



Implementing Living Streets: Ideas and Opportunities for the City and County of Denver

US EPA Smart Growth Implementation Assistance

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Executive Summary

The city of Denver is growing. During the last few decades, the city has seen tremendous progress. The regional economy has expanded, bringing new jobs, residents, and a civic identity that makes Denverites confident about themselves, the future, and the role of the city as a national and global leader.

A contributing factor to this growth has been the commitment of city and regional leaders to pursue policies and actions that promote smart, progressive, and sustainable ways to grow and develop. The region includes many notable examples of smart growth projects and approaches, such as the 16th Street Mall, and the redevelopment of Stapleton Airport, Lowry Air Force Base, Elitch Gardens, and the Villa Italia Mall.

In addition to these nationally recognized projects, the city and region have made investments, such as FasTracks, and passed policies including *Blueprint Denver*, *Greenprint Denver*, and *the Strategic Transportation Plan*, that are guiding growth in a sustainable and cost effective way.

The next frontier for growth in Denver region is the retrofitting of commercial and business corridors. These corridors, such as Federal Boulevard and Leetsdale Drive, are vital regional economic engines. They are also major thoroughfares that help move people and goods across the region.

According to the *Strategic Transportation Plan*, these and other commercial corridors will require new street investments in the

future to meet anticipated travel demand and create a connected, multi-modal transportation system.

In 2008, the city launched the Living Streets Initiative. This initiative is a multi-jurisdictional effort to shape future street investments and policies and transform existing commercial corridors into living streets-pedestrian oriented, multi-modal streets that can support a dense, vibrant mix of shops, offices, and residences.

Transforming commercial corridors into living streets can provide many benefits for residents. Living streets are designed to accommodate a range of transportation options-driving, walking, bicycling, and transit and emphasis is on moving people, not just cars. This helps expand

Executive Summary

transportation choice and make the city and region more accessible for everyone irrespective of age, mobility, or income.

Greater transportation choice can help reduce people's dependency on the automobile and increase travel by walking, bicycling and transit—both key objectives of the *Strategic Transportation Plan*. Giving people choices besides driving can help protect air quality, reduce greenhouse gas emissions, and address public health concerns such as childhood asthma and obesity.

A living streets approach supports investment in existing neighborhoods and helps bring new residents, jobs and businesses back to more centrally located or established city neighborhoods.

Directing development to existing neighborhoods maximizes past investments in infrastructure and can help to keep future infrastructure costs in check. It gives new and existing residents more housing options that they can afford closer to employment centers.

To help kick off the Living Streets Initiative, the city hosted a four-day public workshop to explore how existing commercial corridors could be redesigned

to become living streets and to identify policy options to make living streets a reality in the city.

During the workshop, participants identified three design principles for future corridor street investments:

- ❶ Reduce the number of travel lanes dedicated to moving cars to add space for bus lanes, bike lanes and sidewalks.
- ❷ Create a pedestrian and transit friendly streetscape by widening sidewalks, providing buffers along the street and reducing the frequency for curb cuts.
- ❸ Relate development to the street by locating new buildings close to the street edge and facing building entrances to the street.

During the workshop, participants identified next steps that the city could consider to implement the Living Streets Initiative. These steps are listed below and discussed in greater detail in Chapter 4.

- Pass a living streets policy
- Task the Living Streets Initiative team to coordinate implementation of the Living Streets Initiative
- Address density and traffic congestion head on

- Build a demonstration project
- Develop a living streets implementation strategy
- Explore long term funding sources
- Develop specific area plans for living street corridors
- Exempt living streets from level of service requirements
- Integrate living streets into existing streets related programs
- Adopt supportive planning, zoning and subdivision regulations

Creating living streets involves raising awareness and mobilizing public support; coordinating planning, investment, and infrastructure decision-making; and making tough political and funding decisions such as increasing densities or narrowing streets.

Denver is up to this challenge. It has a tradition of progressive planning and development, an engaged citizenry, and forward-thinking leadership. Creating living streets will provide multiple benefits for residents and help achieve the vision of a more sustainable and just Denver.

1 | Introduction

Background

Since 1990, Denver's population has grown by more than 20 percent, to approximately 590,000. The five-county Denver-Aurora Metropolitan Statistical Area has grown even faster and now numbers close to 2.5 million people. The region is anticipating an additional one million people by 2030.

Growth has brought many benefits to the city and region. Denver is routinely identified as one of the best cities in the country for business, and the economic success and expansion of the city has supported growth across the region and the Front Range.



Figure 1: View of the Denver skyline at night. (Photo courtesy of ICF International)

Another defining characteristic of Denver is the firm commitment of its residents and leadership to growing in a way that is smart, sustainable, and cost effective. This ethic is behind the 2004 passage of FasTracks, the single largest (\$7.9 billion) public transit expansion in the United States, and more recently the adoption of *Blueprint Denver*, *Greenprint Denver* and the

Strategic Transportation Plan. Collectively these plans and investments have created a framework that guides development and redevelopment efforts in the city to be efficient, compact, mixed use, sustainable, and supportive of a multi modal transportation system.

Chapter 1

A critical development issue facing the city and region—one that will determine how effective the community will be in meeting development challenges and growing in a smart, sustainable, and cost effective way—is the redevelopment of existing commercial corridors.

In Denver and many other cities, commercial corridors serve an important economic and transportation function. Commercial corridors are where people shop and where businesses and employment are located. What makes these commercial corridors so attractive to businesses, especially retailers, is the high volume of traffic that they tend to carry.

Traffic on Denver’s commercial corridors is expected to increase in the future. The city is expected to add 1.4 million daily trips to their roads by 2030.¹ The Denver roadway network currently carries 4 million daily person trips. The city faces the challenge of accommodating future mobility needs without undermining community values and while continuing to grow in a smart, sustainable, and cost-effective way.

Living Streets Workshop

Denver’s city government has launched a “Living Streets Initiative.” The initiative is a multi-departmental effort to transform some of Denver’s most heavily traveled commercial corridors into living streets—that is, streets that are vibrant, attractive, and pedestrian friendly; have dense, compact development; and accommodate a range of transportation options.

In partnership with the U.S. Environmental Protection Agency (EPA), the city sponsored a four-day, public, living streets workshop from July 30 through August 2, 2008. The objectives of the workshop were to:

- Illustrate how living streets concepts could be applied in Denver; and
- Identify suggested implementation strategies to advance the city’s Living Streets Initiative.

Technical support for the workshop was provided by a team of national smart growth experts funded by EPA.

All workshop activities were open to the public. The team also met with staff and



Figure 2: The living streets workshop brought together citizens, stakeholders, and national experts to brainstorm how city streets could support walking, bicycling, transit, and driving. (Photo courtesy of EPA)

elected officials from Denver and neighboring jurisdictions, transportation planners, and traffic engineers, budget and finance officials, planning staff, and commissioners, and members of the Downtown Denver Partnership and the Cherry Creek North Business Improvement District.

The workshop focused on the “Fulcrum” portion of the Downtown-Cherry Creek (DCC) corridor. This section stretches between University Boulevard on the west and Quebec Street on the east. Major roads within this area are First Avenue, Steele

Street, Cherry Creek North Drive, East Alameda Avenue, and Leetsdale Drive.

This area was chosen as a focus of the workshop because it includes many characteristics of other commercial corridors in the city and region. It is also a useful lens to understand broader city and region-wide issues associated with turning commercial corridors into living streets.

During the workshop, the team heard from many community residents. Overall, residents do not have a favorable impression of streets in the Fulcrum, noting that:

- The streets are too wide, with fast, heavy, noisy traffic.
- Buildings and the landscape are designed for automobile access, not for pedestrians.
- The streetscape is unattractive, monotonous, and uninspiring; it looks

like “Anywhere, USA,” with nothing special about it.

