtown sidewalks is recommended to be 8' minimum in width to allow two pair of pedestrians to meet and pass. If that is not possible, per **ADA**, provide a continuous minimum of 5' clear width.
- Provide **shade** on downtown sidewalks through a combination of street trees planted in the furnishings zone and awnings and/or other design treatments at the building frontage, extending over the walkway.
- At street corners, where the pedestrian throughway transitions from sidewalk to crosswalk, provide a **blended transition** or a set of **perpendicular curb ramps** that meet ADA requirements for slope, width and level landings.

TRANSITION CONTEXT

- Provide **detached sidewalks** at least 5' wide to accommodate the pedestrian throughway within most transition corridors. Consider additional width where the land use is multi-family housing, commercial, or as desired to support local character and context.
- Where the sidewalk is to serve as a **shared-use path** to accommodate multi-use by bicyclists, pedestrians, inline skaters and other non-motorized users, provide a 10' path width. An 8' minimum width may be used through constrained areas. 12' width is recommended in corridors with heavy levels of multi-use.
- Wherever possible, do not construct **attached sidewalks** (located at back-of-curb with no furnishings zone). Where space limitations may necessitate attached facilities, a 7' sidewalk width is desired to provide additional buffering space from the adjacent street. 6' minimum width is required.

SIDEWALKS

Definition:

Sidewalks are paved paths for pedestrian travel located along the side of a street. At minimum, sidewalk design must meet ADA requirements and include a continuous and unobstructed walkway that provides accessibility, defined as the Pedestrian Access Route (PAR).

Benefits:

Sidewalks are central to pedestrian activity and community vitality. They enhance connectivity and promote walking. Safe, accessible, and well-maintained sidewalks are a fundamental and necessary investment for municipalities, and have been found to enhance general public health and maximize social capital. The universal design of sidewalks to meet the needs of people with mobility challenges—whether physical or visual—benefits all users of a community's transportation system. Families pushing baby strollers, young children and elderly populations all benefit from smooth and continuous walking facilities, safe street crossings, appropriate signal timing and accessible transit service.



Sidewalks are central to pedestrian activity.
Longmont.

Design Considerations:

Municipalities should think of their sidewalks as a pedestrian space with three distinct components: a furnishings zone, a pedestrian throughway, and a frontage zone. The PAR is, in essence, a set of absolute minimum criteria that must be met for the design of the pedestrian throughway. However, sidewalks will be wider than this when including both furnishings and frontage zones. (Reference pages 42 for furnishings zone and 56 for frontage zone).

- Clear pedestrian throughway widths must be 5' minimum, but an 8' throughway zone is recommended to support downtown pedestrian activity.
- Where rights-of-way are constrained and there is inadequate room to provide sidewalks of adequate width, additional space at the edge of the adjacent private property may be provided to accommodate the desired sidewalk function.
- Sidewalk surfaces should be smooth and continuous, with textured paving treatments reserved for use within walkway furnishings and frontage zones. The design of sidewalks should locate drainage grates, utility covers and tree grates outside of the pedestrian throughway.
- All sign posts and lighting posts, as well as any covered walkway support structures, should be located outside of the desired through walkway width.
- Any obstacles placed on sidewalks or mounted to building walls should extend to the ground and not create hazards for pedestrians with vision impairments.
- Responsibilities for sidewalk maintenance and snow shoveling vary within towns and cities throughout the state of Colorado, but are often placed upon adjacent property owners. Municipalities are encouraged to adopt and enforce appropriate local policies to maintain sidewalks that are free of snow and ice in winter months.

Application:

Sidewalks should be provided on both sides of municipal streets. The pedestrian throughway should include appropriate curb ramps, landings and crosswalks to enable users of all abilities to transition from sidewalk to safe pedestrian street crossings.

Sidewalk Components



CURB RAMPS

Definition:

Curb ramps and blended transitions provide access between the sidewalk and street for people using wheelchairs or walkers, pushing baby strollers, towing luggage, etc. A curb ramp is a short ramp cutting through a curb or built up to it. A blended transition is a depressed corner that basically turns the corner into one large ramp.

Benefits:

It is often difficult or impossible for a person using a wheelchair, scooter, walker, or other mobility device to cross a street if the sidewalk on either side of the street ends without a curb ramp. It is also dangerous. If curb ramps are not provided, these individuals are forced to make a difficult choice between not traveling to their chosen destination, or risking their personal safety by traveling alongside cars and other vehicles in the streets.

Design Considerations:

- Diagonal ramps are a single pedestrian curb ramp, located at the apex of a street corner. These are not allowed in new construction since users are directed into traffic streams instead of into the crosswalks at intersections.
- Per ADA, all types of curb ramps must be at least 4' wide and require a 4'x4' level landing where wheelchair users can change travel direction. However, ramp widths should be constructed to match the approaching sidewalk width.



Curb ramps provide access between sidewalk and street. **Rifle**.

Application:

Whenever a jurisdiction constructs a new street and sidewalk or alters existing streets and sidewalks, it must install curb ramps. In addition, the ADA requires that a municipality evaluate its existing system of sidewalks and develop a schedule to add curb ramps where pedestrian walkways cross curbs. A community's ADA transition plan may be implemented over time, but should establish priorities for ramp installation at specific intersections frequented by people with disabilities.

The Americans with Disabilities Act (ADA)

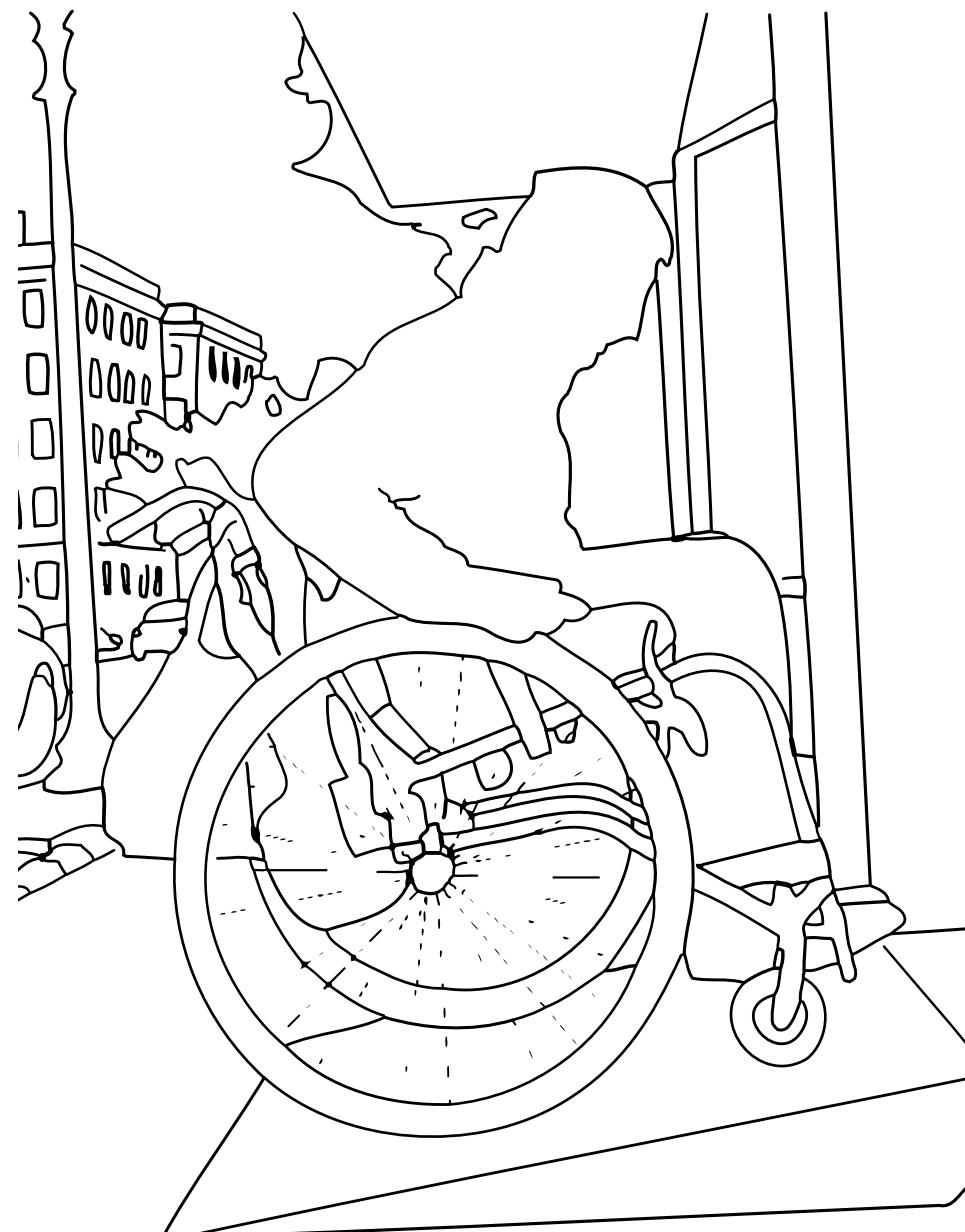
The 1990 Americans with Disabilities Act is a civil rights law that outlines minimum accessibility standards to be applied to all public environments, with Title II addressing access by public entities and public transportation providers.

The regulatory framework for the ADA is complex and evolving, and includes the following:

- *ADA Standards for Transportation Facilities*, Nov. 2006
- *ADA Standards for Accessible Design*, Sept. 2010
- *Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)*, July 2011

The United States Access Board has proposed the PROWAG guidelines to ensure that sidewalks, pedestrian street crossing and pedestrian signals are usable by people with disabilities. Once these guidelines are adopted as standards by the Department of Justice and other federal agencies implementing the ADA, compliance with PROWAG will be mandatory for cities and small towns. In areas with mountainous Colorado terrain or other site constraints, communities should follow the ADA standards to the greatest extent feasible.

Technical Provisions found in Chapter R3 of PROWAG address clear widths, slopes, walkway surfaces, curb ramps, landings, blended transitions, pedestrian street crossings and on-street parking spaces. These guidelines should be considered as minimum criteria to maintain an unobstructed Pedestrian Access Route (PAR). Additional width and enhanced design will be preferred for many sidewalks, especially in locations where vibrant main street environments are desired.

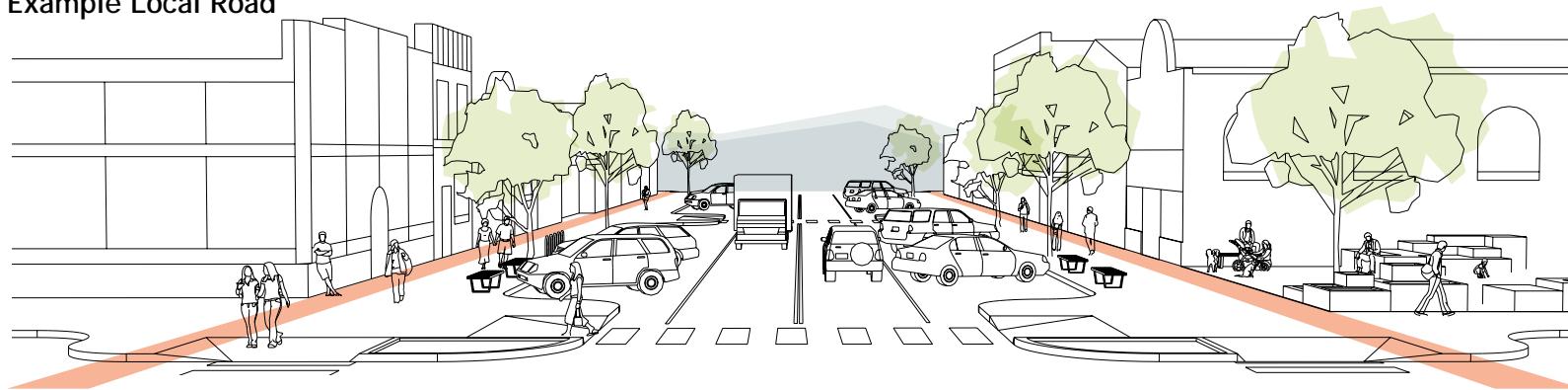


FRONTAGE ZONE

Definition

The frontage zone is the area of the pedestrian realm located adjacent to the edge of the right-of-way and the private property line. It is either defined by building façades within downtowns, or by landscaping, fencing or parking lot screening within transition zones.

Example Local Road



Example State Highway



Similar Terms:

- Private property setback zone
- Shy zone
- Window shopping zone

Frontage Design Elements

Storefronts	58
Outdoor Dining	59

COMPONENT OVERVIEW

In downtowns, the frontage zone is the distance between the pedestrian throughway and the building front or private property line that is used to buffer pedestrians from window shoppers, doorways and other storefront uses. This zone may contain privately owned street furniture, business signage, merchandise displays, street cafes or other similar features. Depending on corridor widths, this space may be located within the public right-of-way, on adjacent private property, or a combination of both.

In historic mountain and rural downtowns with narrow sidewalks, it is important to recognize that a 2.5' frontage zone exists along all sidewalks, even where not intentionally provided. People will not walk immediately adjacent to the face of a building, doors typically open directly onto walkways, and downtown merchants often want to add welcoming streetscape elements in front of their business establishments. Where a separate frontage zone cannot be provided due to right-of-way limitations, at least 4' of clear sidewalk must be maintained around opening doors and any obstacles that may be located by businesses on the sidewalk.

In Colorado climates, quality sidewalk dining areas are often sought out as community amenities, but their design and placement must not interfere with the function of the pedestrian throughway. Simple bistro-style seating may be located against building walls, or larger areas with enclosure may be provided for restaurants desiring to serve alcoholic beverages. Infill and new development projects can be opportunities to modify building frontage design to provide larger and varied setbacks for accommodating outdoor dining needs.

Elements of building facades can also help create pedestrian-friendly frontage zones. In Colorado, weather changes frequently and high-altitude sunshine can be intense. Building awnings and covered walkways shade and shelter people from weather, create pedestrian-scale walking environments in front of multi-story buildings, help to identify businesses, and establish unique placemaking character within downtowns. To be functional, awnings should extend over the width of the frontage zone. Where present, covered walkways should be designed so that support posts do not constrict the pedestrian throughway.

DOWNTOWN CONTEXT

- Provide a minimum 2.5' of **frontage zone width** next to a building face to accommodate space for opening doors. Seating and storefront features may also be located within this zone.
- **Location** of the frontage zone may be accommodated within the public right-of-way where there is space, but within constrained corridors, it may need to be provided on private property as part of the building setback.
- Frontage zones should be **paved**, and may include planters appropriate to the downtown character. Grassy frontage zones in front of buildings are typically out of context in downtown settings.
- Municipalities should establish policies for **private property owner** use and enhancement of sidewalk frontage zones to support their businesses.
- **Awnings and covered walkways** are desirable elements to add shade and shelter to the pedestrian environment.

TRANSITION CONTEXT

- Provide adequate sidewalk **frontage zone widths** dependent on the adjacent landscape treatment. No furnishing zone is required next to lawn or groundcover; 12" is needed along low walls, fences and hedges; and an 18" lateral clearance is desired from facades, tall walls and fences.
- In residential areas and along properties with parking lot screening, the frontage zone serves primarily to keep **vegetation** from encroaching upon the sidewalk. This includes maintaining appropriate lateral clearances for shrubs and perennials, and an 8' minimum vertical clearance for overhanging tree branches.

STOREFRONTS

Definition:

Storefronts are the “face” of the buildings that front a downtown street. In downtown, they should always include windows and attractive lighting, and often include other features such as awnings, merchandise displays, sandwich boards and planters, some of which are located within the public right-of-way.

Benefits:

Attractive storefronts enhance the character of the downtown, draw the interest of potential customers, and build community pride by supporting a unique sense of place. Storefronts that provide lighting at night can also be a crime deterrent.

Application:

Each community has different design standards, regulations and permitting processes for storefront improvements. Many communities and Downtown Development Authorities offer façade improvement programs to assist business owners financially with improving storefronts.

Design Considerations:

Design considerations for various storefront elements will vary greatly community-to-community because design should be tailored to reflect the character and history of the place. General considerations for functional and attractive design include:

- Awnings should be attached to and supported solely by the buildings. They should be large enough to shade pedestrians on the street and protect merchandise in window displays from the sun. Avoid too much text on awnings, stating only the business name and address if desired.
- Lighting should be warm and inviting. All exterior lighting should be installed by a licensed electrician.
- Any outdoor displays that are in the public right-of-way should leave at least a 6' clear path on the sidewalk.
- Less is more. One well-placed sign is often the most attention-grabbing.
- Choose good materials. Cheap materials break down quickly and need to be replaced.
- Generally, 0' setbacks are appropriate for downtown buildings to maintain a continuous street wall. However, storefronts may be designed to create niches and enclosures for lingering, especially if there is not enough sidewalk space to provide a frontage zone. In these instances, keep design guidelines lenient to allow for flexible setbacks for the provision of outdoor seating areas, plazas or storefront displays.



Storefronts create a “street wall” that can result in attractive character. Fort Collins.



Design and architecture can be applied to buildings to achieve a unique identity. Rifle.

OUTDOOR DINING

Definition:

Outdoor dining areas may be comprised of any group of tables, chairs or other seating fixtures located outdoors as part of a coffeehouse, café or restaurant. It is typically located on the public sidewalk, or other locations such as in building recessions, parking lots, alleys, street side plazas, or raised areas. This section speaks to outdoor dining as any open-air seating area located on a public sidewalk provided by a restaurant located on the adjoining property. Here, customers go to relax, eat, drink, socialize and enjoy the public streetscape.

Benefits:

Sidewalk dining areas make significant contributions to the quality of public space and vibrant downtowns. They provide places for residents and visitors to see and be seen, are excellent ways to improve and enliven a street, benefit local businesses and enhance the economy.

Design Considerations:

There are many design elements that go into outdoor dining areas which usually determine if a sidewalk café is successful or not. These elements include location, exposure, separation, size and furnishings.

- Outdoor cafes thrive on active streets and at busy intersections. Customers like to people watch and observe exciting and diverse scenes. Because of this, the clustering of outdoor dining usually happens in popular areas that people like to frequent, such as main street settings.
- Dining areas are typically positioned within expanded sidewalk frontage zones located along the fronts of buildings, but they may also be located as space allows in furnishing zones, on corner curb extensions and in parklets (see page 41).
- Sunshine and great views are common elements of outdoor environments in Colorado. However, many people will choose to sit outside even in poor conditions if there is some shelter provided by an awning, covered walkway, sunshade or table umbrella. Some businesses will even extend the outdoor dining season by providing outdoor heat lamps.
- Some level of separation between the dining area and pedestrian throughway is typically desired, and often required if alcoholic beverages are to be consumed. Separation can take the form of planting boxes, fences, railings, overhangs, or a change in paving materials to signify differences between sidewalk zones.
- The size of an outdoor dining area typically depends on amount of space available. Bistro-style seating may be located against the building wall within 3' of frontage zone space. A serving area enclosed by railing or open guard rail will require a minimum of 6' of frontage zone width to accommodate 3' tables plus a 3' wait aisle.
- Movable seating is preferred to fixed seating, and offers the greatest flexibility to accommodate dining parties of varying sizes, as well as furniture storage options. Sidewalk cafes can become unattractive if outdoor furniture is not carefully chosen and properly maintained.

Application:

Typically, local licensing authorities will establish rules, regulations and processes governing the size, location and layout of outdoor dining areas on their public sidewalks, as well as liquor licensing permits for serving alcoholic beverages. Many Colorado communities approve outdoor dining as a sidewalk use through an administrative review process and require approval of a lease or encroachment permit within the public right-of-way.



Outdoor dining spots boost economy and create visual interest on the street. Grand Junction.

PRIVATE PROPERTY

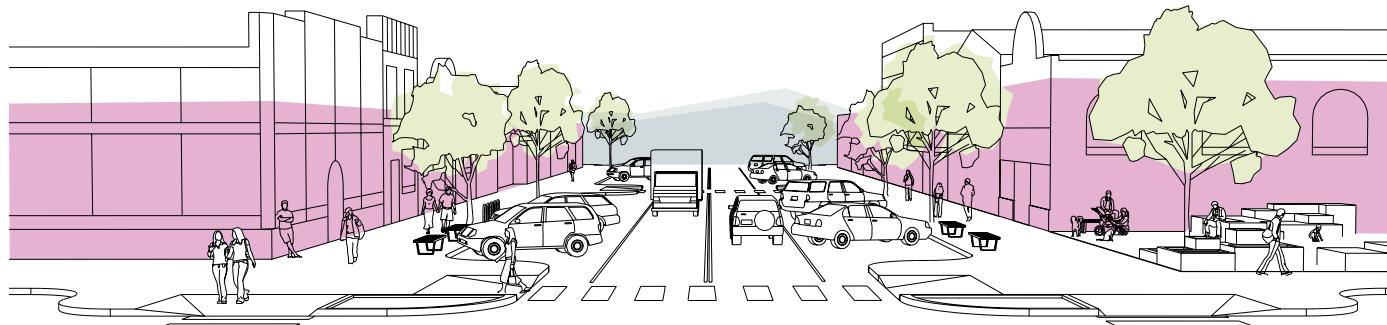
Definition

Private property encompasses land and buildings located outside of the public street right-of-way that frame the street corridor and provide its character and context. The edge of private property that abuts the street right-of-way may be referred to as the frontage zone, as previously described.

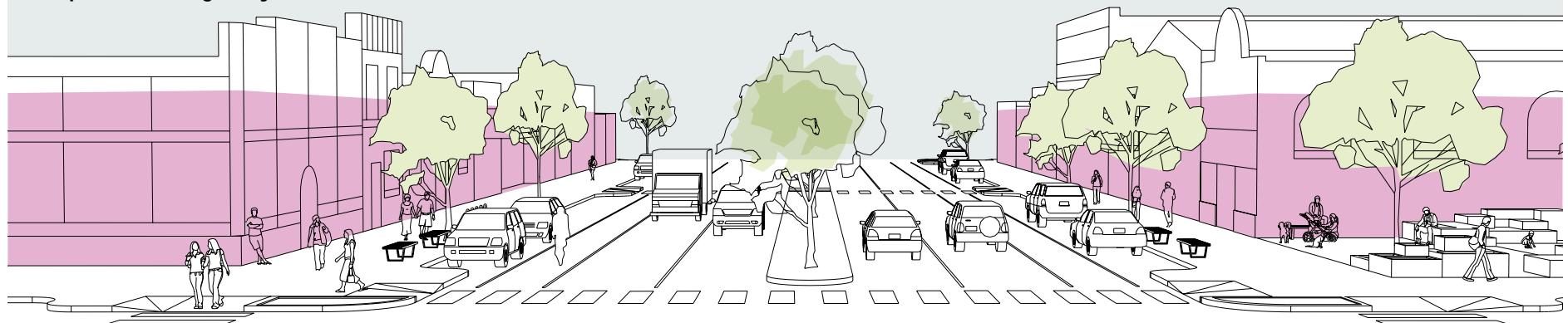
Similar Terms:

- Land use
- Character zone
- Context

Example Local Road



Example State Highway



TRANSITION CONTEXT

Municipal code requirements that regulate block and parcel size, setbacks, landscaping, building design, and off-street parking lot size and configuration often inadvertently remove activity from street corridors. Local development codes should be revisited to appropriately address design standards and development patterns for both commercial and residential uses in areas approaching the downtown core.

COMPONENT OVERVIEW

Numerous decisions influence the design and layout of buildings and other elements on private property. Decisions that determine lot sizes, building setbacks, building size and massing, off-street parking provisions, internal circulation and landscape buffers also influence the feel and function of streets and roadways.

Conventional zoning focuses on the management and segregation of land uses, and the control of development intensity through various regulations, such as dwellings per acre, setbacks, and minimum necessary parking spaces. These types of codes can have a negative effect on building form, and are inappropriate for downtowns. Therefore, municipalities are rather encouraged to adopt form-based codes, downtown overlays or similar tools to respect and strengthen the unique character of downtown commercial areas and neighborhoods.

Historic Colorado downtowns typically were developed with fairly consistent building setbacks, creating a sense of enclosure with appropriate building-height-to-street-width ratios that create comfortable walking environments. Infill and reconstruction projects should reflect historic build-to lines and incorporate architectural

elements that will maintain a unique local main street character.

Most of Colorado's historic downtowns were also laid out with good connectivity, established by gridded networks of streets and alleys that create walkable block sizes. Pedestrians are sensitive to and deterred by out-of-the-way travel, preferring environments with frequent intersections and numerous alternative ways of making connections. In general, downtown blocks average between 250' and 330'. Long, unbroken block faces of more than 330' will discourage walking and should be avoided at all costs. Long blocks may be broken up by providing mid-block pedestrian walkways and street crossings to create a more pedestrian-scale grid.