- Streets are uninviting and unsafe for pedestrians and bicyclists.
- Transit service should be improved, both for commuters and for the local circulation and access needed within the corridor.
- Due to the lack of safe, convenient mobility options, people have little choice but to drive, even for short trips.
- Destinations are so spread out that walking and bicycling are discouraged by the inherent distances.
- Streets lack community gathering places.
- Future street improvements should make it easier for seniors, children, those with disabilities, and lower-income individuals to move around the corridor without a car.

Appendix A includes further details on the workshop, including a schedule of activities and a list of participants.

About this report

This report summarizes the workshop results and is meant to give the city some ideas to consider as it continues its Living Streets Initiative. This report can also help the general public learn more about living street concepts and implementation approaches.

Chapter 2 outlines the key characteristics and benefits of living streets. Chapter 3 illustrates how living streets concepts could be applied to the Fulcrum. Chapter 4 outlines implementation strategies to advance Denver’s Living Streets Initiative, and Chapter 5 offers some concluding thoughts.

2 | What Are Living Streets?

Living streets are designed to accommodate a range of transportation options—driving, walking, bicycling, and transit—and emphasize moving people, not just cars. They are active public spaces that serve the needs of all community residents, irrespective of age, income, or disability. Because they are public spaces and public investments, living streets add value to adjacent properties, maximize public investment and benefit, and provide places like shops, parks, and plazas for people to congregate.

Living streets accommodate a range of transportation options. They feature well-designed sidewalks and crosswalks and, where appropriate, include dedicated bike lanes, on-street parking, and transit lanes.



Figure 3: This visualization of East 14th Street in San Leandro, California, shows many of the elements of a living street. (Photo courtesy of Urban Advantage and Community Design +Architecture)

Living streets balance the needs of pedestrians and bicyclists with the needs of drivers and transit users. They may devote less space to vehicular movement because narrowing vehicle lanes helps to moderate traffic speeds and reduce pedestrian crossing distances. Slowing down traffic makes bicycling safer, even if bike lanes are not present, and makes pedestrians feel less threatened by traffic as they walk along the street. This is particularly important in mixed-use and commercial locations where destinations often line both sides of the street and walking is frequent. Additional features that help to make crossings safer and calm traffic include medians, pedestrian refuge islands, and bulb-outs. Bulb-outs occur when a portion of the sidewalk or the curb is extended into the street at intersections or mid-block, shortening crossing distances and calming traffic.

Traffic speeds and volumes are also affected by the layout of the street network. Street networks that support living streets are well connected with frequent intersections and short blocks. A well-connected street network disperses traffic and provides multiple routes for cars, buses, bicyclists, and pedestrians.

Living streets have streetscapes, i.e. the area between the street and the building that are attractive and inviting to pedestrians. Sidewalks are wide and street trees are common. Pedestrians are separated from moving traffic by planting strips or on-street parking. Street lights and signs are sized and placed for pedestrians- not cars, and there are plazas, fountains, and other outdoor public spaces where people can congregate.

Additionally, living streets may integrate elements designed to capture and treat stormwater. Landscaping, permeable paving, planters, and other “softscaping” techniques reduce the volume and rate of stormwater runoff, manage stormwater onsite for improved water quality, and create a more visually pleasing streetscape.

Living streets support compact, mixed-use development, which combines residential, office, retail, and other compatible activities. Compact, mixed-use development is typically concentrated at major street intersections, which creates a series of activity nodes along the length of the corridor. Between the nodes, land use types can vary and can include residential, retail, office, and civic uses.



Figure 4: The streetscape and adjacent land uses on living streets support activity on the street. (Photo courtesy of Charlier and Associates)

Mixing uses puts homes, work and shops within walking distance of each other. This means more people and more activity along the street.

Compact, mixed-use development improves transportation choice by making it easier for people to walk or bike to get around. Dense development supports transit service by providing the ridership needed to make bus and rail transit a viable and competitive option.

On living streets, buildings are often multiple stories with closely-spaced entrances and a high percentage of the

Chapter

street wall is comprised of windows. Buildings along the street form a continuous street wall and are located close to the front lot line, with no parking between the sidewalk and the building.

Appendix B includes a list of organizations, websites and books that discuss the design of living streets.

Benefits of Living Streets

Living streets offer many benefits. Living streets increase transportation choices giving people more ways to get around. Providing alternatives to the car helps protect the environment and can make it easier for people to have an active, healthy lifestyle. Living streets are lively places and can contribute to safe, vibrant neighborhoods. Creating living streets often supports greater housing choices and directs resources and investment to established neighborhoods.

Transportation Choice

Living streets are multimodal- that is, they support multiple ways to get around, including walking, bicycling, transit, and driving. These transportation options make the city more accessible for people of all ages and abilities, including people

who are not able, cannot afford, or otherwise do not want to drive. This is especially important to children, the elderly, and disabled or low-income people.

Living streets often support higher-density, mixed-use development that places residents closer to goods, services, jobs, and each other and can make it possible for people to meet some of their daily needs by walking or bicycling.

Environment and Public Health

Increasing transportation choices makes it possible and convenient for people to choose alternatives to driving. This helps reduce dependency on the automobile, protect air and water quality and reduce greenhouse gas emissions.

Increasing transportation choice can also help communities address public health concerns such as childhood asthma. Air pollution is a leading cause of asthma and other respiratory diseases among urban residents, particularly among children. Increasing transportation options can help to reduce exposure to air pollution.

The lack of safe walking and bicycling environments in many communities



Figure 5: Living streets are designed to make it easier for all community residents to move around. (Photo courtesy of Community Design + Architecture)

discourages people from engaging in routine physical activity. Living streets create safe and convenient places for walking and bicycling, allowing people to integrate physical activity into their daily routine. The lack of physical activity contributes to obesity and other chronic health problems, such as diabetes and heart disease. Studies show that routine physical activity can help reduce obesity and associated health risks.ⁱⁱ

Safe, Vibrant and Convenient Neighborhoods

Living streets create areas that attract people. They feature wide, pleasant, shaded sidewalks, plazas, and other public spaces that encourage people to stroll, stop, sit, or gather. People feel comfortable because they are not confronted with excessive traffic volumes, speeds, noise, and pollution.

Living streets also possess the “critical mass” of people that gives good urban places their vibrancy. A mix of people and land uses means that streets are active throughout the day. More activity on the street improves security by increasing “eyes on the street,” meaning that more people are out on the streets deterring crime simply by being there.

Economic Resilience

A living streets approach directs new development to existing neighborhoods. This supports reinvestment in neighborhoods that may not have experienced significant growth or development investment over the years and helps bring new residents, jobs, and businesses back to centrally located and established city neighborhoods.

Directing development to existing neighborhoods maximizes past investments in infrastructure and can help to keep future infrastructure costs in check. It gives new and existing residents more housing options they can afford, closer to employment centers.

3 | Case Study: The Fulcrum

This chapter describes how living street concepts could be applied to the “Fulcrum” portion of the Downtown-Cherry Creek (DCC) corridor. The city of Denver selected this area to explore application of living street concepts. For ease, we refer to this area as “the Fulcrum” because it is in the middle of the DCC corridor. However, “the Fulcrum” is not an official city designation for this area.

This area was chosen because it shares many characteristics with commercial corridors throughout the city and region, and because it is a useful lens to understand broader city and region-wide issues associated with turning commercial corridors into living streets. Many of the ideas and concepts discussed in this

chapter can apply to the Fulcrum and to other commercial streets and corridors throughout the region.

This chapter begins with an overview of existing conditions within the Fulcrum. That is followed by a discussion of planning and design concepts that can support living streets in the Fulcrum.

Existing Conditions

The Fulcrum is a 3.5-mile segment of the Downtown-Cherry Creek corridor. It stretches between University Boulevard on the west and Quebec Street on the east. Colorado Boulevard separates the Fulcrum into distinct east and west portions.

The Fulcrum is an important commuter route between downtown Denver and points in the southeastern part of the region. Arterials within the Fulcrum include parts of East First Avenue, Steele Street, Cherry Creek North Drive, East Alameda Avenue, and Leetsdale Drive. Like other commercial corridors in Denver, these arterials are wide, six-lane streets with fast-moving traffic. The 83L bus route provides daily service through the Fulcrum.