The presence or absence of alleys at the rear of buildings will determine private property needs for deliveries and secondary access. When present, rear alleys relocate street functions such as service delivery parking and trash collection from the front of buildings to the rear of buildings. When alleys are absent within the downtown context, the above functions need to occur within the travelway edge zone of the street (Page 36).

DOWNTOWN CONTEXT

- Place buildings at **build-to-lines**, with setbacks as small as 0'-2'. Large setbacks and off-street parking requirements should not be applied in the downtown.
- **Building-height-to-street-width ratios** that are 1:4 to 1:2 create comfortable street environments. Most Colorado communities accomplish this with downtown buildings that are typically two to four stories high.
- Provide **building façades** with street frontages that allow pedestrians to see inside. Frequent and transparent doors and windows are critical to activating streets and adding interest and enjoyment to walking environments.
- Historically, Colorado cities and towns were developed with relatively **small block sizes**, with strong street networks that create highly walkable environments. Such gridded street patterns and small block sizes should be retained. Where superblocks exist, redevelopment initiatives should look at opportunities to restore the street grid and re-establish connectivity of the transportation network.
- **Parking** within downtowns should be managed through a combination of on-street parking and shared use lots. Depending on parking demand and size of the municipality, off-street parking should be provided at the rear of buildings, internal to the block, or in parking structures. Private driveway access onto main streets should be minimized within downtown contexts.
- **Service and delivery functions** are most often provided in rear alleys. When alleyways are not present, the design of the public right-of-way should provide space to accommodate these functions on the street in front of downtown buildings.

CHAPTER 3: HOW TO CREATE GREAT STREETS

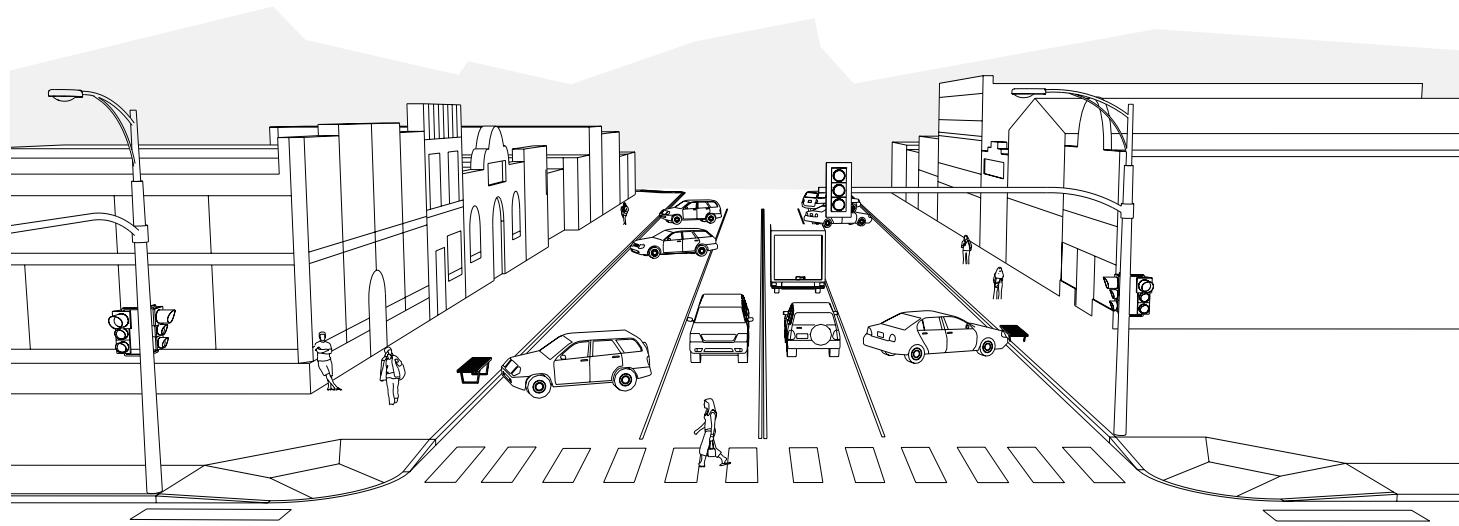
As the needs of a community evolve over time, so too should the design of its streets. Reconfiguring the layout of the street to better serve the people who use them, sometimes referred to as “rightsizing,” is a way to improve its functionality. Across the country, communities large and small are achieving impressive safety, mobility, social and economic outcomes through this method.

Transportation engineers can work flexibly within the existing street space, including moving curbs, changing lane widths, redirecting traffic, and more. Space can also be repurposed for uses other than moving vehicles, including parklets, bicycle lanes, and parking.

Before considering possible solutions for downtown streets, it is critical to first fully understand the real problem at hand. This section will cover common goals for downtown, issues that can be prohibiting the goal from being accomplished, and design elements that can be applied to address them.



CREATING A GREAT STREET



Traditional design can have a negative impact on how people experience the street.



Sharrows, curb extensions and street trees completely change the look and feel of the street.

We Want Downtown to Feel Safe For All Users

Safety—both real and perceived—is critical to a successful downtown street. People will not walk or bike on a street that feels unsafe, even if there hasn't been a history of pedestrian or cyclist crashes there. Engaging a transportation professional is important to fully vet potential solutions, but the community is the expert on how the street could feel safer.

Why Doesn't the Street Feel Safe?	Potential Design Elements
There is no buffer between pedestrians and moving traffic.	<ul style="list-style-type: none">On-street parkingSidewalksStreet trees
The condition of the sidewalk is not meeting everyone's needs.	<ul style="list-style-type: none">ADA rampsSidewalks
Pedestrians cannot comfortably cross the street.	<ul style="list-style-type: none">Curb extensionsPedestrian refuge islandsCrosswalksMid-block crossingsTraffic signals
Bicyclists are riding on the sidewalk instead of the street.	<ul style="list-style-type: none">Bicycle lanesSeparated bicycle lanes (cycle tracks)



CASE STUDY: RIFLE

Population: 9,488

Railroad Avenue, a historic street that runs through downtown Rifle, was expanded from 2 to 3 traffic lanes around 50 years ago when it became a part of the state highway system. Because of limited right-of-way, in order to add the middle turning lane, the sidewalks had to be narrowed, and many street trees were removed. In the 1980's, when a bypass was built, the street was taken off of CDOT's system and Railroad Avenue once again began functioning as a downtown street rather than a highway. However, the design of the street remained oriented to accommodating through traffic, rather than serving the multimodal needs of the downtown environment.

PRE-TREATMENT CONDITIONS

Railroad Avenue has about a 42' right-of-way from curb to curb, consisting of a 10' center turn lane, a 14' westbound traffic lane, a 10'-12' eastbound traffic lane, and one 9' parking lane in the eastbound direction. Traffic counts are about 20,000 vehicles per day. Pedestrian accessibility was an issue along the length of the corridor, but especially at key locations such as the post office and civic center, where pedestrians were being forced to make crossings with limited refuge. Though crosswalks were present, getting vehicles to yield was proving to be a challenge.

COORDINATION

Projects were completed through a partnership between the Downtown Development Authority and the City.



2nd and Railroad, Rifle.



Crosswalk and pedestrian refuge. Railroad St, Rifle.

REDESIGN

The Downtown Development Authority partnered with the City on the first improvement at the intersection of 4th Street and Railroad Avenue, which was a key crossing for pedestrians accessing the post office. The City installed a pedestrian-activated flashing light, but it proved to be ineffective at stopping traffic on its own. Additional signage was added in the middle of the crosswalk, and the presence of this vertical element has been more effective at grabbing drivers' attention.

Another key crossing by the Civic Center had more options for improvements because there was extra right-of-way available from a turn lane that was no longer needed, allowing space for a pedestrian refuge island. It was designed to include vertical elements to draw drivers' attention, and provide enough space for pedestrian queuing. The City also installed a brick patterned crosswalk to further enhance the pedestrian environment and installed improvements to a vacant lot one of the corners. The improvements included landscaping and other installations that now allow the vacant lot to be used for events such as the weekly farmers market.

The City has also done sidewalk improvement projects as funding has become available, repairing the pavement where needed. In the future when the road needs to be repaved, the City plans to reallocate some of the space in the wider, 14' westbound lane to expand the sidewalk on that side of the street.

FUNDING

The City applied to a mini-grant program through the Associated Governments of Northwest Colorado to build the pedestrian refuge island at 2nd Street. It also used multiple mini-grants, as awarded annually to Colorado Main Street communities through the Department of Local Affairs (DOLA), for landscaping and streetscape improvements at the vacant lot on the southwest corner of 2nd Street and Railroad Avenue. The Downtown Development Authority used its own funds to do build the improvements at the 4th Street crossing, and contributed funds to the 2nd Street project. The Public Works Department is also proactive about budgeting for smaller improvements, such as the sidewalk repairs that have been done along the corridor.

We Want Evening Activity Downtown

A lack of evening activity downtown can be a real missed economic opportunity for a community, and can contribute to a sense of danger. People often feel a lack of security in places that feel isolated. Having a constant presence of people on the street helps create an atmosphere where users feel that if something bad happens, someone else will be there to see it. This fosters a feeling of community in a downtown and increases perceived security. Achieving a mix of land uses downtown—from businesses to entertainment to residences—is a way to ensure that people will consistently be present there.

Why Isn't There Evening Activity?	Potential Design Elements
There is a lack of light on the streets at night.	<ul style="list-style-type: none">• Lighting• Storefronts• Building design
There are a lack of eyes on the street.	<ul style="list-style-type: none">• Land use• Building design• Outdoor dining



Social activities staged downtown give people a reason to celebrate and generate local economic activity. Eagle.

We Want Downtown to Feel Welcoming

A downtown feels welcoming when it is an appealing place to spend time. People will linger in places that are attractive and engaging to the senses. For downtown, this means creating a place that has a strong sense of identity, interesting things to look at, and comfortable surroundings.



Impromptu bulbouts—here made of flower planters—create safe space for pedestrians. Crested Butte.

Why Isn't Downtown Welcoming?

It's so noisy that you can't hold a conversation on the street.

The streets aren't appealing places to be.

There aren't places to sit.

There isn't shade.

Downtown feels dominated by traffic.

Potential Design Elements

- On-street parking
- Traffic lanes
- Traffic signals and timing
- Curb extension
- Street trees
- Planters

- Street trees
- Sidewalks
- Storefronts

- Parklets
- Street furniture
- Outdoor dining

- Street trees
- Storefronts

- Sidewalks
- Bicycle lanes
- Crosswalks
- Mid-block crossings
- Pedestrian refuge islands

We Want to Calm Traffic Through Downtown

Fast moving traffic can be a major detriment to a downtown. It can pose a real threat to all users but especially pedestrians, as the faster a car is moving, the greater likelihood of a pedestrian fatality if there is a crash. Overall noise on the sidewalk increases with traffic speed, discouraging people from lingering on the street, dining outdoors, or window shopping. However, changing the posted speed limit cannot fix the problem alone. The design of the streetscape must encourage safe speeds that are appropriate to the downtown environment.

Why Is Traffic Moving Too Fast?

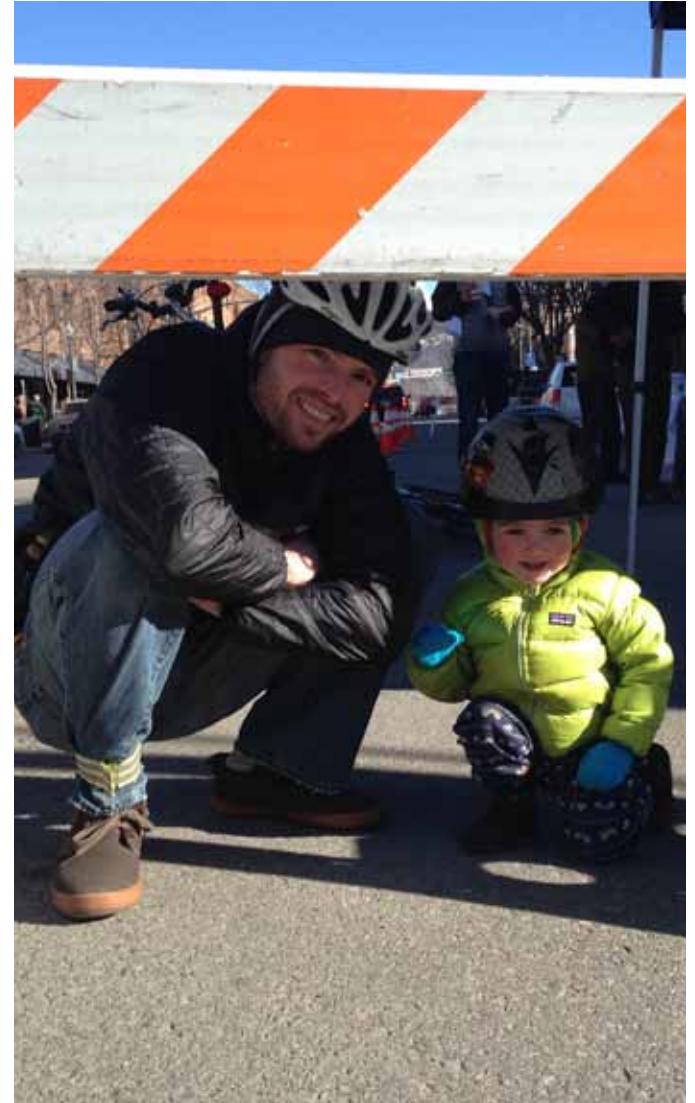
The street design does not indicate to drivers that they are in a downtown environment.

Potential Design Elements

- On-street parking
- Traffic lanes
- Curb extension
- Street trees
- Building design
- Planters
- Sidewalks
- Parklets
- Raised medians
- Pedestrian refuge islands
- Street furniture
- Lighting

- Traffic signals and timing
- Traffic lanes
- Raised medians
- Turn lanes

Traffic flow isn't smooth so people drive erratically.



There are many reasons a community might want to slow traffic through downtown. Durango.

We Want More Parking Downtown

Vehicle access is critical to the success of downtown businesses and destinations. In most downtowns, on-street parking is the best way to provide at least some spaces in close proximity to all destinations downtown. Additional parking is often provided at the rear of the building with access provided by either an alley or a side street. In some instances where demand is necessary, shared parking garages in strategic locations can increase available parking to support downtown activity.

Why Do We Feel We Need More Parking?	Potential Design Elements
Existing public parking is underutilized but people still say parking is needed.	<ul style="list-style-type: none">• Signage• On-street parking
Parking is available but it is difficult to walk to and from desired locations.	<ul style="list-style-type: none">• Street trees• Sidewalks• ADA ramps• Amenities
Cars are staying parked in spaces so long they block new customers from stores.	<ul style="list-style-type: none">• Signage• Parking meters



CHAPTER 4: IMPLEMENTATION

How can a community move beyond concepts to getting actual projects built? By necessity, projects are always competing with one another, because there are never enough funds to meet all of a community's needs and desires. This fact alone can leave a community scratching its head on how to get something done. The good news is that a handful of factors greatly increase the likelihood of implementation: good planning, a long-term vision, community support, solid relationships with CDOT, and a willingness to share costs.

This section focuses soup-to-nuts on how a community can implement change—from visioning and planning, to CDOT engagement, to finding the “quick wins,” to funding projects.



CREATING A DOWNTOWN VISION

A clear, community-driven vision for the downtown is necessary for the effective planning of its streetscapes. When transportation projects are scoped, whether they be a CDOT or local government project, plans that are in place for the area affected are always taken into account. Developing a vision that is memorialized in a downtown plan is one of the most proactive actions a community can take for improving its downtown streetscapes.

To be effective, a downtown vision can't be solely focused on its history or cultural aspirations, it also must include specific plans and projects that can propel the vision forward. This helps a community be opportunistic in pursuing funding, particularly for transportation projects. It also provides a consistent point-of-reference on the community's goals for how it wants to see the downtown evolve over time, even as elected officials change.

Creating a vision for downtown is not an easy or simple process. It needs to be developed out of a robust public process that allows stakeholders to participate in design workshops and decision-making. The more inclusive the process is, the better the chance of implementation. Often times, communities rely on the expertise of an outside consultant in developing their vision. When complete, it should be formally adopted by the municipality.

Successful downtown visions accomplish the

following:

- **Clearly defines the downtown area.** Ensure that the vision clearly defines the boundaries of the downtown, as well as transition areas into the downtown. Understand what entity owns the right-of-way on key streets (see page 19).
- **Speaks to the goals.** State what the community hopes to achieve in the downtown.
- **Outlines the assets.** Detail the places within the downtown that contribute to a sense of community, as well as the places which are opportunities but may be underperforming or difficult to access.
- **Identifies the real problems.** Identify issues that are negatively affecting the downtown. For more on diagnosing issues, see Chapter 3: How to Create Great Streets.
- **Quantifies the needs.** Include data that demonstrates the needs. These may be sales tax figures, commercial vacancies, crash data, traffic counts, or results from citizen and business surveys. This will also assist with measuring progress as the vision is implemented.
- **Evaluates alternatives.** Vet potential solutions for identified issues through stakeholder engagement and public process. This may include building or streetscape designs.
- **Demonstrates support for preferred solutions.** Document the process that uncovered the community's preferred solutions.
- **Identifies both "quick win" and long term projects.** The implementation plan should include a number of projects that vary in cost and complexity. See page 82 for examples of quick win projects that can build momentum.

COLLABORATION

Downtown streets both serve and are maintained by a variety of stakeholders. As a result, many different priorities must be balanced when building and maintaining downtown streetscapes. Successful projects are dependent on strong collaboration between state agencies, local government, and community stakeholders. All of these entities must work closely with one another through all phases of a project - from project planning and decision-making to construction and maintenance.

Stakeholders may include:

- Colorado Department of Transportation (CDOT)
- Federal Highway Administration (FHWA)
- Transportation Planning Region (TPR)
- The public that uses the street
- Property or business owners along the street
- Area residents
- Chamber of Commerce
- Downtown Development Authority (DDA)
- Local government departments
- County government

WORKING WITH THE COLORADO DEPARTMENT OF TRANSPORTATION

With responsibility for more than 9,000 miles of state highway, many of which run through communities, the Colorado Department of Transportation (CDOT) is an essential partner in creating successful local transportation systems. This is particularly true when 'Main Street' or other important downtown streets often double as a state highway, which is common in communities across the state. Effective coordination and partnership with CDOT is essential to ensuring those streets can effectively meet the needs of the community while also serving their role in the state's highway system. This section provides a primer on CDOT and its project planning processes, and strategies for effective coordination and collaboration with the agency.



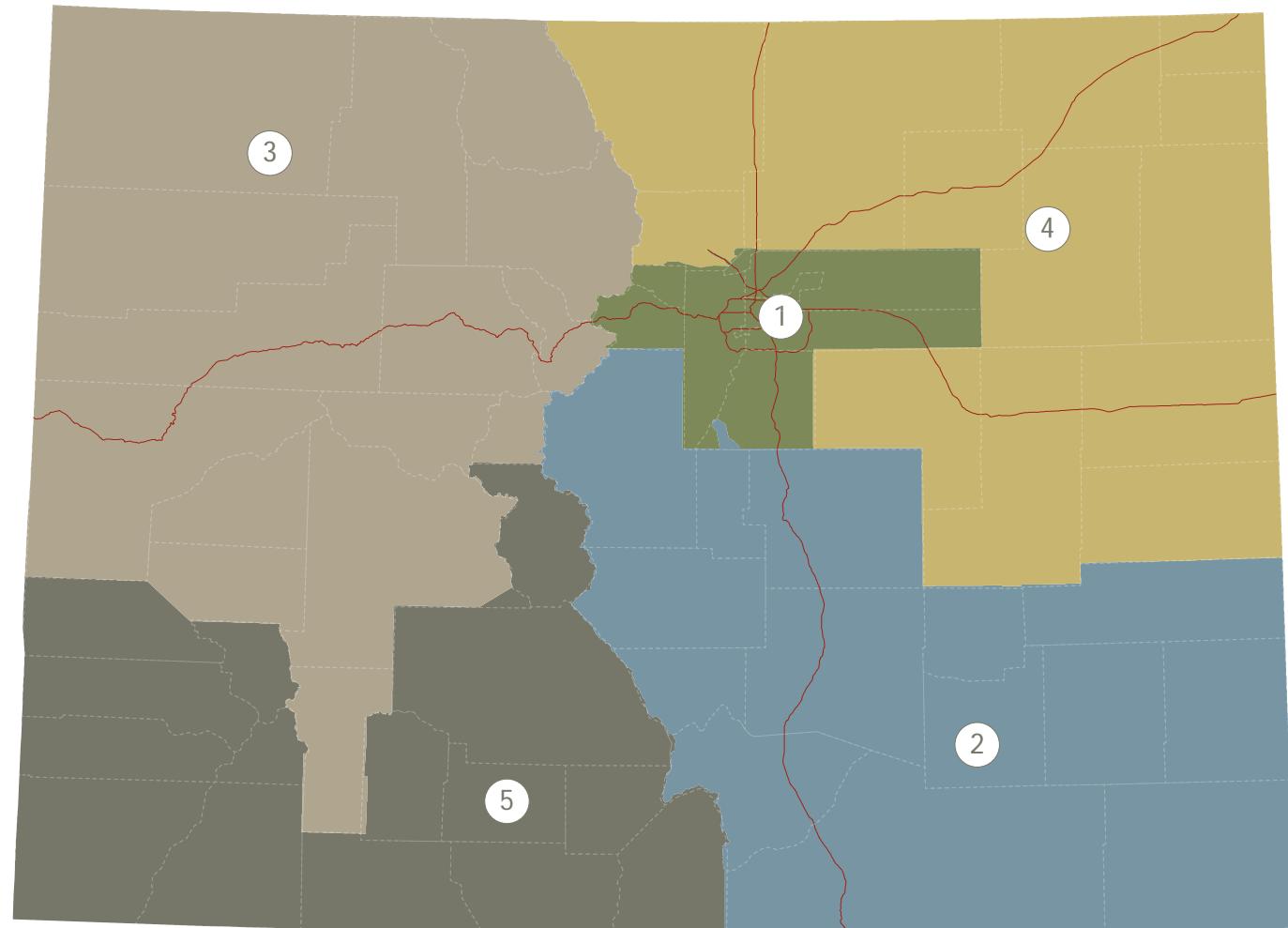
WHAT IS CDOT?

CDOT's Mission: To provide the best multimodal transportation system for Colorado that most effectively and safely moves people, goods, and information.

It can be helpful to think of CDOT as having two major arms: (1) the central office in Denver where statewide policies are written, plans are developed and most specialty design is undertaken; and (2) CDOT's five regional offices responsible for design, operation and maintenance of facilities, and on-the-ground planning, design and implementation of projects throughout the state. In general, regional offices are the best place to go to learn about what projects are underway in your region as well as at the central CDOT office in Denver. You can find contact information for your regional office on the CDOT website.

In addition to the regional offices, each region has established several "residencies," which are satellite offices that serve as the front ranks in most project development, highway maintenance and related activities. There are currently just under 30 residencies. The easiest way to reach your nearest residence is to call your main region office number and ask how you can contact your Resident Engineer and Region Planner.

CDOT REGIONS



CDOT's PLANNING PROCESSES AND APPROACH

Transportation Planning Regions and Metropolitan Planning Organizations

There are 15 Transportation Planning Regions (TPRs) that meet regularly with CDOT regional staff to plan for their respective regions. These bodies are comprised of local officials and staff representing the various local governments within the region.

Five of the planning regions are for urban areas greater than 50,000 in population and are called Metropolitan Planning Organizations (MPOs). Ten are rural TPRs that provide smaller cities and towns a role in statewide transportation planning and investments.

TPRs and MPOs compile and analyze data that is then used to identify needs, strategies and projects that comprise Regional Transportation Plans (RTPs).

The State Transportation Advisory Committee (STAC) is a body whose members represent the state's 15 rural and metropolitan planning regions. The STAC advises CDOT on the state's needs and priorities and reviews and comments on all RTPs and the Statewide Transportation Plan (SWP).



Regional Transportation Plans

RTPs are plans created by Transportation Planning Regions / Metropolitan Planning Organizations. Updated every 4 years.

Identifies: vision, needs, priorities, strategies, projects and performance objectives over a 20-year timeframe.

RTPs inform the Statewide Transportation Plan (SWP) and Statewide Transportation Improvement Program (STIP).



Statewide Transportation Plan

The Statewide Transportation Plan (SWP) integrates the goals, strategies and priorities of each RTP into a single plan.

Identifies: statewide vision, goals, and performance objectives. Provides an investment strategy as well as action plan to achieve goals and objectives.

Integrate RTPs and informs the STIP.



Statewide Transportation Improvement Program

The STIP identifies funded projects and programs throughout the state.

Projects on the STIP must be consistent with corridor visions and strategies outlined in the SWP and with the priorities established in RTPs.

The STIP is amended twice a year and readopted annually to add a new year of projects.