Neighborhoods that are part of the Fulcrum include: Cherry Creek, Hilltop, Belcaro, Washington-Virginia Vale and the city of Glendale.

Major activity centers and landmarks in the corridor include Cherry Creek Shopping Center, the Cherry Creek North neighborhood, the Glendale Super Target store, George Washington High School, and South Lowry Square Shopping Center. Important natural features and open space resources include the Cherry Creek Trail, Pulaski Park, and Burns Park.

Market Observations

The Fulcrum is a prominent retail center for the city and region. Retail rents in the Cherry Creek area range from \$25-\$50 per square foot or higher, while retail rents in the remainder of the corridor are in the mid teens and lower \$20s. This variability makes it possible for the corridor to support a wide range of national retailers, such as Saks Fifth Avenue, Target and Safeway and local businesses such as Vitamin Cottage. National retailers are largely concentrated in the Cherry Creek area. Other significant retail nodes in the Fulcrum are at the intersection of Leetsdale Drive and Colorado Boulevard, and at Leetsdale Drive and Quebec Street

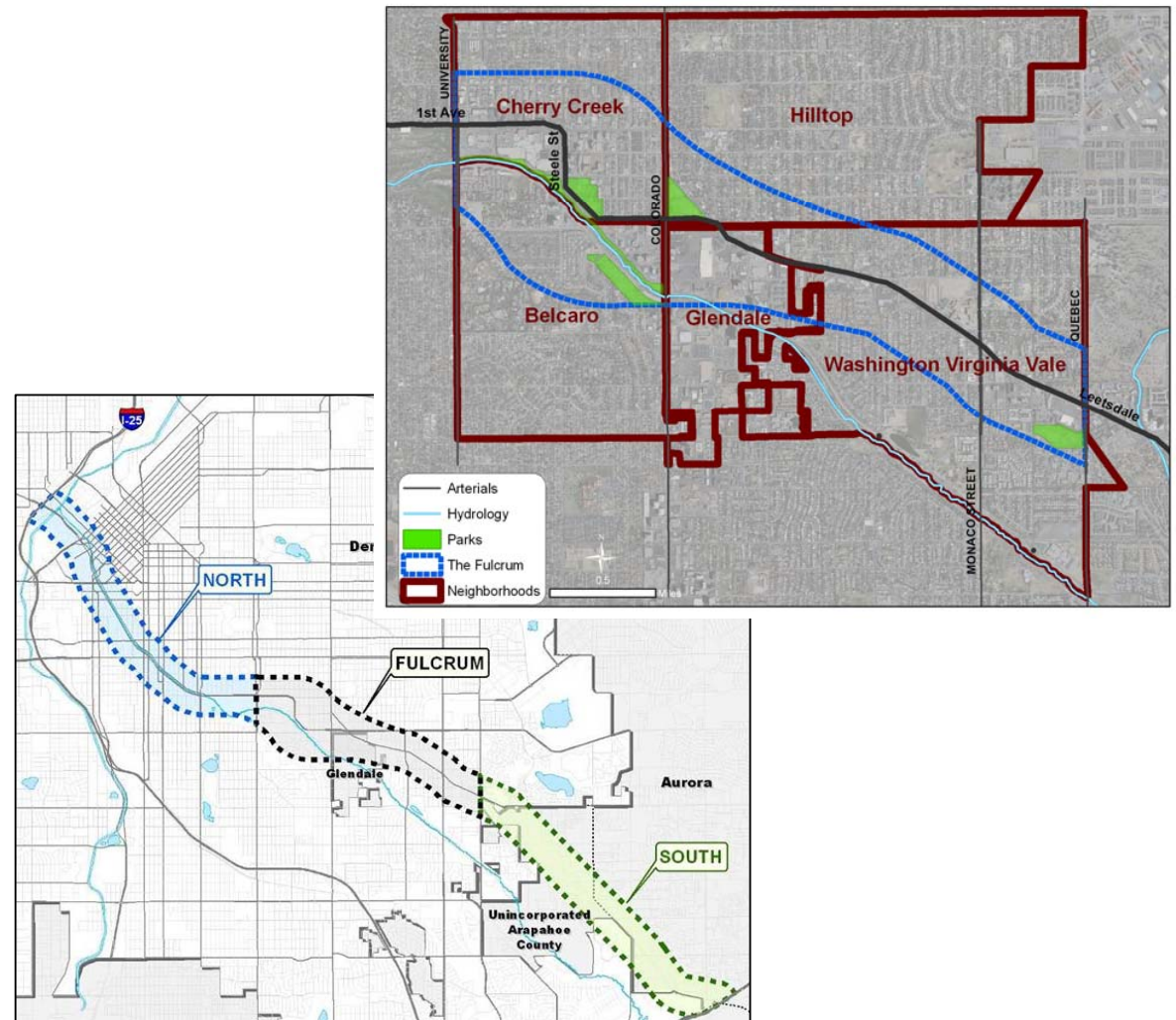


Figure 6: These maps show the location of the Fulcrum within the Downtown Cherry Creek Corridor and neighborhoods and arterials within the Fulcrum.

Within the Fulcrum there are two distinct development markets. The area west of Colorado Boulevard, which includes Cherry Creek Shopping Center, has experienced significant new and high-end office, residential, and retail development in recent years. Most compact, mixed-use development in the Fulcrum, is gravitating to this area.

The area east of Colorado Boulevard has experienced some new development activity in recent years, mostly new retail for instance the opening of Super Target in 2003 and refurbishment of Lowry Market.

For the most part, developers currently do not see this portion of the Fulcrum as a desirable location for new residential, office or mixed-use development. One reason for this is developers' lack of familiarity with this portion of the corridor and its development potential. In other instances, property owners are satisfied with their revenue and see no reason to take on the risk of new development.

These trends are likely to continue. New development, particularly higher-end office and residential and national retailers, will likely continue to gravitate to

the Cherry Creek area. The area east of Colorado Boulevard will continue to remain a desirable and attractive retail location, particularly for strip retail and local businesses, and potentially for retail that is priced out of the Cherry Creek market. Current land prices of \$30 to \$90 per square foot make multi-family residential development difficult in this portion of the corridor. Increasing compact, mixed-use development in this portion of the corridor will happen slowly and may require public support or intervention.

Social equity considerations may arise as the city tries to increase development activity on this corridor and potentially other commercial strips as well. The low and moderate retail rents on these corridors, such as Leetsdale Drive, make them very attractive to small and neighborhood-serving businesses. Often these corridors may be the only affordable places in a community for small businesses to locate.

New development activity could displace some existing businesses. The city may wish to partner with existing businesses to help them remain in operation while still



Figure 7: The Cherry Creek Shopping Center is a major economic and development driver in the Fulcrum. (Photo Courtesy of US EPA)

allowing new development and investment to occur.

Development Patterns

The sections of the Fulcrum on either side of Colorado Boulevard present markedly different development patterns.

West of Colorado Boulevard

The neighborhoods west of Colorado Boulevard have a well-connected street grid with short blocks and frequent intersections, older homes on small lots, and a mix of land uses often within walking distance of each other. Parking for retail tends to be located in structures,

particularly at newer developments, or in surface lots shielded by buildings or landscaped buffers.

Pedestrian accommodations are good in this portion of the Fulcrum, particularly along First Avenue, where medians help reduce street crossing distances, sidewalks are slightly wider, street trees buffer traffic, and the blocks are shorter with more frequent crosswalks. Additional pedestrian improvements could enhance First Avenue, including widening sidewalks to accommodate more street activity, such as sidewalk cafés or bus shelters; providing more mid-block crossings for better north-south connections; and allowing on-street parking. On-street parking would provide an additional buffer between pedestrians and traffic and would also provide additional parking for businesses.

The primary challenge to creating living streets in this portion of the Fulcrum is integrating Cherry Creek Shopping Center into the existing urban pattern. The design of the Cherry Creek Shopping Center reflects the retail era when it was built. It is essentially a suburban shopping center set in an urban neighborhood. The shopping center occupies a superblock and is

surrounded by surface parking. Retailers in Cherry Creek Shopping Center and adjacent parcels turn their backs to the street, creating a barrier that disconnects the area north of First Avenue from the area south of First Avenue.

Reconnecting Cherry Creek Shopping Center to its surroundings will likely involve orienting the shopping center to First Avenue and filling in gaps in the street wall. These design concepts, along with strategies for reconfiguring the street to accommodate pedestrian-and transit-friendly features are discussed in greater detail later in this chapter.

East of Colorado Boulevard

The area east of Colorado Boulevard is less intensely developed and has a more suburban and automobile-oriented feel. The street grid is incomplete or discontinuous, particularly east of Monaco Parkway; there are several superblocks and few connections across Leetsdale Drive.

Primary land uses include drive-through retail, gas stations, small strip malls, “big box” retail stores, and large parking lots. Retail activity is concentrated at intersections, particularly where Leetsdale



Figure 8: The intersection of First Avenue and Detroit includes wide sidewalks, cross walks, and street trees that make walking and bicycling safe and more convenient. (Photo courtesy of EPA)

Drive crosses a major north/south street, such as Colorado Boulevard or Quebec Street.

Land uses are segregated and separated from each other by large distances. Buildings are low rise and are set far back from the street, with large parking areas in front. This makes walking difficult and unpleasant. Additionally, street signs are

over-sized, designed to capture the attention of passing motorists, and street lights are designed to illuminate the roadway, not the sidewalks.

Along Alameda Avenue and Leetsdale Drive, sidewalks are typically narrow or non-existent; there are few, if any, street trees; there is little separation between the sidewalk and the street; pedestrians walk, and transit riders wait, next to fast-moving traffic; and driveway curb cuts are frequent and wide. Not surprisingly, foot traffic is light.

There are few bike accommodations in this area. Arterials do not have bike lanes. In general, community residents want to make bicycling easier and safer in this part of the Fulcrum and improve connections between bicycle paths, trails, and lanes, and between trails, bike lanes, and neighborhood destinations.

Adding bike lanes on Alameda Avenue or Leetsdale Drive would make bicycling safer and more convenient. The lanes would increase access to shops and destinations in the eastern portion of the Fulcrum. Because of existing traffic speed and volume along Alameda Avenue and Leetsdale Drive, adding bike lanes to those

arterials could occur in conjunction with efforts to calm traffic.

Given current market conditions and development patterns, creating living streets in this portion of the Fulcrum will likely take longer than it would to create living streets in areas where the existing development pattern is more urban, such as along First Avenue.

However, this does not mean that it is not possible to begin to transform car-oriented arterials such as Leetsdale Drive into living streets. Many of the same design approaches that can make First Avenue a living street also apply to Leetsdale Drive and other similar commercial streets in the region.

Creating Living Streets in the Fulcrum and Denver

The *Strategic Transportation Plan* lays out key objectives for Denver's transportation system, including expanding transportation options and reorienting the city's roads to moving people as opposed to only moving cars. It also affirms the city's commitment to creating streets that support and balance transit, walking,



Figure 9: Narrow sidewalks along Leetsdale Drive result in signs, bus stops or utility poles in the middle of the sidewalk. (Photo courtesy of EPA)

bicycling, and cars as ways for people to move around.

This section describes three planning and design strategies that can help transform the city's arterial and commercial corridors into multimodal and living streets:

- 1) Reduce the number of lanes dedicated to moving cars;
- 2) Create a pedestrian and transit friendly streetscape; and
- 3) Relate development to the street.

❶ Reduce the number of lanes dedicated to moving cars

Many communities are creating more multimodal streets by replacing travel lanes in existing arterials with dedicated transit lanes, bike lanes, wider sidewalks, or on-street parking.

For instance, Arlington County, Virginia launched a multi-year effort in 2002 to retrofit Columbia Pike—a 3.5-mile auto-oriented retail strip—into a community main street that supports walking, bicycling, and transit. As part of this effort, the county adopted a form-based code for the corridor and updated street cross sections for the corridor. ⁱⁱⁱ

Appendix B provides more detail on the Columbia Pike effort and similar efforts in the U.S. including Palo Alto, California (El Camino Real), and Boulder, Colorado (28th Street), to create multimodal streets and commercial corridors.

The city could pursue a similar approach along arterials both citywide and in the Fulcrum. Many of the city's arterials have greater than four travel lanes. The city

could replace some of those travel lanes with street improvements that better support transit, walking, and bicycling, while continuing to move cars. Doing so will expand transportation options, support redevelopment, and is consistent with the city's goal of maximizing people movement throughout the city.

Figures 10 through 13 illustrate several potential ways in which removing travel lanes could help create multimodal and living streets in the Fulcrum. These are preliminary ideas and require further study by the city before they could be implemented. They are not final recommendations or proposed designs.

Figure 10 shows one possible approach to narrowing First Avenue. Currently, First Avenue has six travel lanes. In this example, the avenue is reduced to four lanes: two 10-foot through lanes in each direction, a left-turn pocket, and a landscaped median.

Removing two lanes makes it possible to widen the sidewalk and add on-street parking (the parking lane is 2 to 3 feet narrower than a traffic lane). Fewer and

narrower travel lanes and median keep crossing distances reasonable. Additional street improvements that could support walking include: enhanced crosswalks (for example, with special paving and gateway elements) and changing signal timing to increase crossing time for pedestrians. Along First Avenue, enhanced pedestrian crossings could be particularly useful at University, Clayton and Fillmore Streets.

Widening sidewalks helps retailers by providing space for outdoor seating and encouraging people to walk along the street. Wider sidewalks can also accommodate landscaping, street trees, and bus shelters.

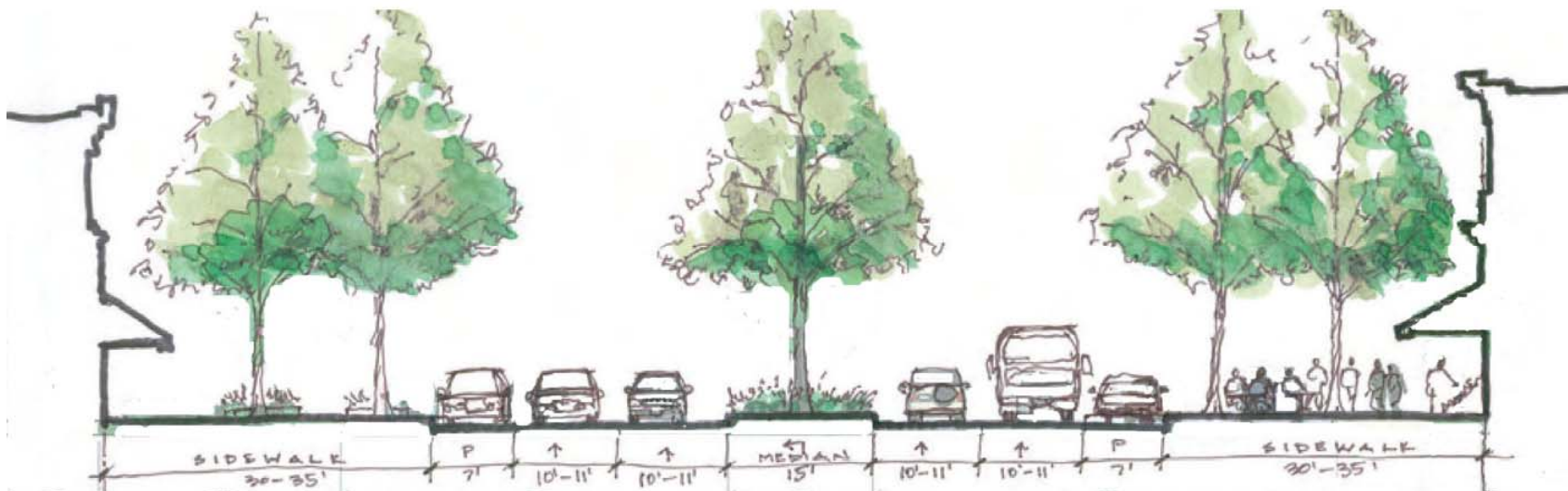


Figure 10: This cross section illustrates how the city could widen sidewalks, provide on-street parking, and support streets that balance travel modes.