Regional Needs, Goals & Priorities

Statewide, Goals & Priorities

Projects/Programs Funded for Implementation

CDOT's 3C APPROACH TO PLANNING

CDOT makes planning decisions in a continuing, comprehensive and cooperative fashion, also known as “3C.” Continuing means planning decisions are made and revisited over time to ensure the decisions make sense and are the best courses of action. Comprehensive means that all relevant information and factors are considered in making the decision. Cooperative means there are many people, interest groups, agencies, and stakeholders involved. The 3C approach is intended to support and enable public involvement throughout the process and create many opportunities for stakeholders to get involved. The 3C approach also provides a framework for integrating local plans into CDOT planning processes.

How to Contact Your Regional Office

REGION #	CDOT REGIONAL OFFICES
1	2000 South Holly Street Denver, CO 80222 303-757-9946
2	905 Erie Avenue Pueblo, CO 81002 719-227-3251
3	222 South 6th Street, #317 Grand Jct., CO 81501 970-683-6251
4	10601 West 10th Street Greeley, CO 80634 970-350-2167
5	3803 North Main Avenue, #306 Durango, CO 81301 970-385-1430

QUICK TIPS FOR WORKING WITH CDOT

There are some key ways communities can effectively coordinate, collaborate, and influence decisions at CDOT beyond paying attention to their planning processes. It is true that staff time and planning effort cost money and municipal budgets in Colorado are chronically underfunded and devoting time and effort to some of these strategies might seem difficult to prioritize. On the other hand, communities that are deliberate and strategic about working with CDOT have benefited enormously from the investment, while communities that routinely ignore CDOT processes and plans find themselves surprised by what CDOT is doing and expend a similar amount of effort trying to make the agency change course.

Establish a Clear Vision and Plan.

One of the best ways to align local transportation and community planning goals with state-level planning and investment decisions is to have a clear vision and plan for your community's transportation network, or at least, its most important transportation corridors. CDOT's 3C planning approach is intended to enable the integration of local plans into CDOT's planning and programming.

The most effective way to align state and local plans is to engage CDOT's regional staff in local planning efforts when they own right-of-way within the downtown (see page 19 for more information). They can provide useful data and professional input, and also help identify challenges and opportunities for implementation. For example, regional staff might be able to help identify funding or ways that local priorities can be implemented through future CDOT projects.

Get to Know Regional Contacts.

Municipalities should get to know the agencies they depend on for key parts of their business, yet it is common for municipal transportation staff to not know their CDOT Resident Engineer or Regional Planner. Talk with them often to understand their objectives, challenges and business practices. There is simply no substitute for building close and mutually supportive business relationships.

If a community is concerned about an issue on a downtown street that is under CDOT's jurisdiction they should call their Regional Planner. Invite them to come examine the problem alongside the Resident Engineer and local municipal staff and begin to think about solutions together. Collaborate on what data may be needed from the Regional Traffic Unit. Brainstorm together on what funding opportunities may be available to address the issue.

Time is of the Essence.

Timing is everything when it comes to aligning local goals and priorities with CDOT's state and regional projects. It takes years to take a project through planning, design and implementation, so the earlier a community engages with CDOT staff to find ways to address local needs or goals, the better. Similarly, the further along a project is in the process, the more difficult it is to change it. Effective coordination and communication is essential to taking advantage of—rather than being surprised by—CDOT planning processes.





Understand Fiscal Constraints.

About 40 percent of CDOT's funding is provided by the federal government. The rest comes from state sources such as the state gas tax and vehicle registration fees. Revenues from state sources has been declining steadily and at the same time, Colorado's population has been growing. This reduction in budget relative to population and need is an important strategic consideration in CDOT's project planning and design process.

Communities need to understand this reality when working with CDOT—funding is extremely limited, and often the improvements a community wants to see added to a streetscape project may not be financially possible for them to provide. However, if a community is willing to bring their own funds to enhance a project, it becomes much more feasible.



Build Strategic Partnerships.

Anyone who has been part of a federal grant application process knows how much emphasis federal agencies, and by extension, state DOTs, are placing on local and regional partnerships. In a time of severely limited resources, shrinking budgets and growing demand, money is going to gravitate to those projects with the widest and deepest support. Municipalities should be working closely with their county government and with their sister cities and towns. They should be enlisting their local chambers of commerce and other business groups and businesses in their planning and implementation efforts. They should be supporting each others' plans, including grant applications and STIP requests, and they should be redefining local projects as part of regional programs. While it is common for municipal and county governments to feud and contend with each other, the alternative route—building and investing in partnerships—will deliver valuable long term benefits.



Be Opportunistic.

When communities are effectively engaged in their TPR and in good contact with regional CDOT staff, they can position themselves to leverage CDOT projects to address local needs and goals. For example, resurfacing is a necessary part of routine maintenance for the state highway system. Resurfacing projects also provide a unique opportunity for the community to reexamine lane widths, parking, bicycle network connections and even curb extensions. Planning and implementing these changes in coordination with a larger resurfacing project can achieve significant cost savings. Of course funding for what can be achieved in these projects may be limited, so improvements that may be go beyond CDOT's planned project scope may need to be funded through local sources or grants.



CASE STUDY: KREMMLING

Population: 1,404

THE REASON

Kremmling is a small mountain town with a very popular national route running through its heart, US 40, that also serves as its historic Main Street. Where US 40 enters Kremmling, there were six blocks where the highway widened to five lanes, equaling 80' of paved travelway. Understandably, Kremmling was having issues with pedestrian connectivity and safety across this section of highway, due to high exposure to traffic when crossing the street. The six block section was also experiencing high speed traffic though the posted speed limit was 35, because it was the first place vehicles traveling on the highway had space to pass for many miles, and the design of the street enabled higher speeds.

COORDINATION

After the Town of Kremmling brought the issue to CDOT's attention, CDOT conducted a site visit and a meeting with town staff and elected officials and proposed the idea of approaching improvements through a partnership. The partnership was key to the project success because it demonstrated that the proposed change was desired by both the community and CDOT.

FUNDING

CDOT funded most of the initial project cost with "Hot Spots" funding, which is funding available to be spent on quick projects outside the formal planning process. In total, the project cost about \$25,000. The Town of Kremmling is funding long-term maintenance of the parking lanes, bike lanes and the hatched striping areas in the buffer zones.

“It was a win-win project—the way the road was wasn't serving anyone well.**”**
— Zane Znamenacek, Region 3 Traffic Program Manager



The town is funding long-term maintenance of the parking lane, bike lanes and hatched areas in the buffer zone. Kremmling.



The road diet reduced the total number of lanes to three and added bicycle facilities. Kremmling.

THE PLAN

The Town of Kremmling conducted a downtown assessment through a partnership between the Department of Local Affairs' Main Street Program and Downtown Colorado, Inc, and identified that the public did not feel US 40 was a safe or comfortable main street. The Town Manager approached their CDOT Region 3 Traffic Program Manager with the issues facing the six block portion of US 40 and requested assistance. After conducting a site visit to examine the issue, CDOT proposed a road diet to reduce the number of lanes. Region 3 has a matrix they developed to determine when it is appropriate to reduce the number of lanes on a five lane section of highway. If it is under 6,000 vehicles per day they know they can take a lane away without further study. Kremmling's traffic volumes indicated that a road diet would work.

CDOT worked with the community to determine how to utilize the excess space. Widening the sidewalk was too costly for both Kremmling and CDOT, so they took advantage of the installation of new striping to remove the outside traffic lanes and striped in a bike lane with a painted buffer instead. Parallel parking remained on each side of the street but CDOT added striping to indicate the parking space.

Since the road diet was installed, businesses have noticed more cars parking along Main Street because the street looks more like a safe, downtown environment and not a high speed highway. Sales tax revenue has increased, and the town feels it is due to traffic moving slower and noticing the businesses present there.

CASE STUDY: RIDGWAY Population: 953

THE REASON

The Town of Ridgway is a Colorado Main Street community with Highway 62 bisecting its historic downtown core, which is the main route to a popular tourist destination, Telluride. In 2005, the town began to talk to CDOT about possible improvements to the highway, because the current design was inhibiting the downtown activity that the community was trying to foster. Additionally, Ridgway still had dirt roads throughout the rest of the downtown, and wanted to create complete streets that would help the town achieve its economic development and revitalization goals for the historic core. Due to growth in the region, CDOT needed to improve the capacity of Highway 62 and Ridgway saw this as an opportunity to not only improve the safety and aesthetic of the Highway, but to also partner with CDOT to upgrade other key streets in the downtown.

THE PLAN

After many years of coordination and planning, the town and CDOT assembled a project that included hard-surfacing streets, installing pedestrian sidewalks, storm drainage, decorative lighting and furnishings such as benches, artwork, trash and recycle receptacles, low-level lighting elements, and landscaping on its key downtown streets. Those improvements would be installed as “phase 1” of the project so that the newly surfaced streets could be built as quickly as possible to minimize impacts on historic main street and businesses while CDOT constructed necessary improvements to Highway 62, including the addition of a center turn lane.

“ Communicating individual and shared goals early and often is what worked for Ridgway. ”

— Jennifer Coates, Ridgway Town Manager



Before. Dirt roads were common in Ridgway's downtown before construction. Ridgway.



After. Paved streets, sidewalks and bulbouts helped make downtown more pedestrian friendly. Ridgway.

COORDINATION

Ridgway and CDOT had different perspectives and needs for the project, but worked closely to ensure that it would benefit each party equally. From a highway perspective, CDOT's overall goal was to move the traveling public along the Highway 62 corridor, and differences in priorities surfaced where the town had more aesthetic concerns about the highway and had a large component of desired improvements on streets off of the corridor. The town worked closely with CDOT to strategically phase the project, and formalized working relationships and responsibilities through the establishment of an Intergovernmental Agreement.

FUNDING

The total cost for the engineering, design and construction for the downtown streetscape improvements was \$12.5 million. \$10.5 million was funded through the CDOT Responsible Acceleration of Maintenance and Partnerships Program (RAMP) that required a 20 percent local match. Ridgway brought \$2 million to the project which was no small feat for such a small town, but they were resourceful. \$500,000 of the match was leveraged from a Department of Local Affairs Grant, \$100,000 was from their capital improvements fund and \$1.4 million was secured through a bond issue that passed with wide community support. The town also provided an estimated \$800,000 in in-kind assistance.

QUICK WINS

The majority of infrastructure improvements are expensive and labor-intensive—but they are often not the only or most effective way to bring energy and life into a downtown’s streets and public spaces. Quick win projects can go by many names—the most common being “lighter quicker cheaper” projects, tactical urbanism, quick builds or pop-up projects. No matter the term, these simple, short-term, and low-cost solutions are having remarkable impacts on the shaping of neighborhoods and communities. They can address all kinds of public space challenges, and the impacts of these projects have been lasting and profound.

Although this approach is not appropriate for every situation, it can be a creative, locally-powered alternative to the kind of capital-heavy and top-down planning processes that typify most transportation investments. One of the greatest advantages of employing these kinds of projects is the ability to “test drive” a design solution almost immediately and with direct community involvement. These projects commonly begin as a temporary, inexpensive alteration to a public space or streetscape that takes place while more long-range projects grind through lengthy processes. Their implementation provides multiple and wide-ranging benefits, including:

- Bring life and amenities to previously lifeless public spaces
- Break down resistance to change while empowering vulnerable or overlooked communities who may have lost faith even in the possibility of change
- Generate the interest of potential private and public sector investors in permanent infrastructure improvements
- Establish (or re-establish) the downtown’s sense of community
- Inform best practices for later planning efforts
- Build community buy-in for a more permanent solution
- Bring together diverse stakeholders in generating solutions and a collective vision
- Foster a community’s sense of pride in, and ownership of, their public spaces and streets



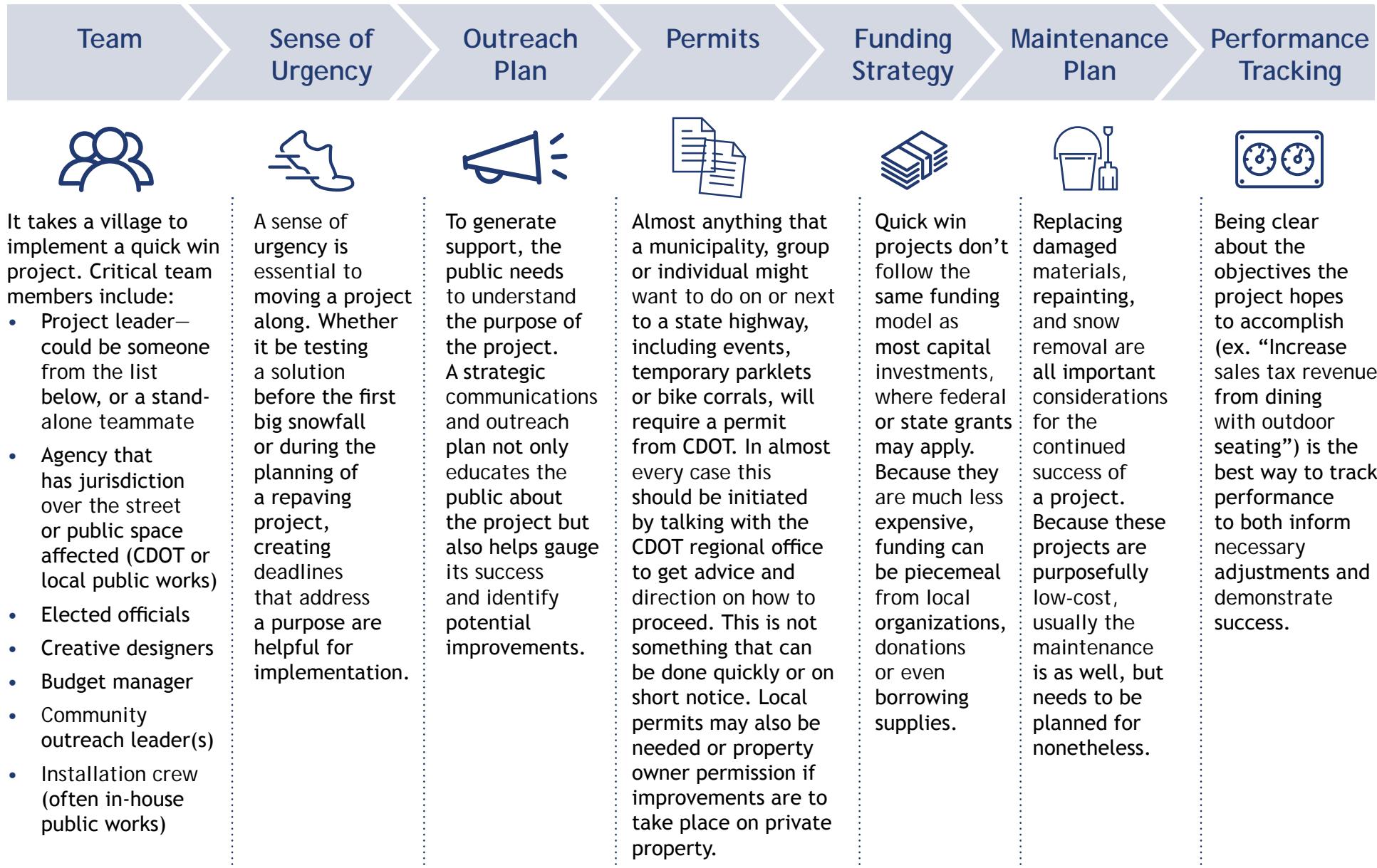
A “parklet” is a public space temporarily occupying one or more parking spaces. Louisville.



Planter boxes containing flowers and vegetation add beauty, soften the landscape, and are efficient to erect and dismantle. Ridgway.

PROCESS

Quick wins can take many forms and address many issues, but they all need a handful of core ingredients to be successful:



EXAMPLE QUICK WIN PROJECTS

Curb Extensions (Parklets, Boardwalks)

When a street is challenged by narrow sidewalks that limit the activity they can support, communities can consider ways to extend sidewalk widths. Parklets are targeted curb extensions, which replace typically one or more parallel parking spaces with an elevated structure to provide more room for an adjacent business' patrons, bicycle parking, or much-needed public space (see page 41 for more information and design standards). If the parklet is to be utilized for business patrons, they are often developed through a partnership between the municipality and that business.

Alternatively, a community could extend the full width of its sidewalk either temporarily or permanently through providing some kind of barrier in the street (planters, fencing, or cones) and painting the pavement, or by erecting a boardwalk structure at the same height as the existing sidewalk.

Supplies needed:

- Materials to build the parklet or sidewalk extension
- Amenities to place in the parklet or on the sidewalk extension (tables, chairs, plants, bike racks)
- Partners to manage the parklet space and amenities

Plazas

Street plazas can be created by converting space previously used by cars into a place for people. Street plazas can be created in the middle of a large right-of-way, or adjacent to a sidewalk or the street edge. Such efforts typically require sponsorship or partnership with a local partner, such as a Main Street or Business Improvement District, which helps to maintain and program the plaza. Like many of the other strategies discussed in this section, plazas can be created very quickly with paint and moveable materials (seating, tables, planters and plants, bollards), then made more permanent over time with a more expensive and durable surface material. This method can also be utilized to activate vacant parcels of land in a downtown.

Supplies needed:

- Paint
- Seating and tables
- Planters and plants
- Garbage cans
- Maintenance and programming plan

Pedestrian refuge islands and bulb outs

Pedestrian refuge islands provide a safe place for people in the middle of a street, in case they cannot safely make it across the full right-of-way without stopping briefly. Curb bulb-outs, or curb extensions, extend the sidewalk at key intersection locations, in order to shorten pedestrian crossing distances and to slow the speeds of turning cars. Bulb outs can also provide a place for bike parking, rain gardens, or other infrastructure. Both refuge islands and curb bulb-outs can be created (or expanded) first with paint. Bollards and landscaping (in planters) can help to enhance the visibility and effectiveness of painted installations, as well. Later work can involve a capital project to create a more permanent refuge island or curb bulb-out with cement, in-ground landscaping, and other materials.

Supplies needed:

- Paint
- Supplemental materials as needed, such as bollards, planters and plants, etc.

Events

A short term event that occurs over one day, a weekend, or a few weeks can open up opportunities to temporarily transform a street: closing the street to vehicles, bringing life and business onto the sidewalks, and providing fun activities, programming, and food options into the right-of-way. Events can provide a way to experiment with tactics and redesign strategies for a street on a temporary basis. From an economic basis, events can also draw visitors and tourists, boosting local business sales, as well as provide a means to highlighting local culture and talent. “Open Streets” events focus in particular on opening up streets for people to walk, bicycle, and be active across the full right-of-way, while Play Streets provide a safe place for children to play and be active. Some cities have started programs to help facilitate such events on a weekly or scheduled basis.

Supplies needed:

- Materials and personnel to block off the street to vehicles
- Programming and activities plan
- Places for entertainment, eating, shopping, etc. as needed
- Seating and other amenities
- Necessary permits

Bicycle Lanes

Bike lanes create dedicated, safe space within the street right-of-way for bicycling and can be easily added to a street with paint. Increasingly, evidence shows that bicycle lanes that are ‘protected’ from vehicle traffic offer a safer and more popular bicycling experience. Bicycle lanes can be protected by moving parallel or diagonal vehicle parking to create space between the sidewalk and parking to protect bicyclists, or with a buffer area that includes bollards or landscaping (see page 32 for more information and design standards).

Supplies needed:

- Paint
- Supplementary materials as needed, such as bollards, planters and plants
- Bike route signage

Projects to Slow Down Traffic

Many of the quick win projects listed in this section can assist with slowing down vehicle speeds (such as introducing or widening pedestrian refuge islands or curb extensions). More ‘traditional’ projects for slowing down traffic involve introducing either vertical elements (speed humps, speed tables, raised intersections) or horizontal elements that redirect traffic (chicanes, traffic circles, mini circles, diverters).

Supplies needed:

- Paint
- Pavement
- Reflective strips
- Landscaping

QUICK WIN: LOUISVILLE

Population: 20,112

THE REASON

In 2008, the Louisville Downtown Business Association (DBA) wanted to develop outdoor dining to supplement the burgeoning downtown restaurant scene. Because sidewalks were not wide enough to provide space for outdoor dining, the DBA worked with the City to develop an experimental parklet program.

THE PLAN

Partnering with the local Home Depot, some supplies and labor were donated to build the prototype parklets, using wood and Trex decking material. The original patios were 6' by 8' wooden bases with hand rails. The DBA also maintained detached flower boxes to add a barrier between the parklets and neighboring parking spaces.

The parklet program is seasonal, running from May through October of each year. In the winter, parklets are stored by the City, allowing room for snow removal and storage. Due to the enormous popularity of the program, in 2013 the City took over the management of the parklet program, and replaced the wooden parklets with sturdier steel frame patios that are 12' long. City staff developed concepts for the new design which were vetted with the public and then used a contractor to construct them.



The parklet provides additional space for pedestrians to congregate. Louisville.



The parklet is located in city right-of-way. Louisville.

COORDINATION

The development and management of the parklet program was a result of close coordination between the DBA and the planning, public works and economic development departments. Because the parklets are located in public right-of-way, the City issues revocable licenses to restaurants for the leasing of both the space and the parklets. This is critical to the program because it allows for restaurants to extend their State liquor licenses into the parklet area by demonstrating that it has control of the area for the parklet season. The revocable licenses also transfer liability from the City to the business for the parklet area.

FUNDING

The initial investment in the experimental parklet program was \$20,000, provided through revenues from the DBA's summer concert series, the Louisville Street Faire. For the first four years of the program, revocable licenses, use of the parklets and maintenance were provided for free to businesses interested in participating.

Because sales tax revenues had tripled since the onset of the program, in 2012 the City invested \$240,000 of capital improvement funds to build 180' of steel-framed patios to replace the original wooden ones and also took over management of the program. At that time, the City incrementally began charging for use of a 12' patio section, starting at \$500 per season in 2014 and then increased the amount to \$900 per season in 2016. This fee helps cover approximately half of the expenses to facilitate the program, including seasonal installation and removal, issuing and processing licenses, patio maintenance and cleaning, and capital replacement.

QUICK WIN: MONTROSE Population: 19,045

THE REASON

Montrose is a Colorado Main Street community, and its downtown is located at the intersection of two main highways: US 50 and US 550. The amount of traffic this has brought into and through downtown has been both a blessing and a curse—while it helps with exposure, it also creates a high traffic environment that can be an impediment to developing a people-friendly downtown. In 2009, CDOT divested the downtown portion of US 50, on East Main Street, and a bypass was created to the north. While this reduced traffic, the design of the street still enabled high speeds because the street was wider than it needed to be. Montrose wanted to explore treatments that would slow traffic down, add parking to support businesses and encourage a more pedestrian-friendly downtown environment.

THE PLAN

On July 16, 2015, the City began a temporary pilot study on two blocks of East Main Street, installing temporary diagonal parking in both directions and reducing the number of lanes from five to three. Before the treatment, East Main Street had two 12' traffic lanes in each direction, a 14' center turn lane and two 8' parallel parking lanes on each side of the street. Initially, the City experimented with 60 degree diagonal parking which added 2 additional spaces per block. This reduced traffic lanes to one 12' lane in each direction, maintaining a 14' center lane that has a raised median to restrict turning movement.

The City tested this treatment through peak summer traffic. Though the initiative was initially met with opposition from much of the community, it proved to be a turning point for a number of elements concerning downtown, the most significant being slowing traffic and adding parking. It also deterred “non-downtown” destination travelers from using Main Street, and instead utilize the bypass for through-travel. Because of these benefits, the City decided to make the temporary installation permanent.

After one year, the City reduced the 60 degree diagonal parking to 40 degrees which fit better, helped improve visibility and added even more parking, including ADA spaces. The current configuration of the street is now one 12' traffic lane in each direction, a 14' center turn lane and 20' diagonal parking lanes on each side.



E. Main Street before introduction of diagonal parking. Montrose.



E. Main Street after introduction of diagonal parking. Montrose.

COORDINATION

The downtown portion of East Main Street, which formerly functioned as US 50, had been divested from CDOT to the City in 2009, which gave the City jurisdiction over the street. In testing the project, the DDA worked with the City's engineering staff to ensure that queuing and traffic would still function properly after the treatment. An in-house traffic study showed that there may be some queuing issues, so the City elected to remove a traffic light at one of the intersections affected, making it a free-flowing intersection with a stop sign on the side streets. Over the summer season, the DDA surveyed merchants and the general public to gauge the popularity of the treatment. A majority of positive responses resulted in the DDA Board sending a recommendation to City Council to make the new configuration permanent.

FUNDING

All funding for the project came from the public works budget and cost approximately \$13,000. This included the removal of a traffic light and paint.

QUICK WIN: CARBONDALE Population: 6,574

THE REASON

Carbondale wanted to create a unique, recurring event that would draw attention and business to its charming downtown while building a sense of community and raising funds for the myriad non-profit organizations located there.