Bus shelters and other amenities that transit riders value, such as attractive landscaping or vending machines, can make riding transit more convenient and enjoyable (additional suggestions for improving bus transit in the Fulcrum are discussed in Appendix C).

This cross section does not include on-street bike lanes because the Cherry Creek Trail is nearby, and because on-street parking is more appropriate here given the concentration of stores along First Avenue.

However, bike safety could be improved by moderating traffic speeds along First Avenue and increasing north-south connections into the Cherry Creek shopping district. This could be done by opening Clayton Lane as a public street and extending it south across Cherry Creek as a bike and pedestrian bridge.

This cross section also does not include separate bus lanes. Many of the city's arterials, including those in the Fulcrum, are designated in *Blueprint Denver* as enhanced transit corridors- locations

where the city would like to see increased bus service. A dedicated bus lane along First Avenue or other arterials could allow buses to move more freely, and support more frequent bus service.

The street right of way in the Fulcrum varies from 68 to 150 feet. Narrow streets make it difficult to accommodate all of the desired elements of a multi-modal street. However, narrow arterials can be improved for walking and bicycling.

Figures 11 and 12 illustrate two potential ways to integrate bicycle lanes and wider sidewalks into narrow arterials. The cross sections are based on a segment of Leetsdale Drive that is currently a four-lane, undivided arterial with a 68-foot right of way.

Figure 11 shows a cross section with one travel lane in each direction and a two-way center turn lane. Removing two travel lanes (one in each direction) makes it possible to add wider sidewalks and bike lanes in each direction. The sidewalk is 12 feet wide, with an 8 foot-wide walkway and a 4 foot-wide strip for street trees.

Figure 12 shows a different cross section for the same 68-foot-wide arterial. It includes four travel lanes, a 4 foot-wide median, and 12-foot-wide sidewalks. Because of the constrained right of way, it's difficult to have four travel lanes and on-street parking or bike lanes.

This cross section is more auto-oriented than the one in Figure 11. However, it does have some features that support walking. Keeping the travel lanes to 10 feet keeps crossing distances across the street manageable for pedestrians and also helps to moderate traffic speeds.

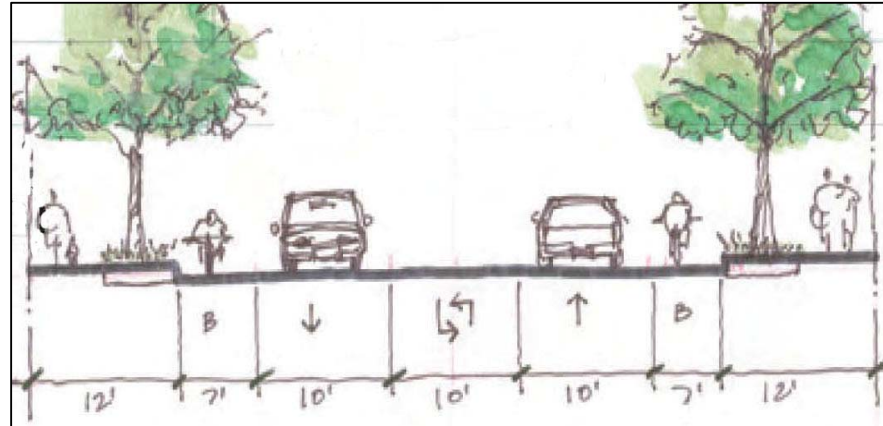


Figure 11: Removing one travel lane makes it possible to widen sidewalks and add bike lanes on this 68-foot wide street.

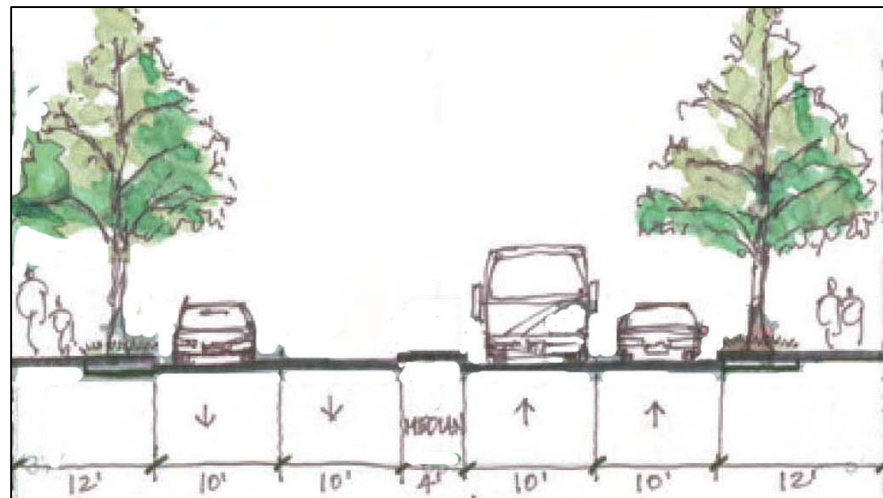


Figure 12: Reducing lane width makes it possible to narrow the street without removing a travel lane.

Twelve-foot-wide sidewalks and trees help buffer pedestrians from street traffic. The center median gives pedestrians a refuge and is a visual cue that helps to calm traffic.

Figure 13 is a cross section for a 78-foot right of way. It has four travel lanes and a 12 foot-wide sidewalk on both sides of the street. The additional 10 feet of right of way provides enough space for a bike lane or on-street parking on each side of the street. If on-street parking were provided, then bike lanes could be offered on parallel or perpendicular streets.

Impact of reducing travel lanes on traffic congestion

Reducing the number of traffic lanes on arterials may increase traffic congestion in the short term. This increase can be mitigated through strategies such as access management, the addition of medians and left-hand turn pockets, or synchronizing traffic signals. However, these strategies may not be sufficient to stop or reverse traffic congestion over the long term.

This does not have to deter the city from pursuing living streets. The experience of

other cities has shown that over time, traffic volumes adjust to capacity because as congestion increases people revise their travel behavior. Some shift to transit, walking, biking, carpooling, or telecommuting. Others choose to travel at less busy times or on other routes, or to make fewer trips altogether. Still others may choose to live closer to their jobs or take jobs closer to home.

Living streets, especially when they include transit, assist in this process by making it easier for people to use other modes of transportation. Living streets might carry fewer vehicles, but they often carry more people.

An example of this is found in Arlington County, Virginia, along the Rosslyn-Ballston transit corridor. The main street in

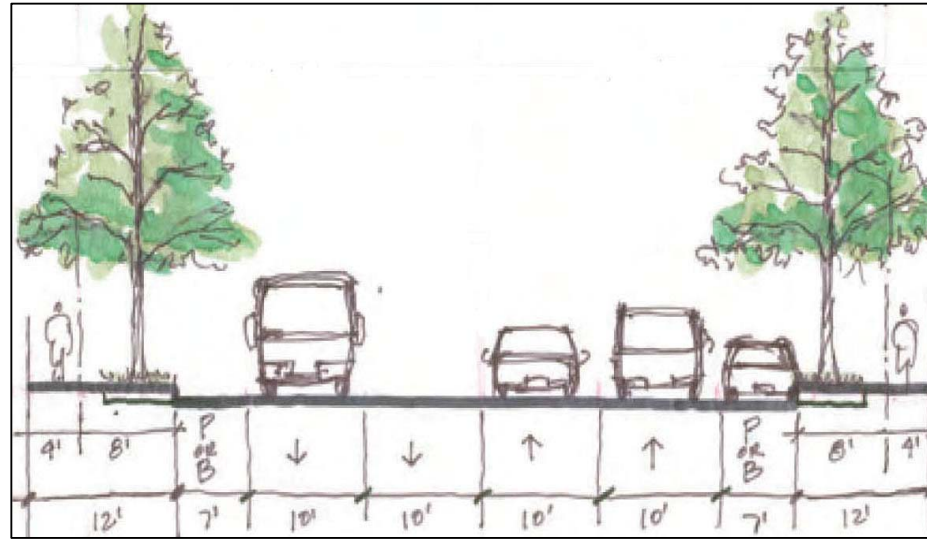


Figure 13: The wider the existing street, the easier it is to integrate features that support walking and bicycling. The additional 10 feet of right of way makes it possible to accommodate four travel lanes and a lane for parking or bikes.

this transit corridor, Wilson Boulevard, has seen minimal increases in traffic during the past 25 years because of the county's explicit effort to increase mixed-use development activity around the four rail stations in this corridor, along with investments in pedestrian and bike infrastructure. In 1980 the traffic count along Wilson Boulevard was around 15,000 vehicles; in 2004, it was 15,795. The count on nearby Washington Boulevard actually decreased from 20,000 in 1980 to 17,230 in 2004 because of efforts to increase development and promote walking and bicycling along that street. Overall, fewer than half of the residents in the Rosslyn-to-Ballston corridor drive to work. Thirty-nine percent use public transportation and over ten percent walk or bicycle.^{iv}

② Create a pedestrian-and transit-friendly streetscape

Most of the arterials in the Fulcrum are not pleasant places to walk, with narrow sidewalks; little or no buffer between sidewalks and moving cars, and frequent curb cuts.

The streetscape in the Fulcrum could be improved to make walking more convenient and safe by:



Figure 14: Concentrating development around transit and creating streets that support walking and bicycling have made it possible for Arlington County, Virginia, to accommodate new development and jobs without significant increases in traffic congestion. (Photo courtesy of Arlington County, VA)

- 1) widening the streetscape;
- 2) creating a buffer between the sidewalk and the street; and
- 3) reducing the frequency of curb cuts.

Widen the streetscape

Throughout most of the Fulcrum, the streetscape could be expanded to 12 feet. This would support an 8 foot wide sidewalk, wide enough for people to

comfortably walk side-by-side in both directions, a 4 foot-wide furnishing zone for landscaping or trees that can help buffer pedestrians from the street. Widening the streetscape to 12 feet could also provide room (up to two feet) to set buildings close to the sidewalk to create a pleasant sense of enclosure for pedestrians.

In retail and mixed-use areas where more people will walk sidewalks can be wider. For instance, along storefront districts in the corridor, sidewalks of 12 to 16 feet wide are appropriate. In areas where outdoor seating, landscaping, and/or bus shelters are desired, wider sidewalks up to 30 feet are appropriate.

Provide a buffer between the sidewalk and the street

Separating or buffering sidewalks from the street is needed to transforming arterials in the Fulcrum and throughout Denver into living streets. Separation would help buffer pedestrians from traffic and calm traffic. Appropriate buffers include landscaping, street trees, bike lanes, or on-street parking.



Figure 15: Reducing the number of lanes devoted to moving cars makes it possible to widen sidewalks, move buildings toward the street edge and add bike lanes

Reduce frequency of curb cuts

Curb cuts provide access to parking lots along a street. However, too many curb cuts along a block create interruptions that can frustrate pedestrians and put them at risk from cars entering or exiting the parking lots. Consolidating driveways requires balancing the needs of pedestrians, landowners, and drivers.

One approach to reducing the frequency of driveways while still providing access is to support connected street networks that have short blocks and frequent intersections. Frequent intersections allow drivers to turn at an intersection and then access a building at the rear or side of the lot instead of from the main road. Shifting access from the arterial street front to the



side or rear maintains a continuous sidewalk for the length of a block. Additionally, consolidating turns at intersections is safer for pedestrians.

③ **Relate development to the street**

Orienting development toward the street, filling in parking lots and other gaps in the street wall can create a safer, more pleasant, and livelier streetscape. To illustrate these points we look at two Fulcrum locations: Cherry Creek Shopping Center and the intersection of Leetsdale Drive and Quebec Street.

THE BENEFITS OF STREET TREES

Street trees confer many benefits to people, abutting properties and the street itself. These include:

- Visually narrowing the street which prompts drivers to slow down;
- Shade and lower surface and air temperatures;
- Higher and more stable property values;
- Improved pedestrian environment, encouraging more walking;
- Improved air quality, especially reduced levels of localized ozone;
- Screening of unsightly roadway elements (power poles, etc.); and
- Protection from direct UV rays which can extend the life of asphalt pavement and reduce resurfacing costs.

For more information on the costs and benefits of street trees, see US EPA's webpage on Strategies for Mitigation of Urban Heat Island Effect (<http://www.epa.gov/heatisland/mitigation/trees.htm>)

Cherry Creek Shopping Center

The Cherry Creek Shopping Center is the prime development opportunity in the Fulcrum. This area is likely to see new development activity in the future. The city can shape development in this area to support a more vibrant street.

Cherry Creek Shopping Center is characteristic of the development pattern that is found on many arterials in the region. Buildings are set back far from the street in this case, (First Avenue), and parking lots rather than buildings face the street. This kind of environment discourages activity on the street.

One solution would be to fill in the parking lots along the arterials with new compact, mixed-use development. These new shops, offices, or homes would bring people to the streets.

Figure 16 illustrates potential locations for new development at Cherry Creek Shopping Center. This conceptual drawing was developed without input from mall owners or tenants. It is provided for illustration only.

New development could be located on existing parking lots throughout the site.



Figure 16: This sketch illustrates one possible way in which Cherry Creek Shopping Center could be redeveloped over time to support more compact, mixed-use development and fit in better with the surrounding neighborhood

New buildings could go along First Avenue and Steele Street and behind the shopping center across from Cherry Creek Trail, with a new building at the intersection of First Avenue and University Boulevard.

New buildings would be five to six stories, which is the height of existing development in the area, particularly Cherry Creek North. This would make the buildings on both sides of First Avenue symmetrical and would frame the street.

Parking could be provided through interior parking structures.

A new building at the intersection of First Avenue and University Boulevard could help define the entry to the shopping district. Orienting this building toward the street and close to the corner can help complete the street wall on the north side of First Avenue.

Filling in the parking lots with new development helps to create a continuous street wall, which frames the street, improves pedestrian safety by increasing the number of eyes on the street and livens the street.

Figure 17 illustrates how new development could improve the existing streetscape along First Avenue and support a living street. As shown in the top image, First Avenue is not as active or inviting a street as it could be. It's lined largely with parking lots, the buildings that are near the sidewalk face away from it, and pedestrians are not well protected from the fast-moving traffic along the street. Elements that support walking in this portion of First Avenue include a continuous sidewalk and landscaping.



Figure 17: These images illustrate the potential difference in street activity that could result if sidewalks along First Avenue were widened, and buildings moved closer to the sidewalk.

The image on the bottom of Figure 17 shows how filling in parking and, widening the sidewalk could enliven the street and make it more appealing.

Outdoor seating and a wider sidewalk make sense because of Cherry Creek Shopping Center and the area will attract new retail and mixed-use development.

Leetsdale Drive and Quebec Street

The Fulcrum offers redevelopment opportunities at high-traffic, high-profile intersections, such as Alameda Avenue and Colorado Boulevard, Alameda Avenue and Leetsdale Drive, and Leetsdale Drive and Quebec Street. Figure 18 illustrates how new development at the intersection of Leetsdale Drive and Quebec Street could help create living street. The Lowry Marketplace is currently located at this intersection.



Figure 18: Orienting development toward the street at the intersection of Leetsdale Drive and Quebec Street.

The parking lots that front Leetsdale Drive could be filled in with new development to hide surface parking and create a more continuous street wall. Orienting these buildings to the street helps frame the street and provides a greater street presence for the Lowry Marketplace

Across Leetsdale Drive, the existing apartment complex could be reconfigured to accommodate more housing and to more effectively frame the street for example by increasing the building heights to three and four stories, shifting housing toward the front of the site to orient to the street, and relocating parking to the rear of the lot. Moving the apartments toward the street and orienting them toward the corner helps engage the street. Interior courtyards could provide private open space for residents.