THE PLAN

Carbondale shuts down an expanse of its main street to expand the public realm on the first Friday of every month. This creates a continuous public space where people are free to roam along Main Street from business-to-business, while playing games and enjoying music that takes place on the street. A committee that is headed by the Chamber of Commerce coordinates with local entertainers, galleries, restaurants, for-profit, and non-profit organizations to supply the ingredients needed to create a vibrant event street.

The street closure runs from 5pm - 9pm to ensure crowds have dispersed early enough to not disturb nearby residential neighborhoods. Volunteers help with setting up and breaking down the street enhancements brought out for the event, such as extra seating, fencing, and games.

The monthly event has become so popular that this small town often sees participation of up to 2,000 people, making Main Street a highly sought-after location for new businesses.

IMPLEMENTATION



First Friday draws attention to local business. Carbondale.



Main Street is closed to motorized vehicles the first Friday of every month. Carbondale.

COORDINATION

Strong coordination occurs between the First Friday committee, the Town, local businesses, and Chamber of Commerce, especially on matters of crowd management and necessary permitting processes. Originally, some businesses were opposed to closing down the street to vehicular traffic due to loss of parking, and so First Fridays only closed the street in summer months. Due to its growing popularity and benefit however, in 2016, Town Council agreed after demonstrated business support to close the street year-round for First Fridays, and also permits the closure of a portion of a connecting street to create a children's play street.

FUNDING

First Fridays is a community-funded, ongoing event. Its success is dependent on volunteer support, both for operations and entertainment provided at the event. The Committee raises necessary funds by soliciting donations through Chamber of Commerce membership forms, offering an optional sponsorship role for businesses. When for-profit vendors want to participate at First Friday, the Committee asks that they donate \$600 worth of advertising for the event. Additionally, the Town has contributed up to \$8,000 annually for both advertising and operations, and provides in-kind support from Public Works staff to close the street and manage traffic and parking.

FUNDING

Attempting to understand transportation funding can be a daunting undertaking because there is often no direct path forward, or a specific funding “box” that a project may fall into. In fact, money for transportation improvements does not necessarily always come from expected, transportation-specific sources. Therefore, successful communities must bring a measure of creativity and inventiveness in their pursuit of securing dollars for a project. For example, a community may decide to use a percentage of a hotel tax to fund downtown sidewalk improvements. This section discusses this and other common (and a few uncommon) ways to fund downtown transportation projects.

Before considering funding sources it is critical to understand the importance of planning in securing funding. Nearly every potential funding source requires that a community have a plan in place that identifies the desired improvement, and demonstrates support and buy-in from key stakeholders that will be affected by the project. If these ingredients are not yet in place, it will likely be impossible to secure funding. Reference pages 71 - 76 for more information on downtown visioning, stakeholder engagement and working with CDOT to understand how to establish such plans.

LOCAL FUNDING SOURCES

One of the most critical actions a community can take to address funding for transportation improvements is developing a Capital Improvements Plan (CIP) and Budget. The CIP assesses capital facility needs (including streets and streetscapes) in a jurisdiction against its overall goals and objectives, using a multi-year planning horizon—usually five years - allowing for the advance consideration of how to fund projects that are further out on the planning horizon. The Capital Budget is the first (or first and second) year of the Capital Improvement Plan and identifies the funding and authorizes the expenditure for projects by the elected officials on an annual basis.

Establishing long-term, local funding sources for transportation projects is critical because state and federal grant and loan programs are always highly competitive and subject to change. Local funding can also be used to leverage competitive grant funds that may require local match dollars to qualify.

Assessment methods are mechanisms that can be used to generate local funds for improvements.

Financing districts use assessment methods to both collect and distribute funding.

LOCAL FUNDING SOURCES

ASSESSMENT METHODS

Mill Levy: A mill levy is the tax rate that is applied to the assessed value of a property. One mill is one dollar per \$1,000 dollars of assessed property value. It consists of a local portion which is used to fund area services and a statewide portion that is used to fund public schools. Some communities decide to increase the mill levy to fund transportation improvements, which needs voter approval.

Impact Fees: An impact fee is a one-time fee to fund capital improvements necessitated by new development. Impact fees are not a revenue raising mechanism like a tax but a way to meet infrastructure needs that are instigated by new development.

Transportation Excise Tax: Excise taxes are one-time revenues often used to fund new infrastructure needed to accommodate new development. They are levied against new construction for development related infrastructure needs.

Tax Increment Financing (TIF): TIF is a method of funding redevelopment projects in blighted areas. In Colorado, a Downtown Development Authority (DDA) or Urban Renewal Authority (URA) can issue and repay redevelopment bonds using the “increment” of increased taxes collected within the TIF district after improvements are made. The increment revenue may be generated from either sales or property taxes.

FINANCING DISTRICTS

Urban Renewal Authority (URA): A URA is an entity specifically designed to halt or prevent blight, with the boundaries being the same as those of the municipality in which it is established. The city or town council must find by resolution that one or more blighted areas exist in the municipality, and state it to be in the public interest that the urban renewal authority be created to address issues within those areas. The URA is typically governed by a board that is appointed by the elected officials. Urban renewal projects undertaken by the URA

can include transportation projects. A URA’s main financing source is property and/or sales tax increment (TIF). URA’s are not subject to TABOR.

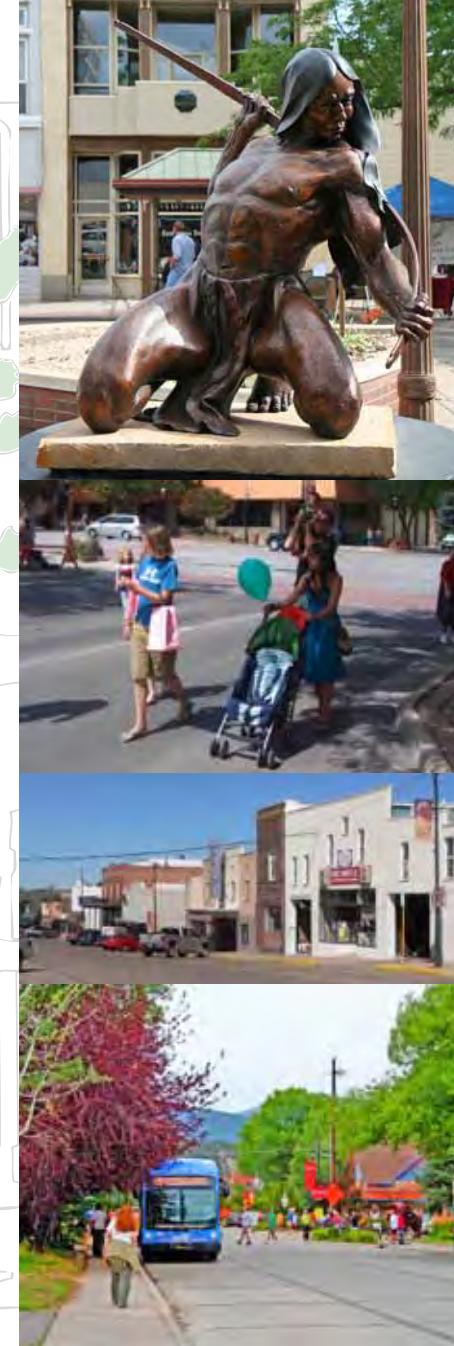
Downtown Development Authority (DDA): A DDA is an entity specifically designed to halt or prevent the deterioration of central business districts. A DDA’s governing body is appointed by the city or town council and must all be residents or property or business owners within the downtown. All development projects initiated by the DDA must be approved by the city or town council. The main DDA funding source is property and/or sales tax increment (TIF) and can be used to pay for public improvements such as transportation projects. The DDA may also levy up to five mills for operations. A TABOR election is necessary to approve the issuance of bonds or levy of taxes through the DDA.

Business Improvement District (BID): A BID is an entity designed for public improvements, economic development, and

business-related services such as marketing. A BID's boundaries must ONLY include commercial properties. The creation of a BID is initiated by a petition which must be signed by property owners, which is followed by a public hearing organized around the adoption of the ordinance. BIDs can levy taxes, special assessments or fees to finance public improvements such as transportation projects. A TABOR election is necessary to approve the issuance of bonds or levy of taxes through the BID.

Special Improvement District (SID): A SID is a geographical area in which public improvements, such as streets or sidewalks, are constructed and assessments are levied to pay for them. Funding comes through special assessment bonds, which are typically fully paid for by the assessments. Assessments are applied to individual properties. Usually a developer requests the local government establish the SID and carry out the assessments to help pay for necessary infrastructure improvements. A TABOR election is necessary to approve debt issuance, but does not need to be open to the entire municipality, only the property owners within the proposed district.

General Improvement District (GID): A GID is a district that can raise revenue through a special property tax or fee for a special service or facility. Issuance of bonds financed through any of these revenue sources must be approved through a TABOR election. To establish a GID, a petition must be signed by 30 percent or 200 of the affected property owners, whichever is less. This must be followed by a public hearing, organized around the proposed adoption of the resolution.



GRANT PROGRAMS

There are a variety of state, federal and private grant programs available, most with specific requirements relating to economic development or specific transportation issues. Many competitive grant programs require a match from the local jurisdiction as a condition for funding or approval. Grant programs cannot be considered a secure long-term funding source because they are highly competitive and are always subject to change year-to-year.

FEDERAL AND STATE SOURCES

Transportation Alternatives Program

(TAP): TAP, which now falls under the FHWA's Surface Transportation Block Grant Program, provides funding for programs and projects defined as transportation alternatives, including both on and off road pedestrian and bicycle facilities. CDOT and the five MPOs solicit applications for TAP funds. For information about guidelines and funding cycles, contact your CDOT Regional Planner.

Highway Safety Improvement Program

(HSIP): HSIP is an FHWA program that funds highway safety projects aimed at reducing highway fatalities and serious injuries. Bicycle and pedestrian projects are eligible for funding under HSIP, including bike lanes, bike parking, crosswalks and signage. Any improvement using HSIP funds must use crash data to demonstrate that there is a

safety issue and that the improvement will help address it. Colorado's HSIP funds are administered by CDOT's Safety and Traffic Engineering (S&TE) Branch. Applications and more information can be found on CDOT's website.

Safe Routes to School Program (SRTS):

CDOT administers Colorado's SRTS program. SRTS funds education and safe infrastructure that enable children to walk and bike to school safely. Information about the SRTS program can be found on CDOT's website.

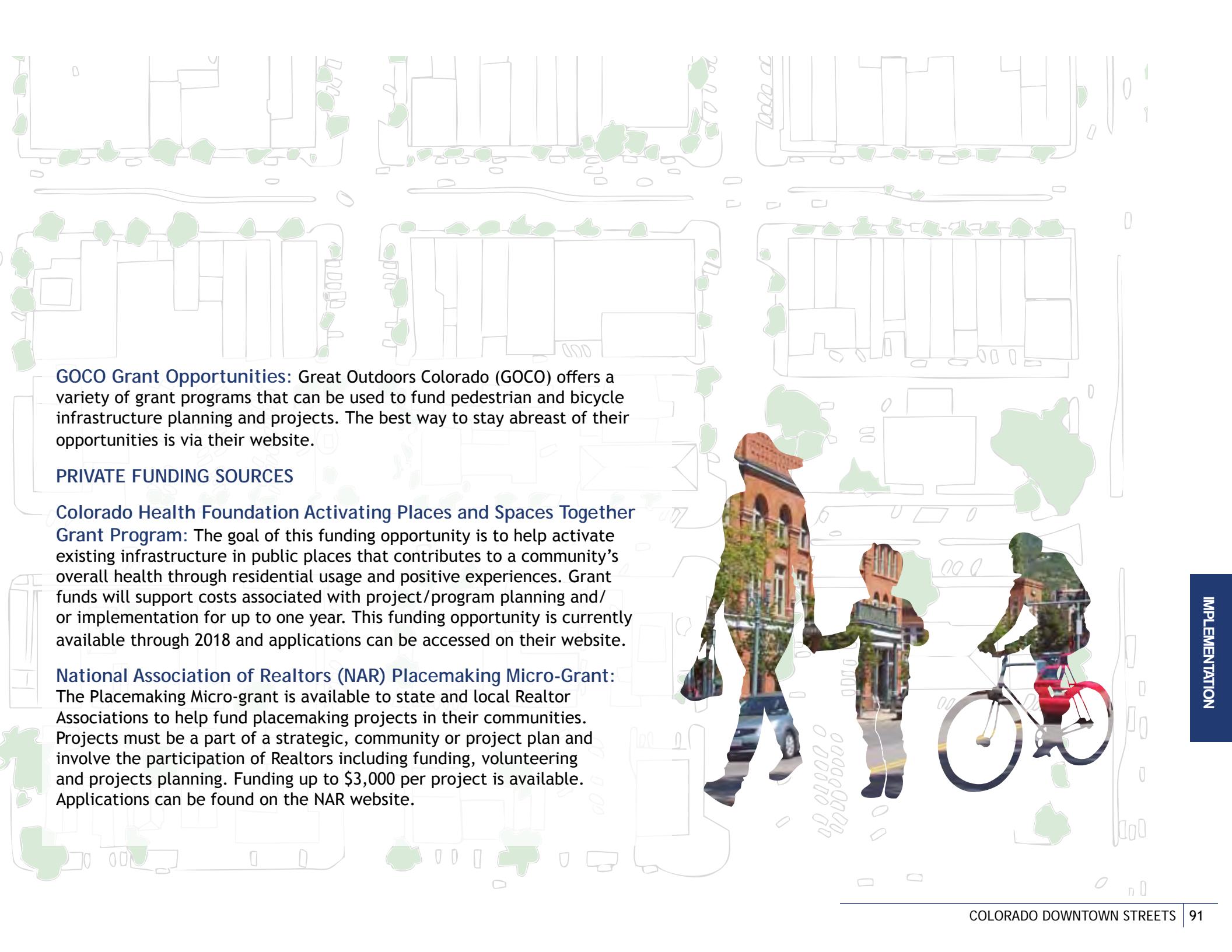
Energy/Mineral Impact Assessment

Fund (EIAF): Administered through the Colorado Department of Local Affairs (DOLA), EIAF grant funds can be used for a variety of public purposes including planning, engineering and design studies, and capital projects. Administrative Planning Grants are available up to \$25,000, Tier 1 Grants are