4 | Implementation Strategies

This section presents strategies the city could consider to implement the Living Streets Initiative. These approaches are not exclusive to Denver; issues related to living streets are similar throughout the country.

The city of Denver has already taken some important steps to creating living streets, including the passage of *Blueprint Denver* and the *Strategic Transportation Plan*, and establishing an inter-departmental Living Streets Initiative and a region-wide Living Streets Task Force.

The Living Streets Initiative team can help break down silos among city agencies and better coordinate land use and transportation decisions. This

coordination can help make sure that land use decisions reinforce transportation goals such as multimodal streets, and vice versa.

The task force could facilitate a metro-wide discussion about living streets and engage public, private, and non-profit stakeholders. Having such a coalition is helpful since implementing living streets often requires multi-jurisdictional coordination.

Another important and beneficial action that the city has already taken is its public outreach effort around living streets. Outreach is essential to raising awareness about living streets and how they will affect city residents, involve citizens in

decision-making; and build public support for the policy changes and actions needed to create living streets.

The city could consider additional strategies to strengthen its support for living streets. This chapter discusses ten possible implementation strategies. The strategies are divided into short and medium term actions. Short term actions can be implemented within twelve months; medium term actions will take one to three years to implement. The actions are not listed sequentially and many could be implemented simultaneously.

Short-term actions (0-12 months)

Pass a living streets policy

A city council resolution could help to articulate the public's goals and objectives for living street corridors, and signal to city staff, the development community, and other stakeholders of the city's intent to transform commercial corridors into vibrant, multimodal, public places. A resolution could help empower city staff to immediately begin integrating living streets considerations into planning, zoning, and street investment decisions.

Task the Living Streets Initiative team to coordinate implementation of the Living Streets Initiative

The city may want to task the city's Living Streets Initiative team, at least on a part-time basis, with implementing the Living Streets Initiative. Living Streets Initiative team includes employees from the Community Planning and Development, Public Works, Environmental Health, Parks and Recreation, Economic Development, Human Rights and Community Relations and Budget Management Departments; and Greenprint Denver.

The team could review and comment on proposed plans and projects by their own and other agencies, coordinate infrastructure investments and public finance, coordinate with surrounding cities and counties, and serve as the city's clearinghouse of information on living streets.

The team leader could report directly to the mayor, or management responsibility could be rotated among the planning and public works departments. It is important, however, that team members remain stationed at their respective agencies, as this will increase the participation and contribution of those agencies in the Living Streets Initiative.

Address density and traffic congestion head-on

As part of the Living Streets Initiative, the city has developed an extensive public education and outreach campaign. The campaign could give special attention, perhaps through the Living Streets lecture series, to two particularly contentious issues that arise in discussions of living streets.

The first issue is opposition to density, or the belief that compact, higher-density

development is incompatible with established neighborhoods. One tool that has been particularly helpful in other communities is the visual preference survey. This powerful technique uses pictures of various built environments to assess the public's preferences. This can be an eye-opening experience for the public, since almost invariably people prefer denser, compact environments, provided that they are well designed. Additionally, the campaign could use case studies of existing living streets and or images of conceptual ones, such as those prepared for the city by Urban Advantage, to demonstrate the possibilities and outcomes associated with living streets.

The second issue is traffic congestion. Generally, living streets approaches will give most people more mobility across the system however when traffic lanes are removed it might degrade conditions for motorists at certain intersections, on certain corridors, or at certain times of the day. Not discussing this issue openly could make the Living Streets Initiative lose credibility. Other communities have been successful at discussing traffic congestion when discussion has focused on the reasons why traffic congestion on

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living streets rarely materializes as people fear and the benefits of living streets.

Medium-term actions (1-3 years)

Build a demonstration project

One of the barriers to creating living streets implementation is unfamiliarity with their design and benefits. A demonstration project could further community dialogue on living streets, inform the public and decision-makers, and allow city staff to practice planning, designing and building living streets. Additionally, it could be a concrete demonstration of the city's commitment to the Living Streets Initiative.

The demonstration project should be at least a few blocks long. It should incorporate the streetscape elements found on living streets, such as improved sidewalks, safe crosswalks, street trees and other landscaping, special paving, bulb-outs, and street lamps that illuminate the sidewalk.

To build a demonstration project within one to two years, the city could focus on a street segment that already exhibits many living street characteristics, except for

attractive streetscaping or that is poised for redevelopment.

Develop a living streets implementation strategy

Implementing living streets will likely be a multi-year process and involve coordination of policies and investments across city agencies. A living streets implementation strategy could support a more systematic approach to implementing living streets.

Components of a strategy could include:

A list of designated living street corridors

Designating corridors as living streets can indicate to the public and the development community the city's intent to reorient these corridors and streets to moving people rather than cars. It can also help ground discussions of living streets in real places and give the public something more concrete to respond to as they are engaged in discussions about living streets.

The city could apply the living streets designation to corridors or streets that are expected to grow in population, employment, and trips, and that also have market demand for development. The designation could apply to whole corridors (for example the whole

Downtown Cherry Creek-Corridor) or to streets within a particular corridor (for example, First Avenue).

The city has already designated some corridors within the city as living streets. The city may consider modifying the list of designated living street based on the criteria identified in the previous paragraph.

Prioritizing living street corridors

Once identified, streets designated as living streets can be prioritized for implementation. Factors to consider in prioritization include the types of destinations along the corridor that already generate traffic, the amount of existing market activity, the presence of development sites and opportunities, and the opportunity for public investments including enhanced transit and better multimodal facilities that can catalyze development. Prioritizing investments in corridors and streets that exhibit these characteristics can produce short-term wins and improvements that could help galvanize further support for the living streets effort.

Guiding principles for living streets

The strategy could include principles for living streets, that define the desired characteristics and functions. Potential principles include:

- 1) multi-modal streets that emphasize moving people;
- 2) increased transit;
- 3) pedestrian-and transit-friendly streetscape; and
- 4) private development that relates to the street.

These principles could further public and community understanding of living streets, and inform future revisions to city development regulations, street standards and capital investments.

Analysis of the potential impacts and benefits of implementing living streets

A comparative analysis of the expected performance of a living street versus the status quo would help demonstrate the potential return on public investments that support living streets. Comparison factors could include mode share, vehicle-miles traveled, overall traffic congestion, air and

water quality, preservation of open space, and ability to attract new investment.

Living streets financing strategy

A financing strategy could identify the expected costs of implementing the living streets network; funds available for implementation, including as part of other projects and programs (see action 8); any expected funding shortfall; and potential funding sources and mechanisms to make up the shortfall.

Financing needs for living streets could include streetscape improvements, such as: sidewalk widenings, corner and mid-block bulb-outs, special paving, realignment and reconstruction of curbs and gutters, utility undergrounding, enhanced crosswalks, street trees and other landscaping, benches and other pedestrian amenities, and pedestrian-oriented street lights.

Additional financing may be needed for transit improvements along living streets, especially if the city decides to pursue bus rapid transit (BRT) on these corridors. Funds may be needed to purchase, build, or install BRT features: dedicated busways; multi-door, low-floor buses (or raised platforms); enclosed or sheltered bus

stations; off-bus fare collection system and real-time bus-arrival information system at stations; queue-jump lanes; and a system of bus-activated priority traffic signals.

Work program

In addition to these components, an implementation strategy could include a work program that identifies a multi-year program timeline, annual projects and tasks, and responsible city agency or department for each action. This could promote coordination throughout the implementation process.

Explore long term funding sources

A living streets financing strategy could identify the capital costs for creating living streets across the city. Potential funding sources for these costs include bonds, user fees, benefit assessment districts, or other parcel-based levies.

These funding mechanisms could require a city-wide vote to gain the necessary approval. Additional funding sources that the city could explore include regional, state, and federal programs to fund transportation, stormwater management, and infrastructure.