up to \$200,000, and Tier 2 Grants are over \$200,000 up to a maximum of \$2,000,000. All grants require a 50/50 match, unless financial circumstances warrant a reduction. For more information, visit DOLA's website or contact your DOLA Regional Manager.

Colorado Main Street Mini Grants:

The Colorado Main Street Program offers non-competitive mini-grants to Candidate, Designated, and Graduate Main Street communities annually. These mini-grants are based on available funding each state fiscal year and require a 25 percent local match. The funds may only be used for planning, training, and physical improvements - not for operational costs. The project must also be listed on the community's submitted annual work plan. Applications can be found on the Main Street Program's website.



GOCO Grant Opportunities: Great Outdoors Colorado (GOCO) offers a variety of grant programs that can be used to fund pedestrian and bicycle infrastructure planning and projects. The best way to stay abreast of their opportunities is via their website.

PRIVATE FUNDING SOURCES

Colorado Health Foundation Activating Places and Spaces Together Grant Program:

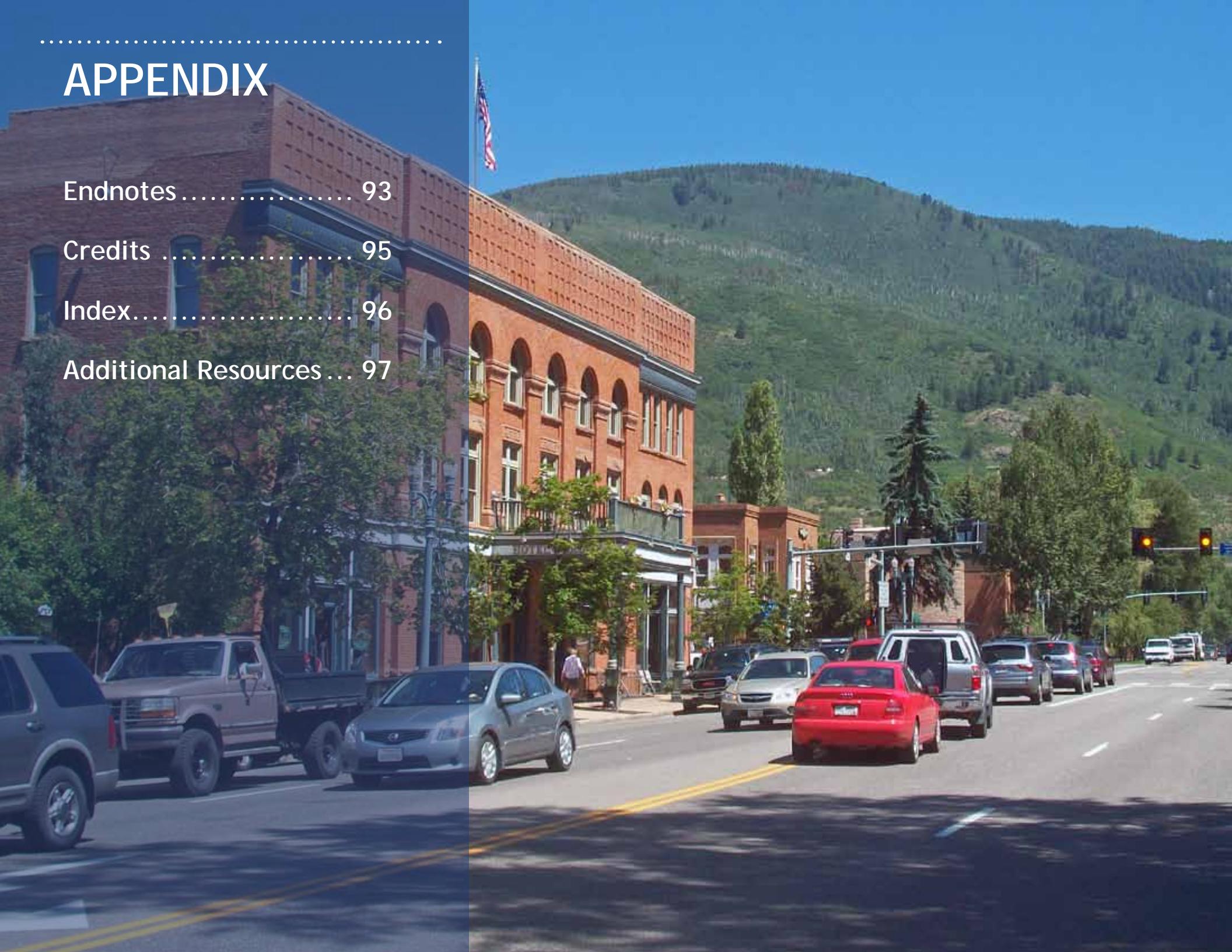
The goal of this funding opportunity is to help activate existing infrastructure in public places that contributes to a community's overall health through residential usage and positive experiences. Grant funds will support costs associated with project/program planning and/or implementation for up to one year. This funding opportunity is currently available through 2018 and applications can be accessed on their website.

National Association of Realtors (NAR) Placemaking Micro-Grant:

The Placemaking Micro-grant is available to state and local Realtor Associations to help fund placemaking projects in their communities. Projects must be a part of a strategic, community or project plan and involve the participation of Realtors including funding, volunteering and projects planning. Funding up to \$3,000 per project is available. Applications can be found on the NAR website.

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ADDITIONAL RESOURCES

POLICIES

- *US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*, 2010: In this document, USDOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate.
- “CDOT CSS Policy Memo” 26, Oct. 31, 2005: States that “by partnering and collaborating on a multi-disciplinary basis with each community, we (CDOT) will find ways to achieve our transportation objectives while at the same time respecting local values.”

DESIGN MANUALS

Colorado Department of Transportation (CDOT)

CDOT Roadway Design Guide 2005: This manual is based off of the AASHTO “Green Book” and establishes CDOT policies and procedures. It provides the lowest acceptable limit in design and explains that the design standards and policies within it are not inflexible. Chapter 14 was added in 2014 to provide design requirements for bicycle and pedestrian facilities.

American Association of State Highway and Transportation Officials (AASHTO)

- *A Policy on Geometric Design of Highways and Streets* (“Green Book”), 2011, 6th Edition: This guide includes the current design research and practices for highway and street geometric design to assist in planning and educational efforts for design formulation. Includes design guidelines for freeways, arterials, collectors, and local roads, in both urban and rural contexts but mainly focuses on interstate and rural highway design.

- *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, July 2004, (AASHTO Pedestrian Guide): Provides guidelines for pedestrian facilities. The guide recommends methods for accommodating pedestrians and addresses the effects of land use planning and site design on pedestrian mobility.
- *Guide for the Development of Bicycle Facilities, 2012, Fourth Edition* (AASHTO Bike Guide): Provides detailed planning and design guidelines on how to accommodate bicycle travel and operation in most riding environments focusing on on-road facilities, shared use paths, and parking facilities. Flexibility in design is provided to encourage facilities that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists.
- *Guide for Geometric Design of Transit Facilities on Highways and Streets*, 2014, 1st Edition: This guide is a reference of current practice in the design of on-street transit facilities. It includes design standards for facilities that serve a variety of transit types that operate in mixed traffic and transit lanes, from buses to streetcars to light rail.

Manual on Uniform Traffic Control Devices (MUTCD)

- *Manual on Uniform Traffic Control Devices*, 2015: Developed by the Federal Highway Administration (FHWA) and the United States Department of Transportation (USDOT), this manual specifies the standards by which traffic signs, road surface markings, and signals are designed, installed, and used.
- *The Colorado Supplement to the Federal Manual on Uniform Traffic Control Devices*, 2009: This Supplement adjusts and interprets the MUTCD standards where necessary for the proper and lawful application of the MUTCD in Colorado in compliance with state statutes. It also addresses traffic regulatory situations not provided for in the MUTCD.

National Association of City Transportation Officials (NACTO)

- *Urban Street Design Guide*, 2013: This highly visual and user-friendly guide shows how streets can be designed to prioritize safe driving and transit, biking, walking, and public activity by providing blueprints and best practice case studies.
- *Urban Bikeway Design Guide*, 2014, 2nd addition: This guide addresses more recently developed bicycle design treatments and techniques and provides options that can help create “complete streets” that better accommodate bicyclists. It provides many visuals of treatments and user-friendly language for easy application.
- *Transit Street Design Guide*, 2016: This guide provides detailed illustrations to demonstrate how streets can be redesigned to be great transit streets that support neighborhoods and downtowns and is meant to serve as a link between transit planning, transportation engineering, and street design.

Institute of Transportation Engineers (ITE) and the Congress for New Urbanism (CNU)

Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, 2010. This guide is useful in gaining an understanding of the flexibility that is inherent in the AASHTO “Green Book,” A Policy on Geometric Design of Highways and Streets. The chapters emphasize streets in “walkable communities”—compact, pedestrian-scaled villages, neighborhoods, town centers, urban centers, urban cores and other areas where walking, bicycling and transit are encouraged. It describes the relationship, compatibility and trade-offs that may be appropriate when balancing the needs of all users, adjoining land uses, environment and community interests when making decisions in the project development process.

Federal Highway Administration (FHWA)

- *Context Sensitive Solutions Primer*: This guide focuses on the implementation process for achieving context sensitive solutions. It addresses implementation challenges at the federal, state, regional and local levels.
- *Road Diet Information Guide*: Provides procedures, engineering standards and case studies demonstrating how to redesign four lane roadways to make them safer for all users.

- *Separated Bike Lane Planning and Design Guide*: Planning, design and funding sources of separated bike lanes are discussed.
- *Incorporating On-Road Bicycle Networks in Resurfacing Projects*: Bicycle facilities are part of a roadway and need special consideration in resurfacing project. This workbook provides standards and methods for proper bike lane resurfacing.

TOOLS, HANDOUTS & MORE

The Transportation and Health Tool

The “Transportation Health Tool” was developed by the U.S. Department of Transportation and the Centers for Disease Control and Prevention to provide easy access to data that practitioners can use to examine the health impacts of transportation systems.

Cities Safer by Design

Urban Design Recommendations for Healthier Cities, Fewer Traffic Fatalities, by Ben Welle, Wei Li, Claudia Adriazola, Robin King, Marta Obelheiro, Claudio Sarmiento and Qingnan Liu - July 2015

Smart Growth America

Smart Growth America produces research, case studies and web-based information on a variety of subjects including transportation, land use and economics.

National Complete Streets Coalition Resources

The National Complete Streets Coalition has a clearinghouse of free resources, from handouts to presentations, on a variety of topics related to street design.

New Mobility West

New Mobility West is an initiative of Community Builders focused on helping Western communities create great transportation systems. NMW's website has a clearinghouse of tools and resources that address many topics related to downtown street design.