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Appendix D provides information on a number of potential financing sources including tax-increment financing, Community Development Block Grants, impact fees, Transportation Enhancement funds, and the Transportation and Community Systems Preservation Program.

Develop specific area plans for living street corridors

Specific area plans are commonly used by communities to address land use and development for a given area. They typically include: the city's vision; declare its goals, policies and development standards, and outline its public investment priorities with regard to infrastructure and public services in the planning area, or in this case a living street corridors.

The city could develop specific area plans for designated living street corridors. The corridor plans would allow for a finer-grained level of planning and design. The plan could identify capital and street improvements. They city would not need to develop specific plans for every corridor or wait to begin implementation of living streets improvements until the corridors plans are in place.

A specific area plan for living street corridors could signal to the private sector its long-term intentions for the corridors. A plan could also help inform landowner expectations about their property and potentially encourage landowners to consolidate parcels when parcels are owned by multiple parties.

Exempt living streets from level of service requirements

A common transportation policy that can work against living streets is traditional level of service (LOS) requirements. LOS requirements measure the amount of traffic congestion and vehicle flow on a street, using a scale of A to F. Streets with no congestion, free flowing and fast moving traffic are rated as having and LOS of A, whereas streets with high levels of delay and congestion receive a ratings of E or F. When the LOS exceeds D a typical response is to expand the street or widen the intersection. This can run counter to what is needed to create a living street.

Living streets receive low LOS ratings, such as D or F because they have lower traffic speeds and higher levels of congestion. Denver could further its objectives for the Living Streets Initiative

by exempting designated living street corridors from LOS requirements.

For instance, in the State of Florida, local governments are allowed to use alternatives to automobile level of service requirements in areas designated as Multimodal Transportation Districts. Within Florida, the Multimodal Transportation Districts designation is generally applied to downtowns, urban core areas, regional activity center, or traditional town centers or village. ^v

Integrate living streets into existing streets-related programs

Implementation of living streets improvements could be accelerated and costs reduced by strategically incorporating improvements into other city projects. Cities, including Denver, carry out routine streets-related work, such as street repaving, curb-and-gutter reconstruction, utility undergrounding, rehabilitation of sanitary sewers, and installation of storm sewers.

There are several ways in which the city could orient existing street-related work to support living street objectives. The city could institute a process that allows sufficient time to review upcoming streets-

related projects to identify opportunities for incorporating living streets improvements.

Similarly, the city could incorporate living streets improvements into larger, one-time capital projects. It could also add a line item for living streets in its Capital Improvements Program. Coordinating this process with the implementation strategy discussed earlier would help determine where and what types of capital improvements should be implemented. The Living Streets Initiative team could be responsible for this action.

Adopt supportive planning and zoning and subdivision regulations

Municipal zoning and subdivision codes regulate many aspects of the built environment that can foster living streets. These aspects include building orientation and siting, development density and intensity, height and setback of structures, distance between buildings, and parking ratios. The codes and regulations in many communities make it difficult, if not impossible, to create many of the elements of living streets. These include buildings close to each other and to the street; a visually appealing variety of building heights and styles; unobtrusive parking



Figure 19: The 16th Street Mall in Denver exhibits many of the characteristics of living streets. (Photo courtesy of city county of Denver)

and a dense mix of shops, offices, and homes.

The city could review its zoning and subdivision codes carefully for regulations that prohibit or inhibit development that support living streets. If the city wants to fully implement the Living Streets Initiative, it might want to consider revising its land development regulations in the following ways:

- Rezone living streets districts for mixed-use development, where a combination of residential, retail, office, and other compatible activities would be allowed. Activities could be combined either in the same general area (horizontal mixed

use) or even in the same building (vertical mixed use).

- Relax density limits, limits on building height, lot coverage and floor-area ratio and minimum lot size in living streets corridors. This can help support the moderate to high densities that are needed to create vibrant, compact, pedestrian-friendly districts and to support frequent transit service. High density can take the form of attractive, well-designed townhouses and mid-rise buildings.
- Reduce front and side setback requirements for infill. This can increase buildable area on a lot, thus making infill development more financially feasible and supports locating development toward the street edge, which can create a pleasant sense of enclosure for pedestrians.
- Set appropriate parking requirements for living streets corridors. Living street corridors often need less parking than conventional development because they are more compact and more transit- and pedestrian-oriented.
- Allow adjacent activities that are busy at different times of the day to share

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parking facilities. Shared parking would be appropriate, for example, between an office building and a movie theater, or between a high school and adjacent residential neighborhood.

- Consider a form-based code overlay for living streets corridors. Form-based codes emphasize pleasing building and street patterns and “place-making” instead of strict and inflexible density and land use controls.

5 | Conclusion

Denver is a national leader in progressive planning and development. During the past decade, the city has shaped development patterns to grow jobs, protect the environment, increase housing and transportation choice, and promote social equity.

The Living Streets Initiative is a logical next step in the city's efforts to achieve a more sustainable and just development pattern. The city is positioned to meet this challenge.

The city has significant power and authority to shape the street and adjacent land use through their street standards, development regulations, and public investments.

There is citizen and community support for the living streets effort. Residents want many of the outcomes that result from a living streets approach. They desire transportation options, appealing and attractive streets, investment in older neighborhoods, and a fair and balanced approach to development.

The city has visionary, progressive leadership that is open to new ideas and possibilities. Having this support is critical because the public may be hesitant to accept changes, such as short term increases in traffic congestion or increased density that can accompany living street efforts.

The city is poised to take advantage of this opportunity. Doing so requires changing

the way that streets are designed, built, and used. It involves addressing the street and adjacent land use and development, and making infrastructure and permitting decisions that:

- Balance travel modes and expand transportation choices for residents.
- Design for the safety and comfort of all street users, not only drivers.
- Turn streets into places to be.
- Permit compact, higher-density, mixed-use development.
- Maximize the number of people moving through the corridor, including drivers, bus riders, bicyclists, and pedestrians
- Attract new private development to underused locations

Endnotes

ⁱ City and County of Denver. 2007, *US EPA Smart Growth Implementation Assistance application*.

ⁱⁱ Ewing, Reid et al. 2003, *Relationship between Urban Sprawl and Physical Activity, Obesity and Morbidity*, American Journal of Health Promotion, Vol. 18, No. 1.

ⁱⁱⁱ Arlington, Virginia, Columbia Pike Initiative. 2008, *Streets Task Force Report*, at http://www.arlingtonva.us/departments/CPHD/forums/columbia/street_space/CPHDForumsColumbiaStreetSpace.aspx, 2/18/09.

^{iv} Zimmerman, Maria. 2005. *Creating Transit Oriented Community...A New Future for Northern Virginia*, at <http://www.datatrans.org/9-28-05DATATOD.pdf>, 2/17/09.

^v Williams, Kristine M and Seegerman, Karen E. 2004, *Model Regulations and Plan Amendments for Multi-Modal Transportation Districts*, at <http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/MMTDregs.pdf>, 2/18/09

APPENDIX A: EPA’S SMART GROWTH IMPLEMENTATION ASSISTANCE PROGRAM AND DENVER SITE VISIT

Communities around the country are interested in fostering economic growth, protecting environmental resources, and planning for development, but they may lack the tools, resources, or information to achieve these goals. In response to this demand, the Development, Community, and Environment Division of the U.S. Environmental Protection Agency (EPA), launched the Smart Growth Implementation Assistance Program. This competitive program provides technical assistance through contractor services to selected communities. This assistance is expected to improve the overall climate for infill, brownfields redevelopment, and the revitalization of non-brownfield sites, as well as deliver on other community and environmental goals.

The city of Denver was one of six communities selected to participate in the SGIA program in 2007. The city asked EPA to help it explore design and policy solutions that would help transform commercial corridors into living streets. After receiving this charge from the city, EPA worked with its contractor, ICF International, to assemble a team of national smart growth experts to assist the city.

The team visited Denver July 30-August 2, 2008. Site visit activities included a four-day public design workshop, meetings with community stakeholders and city leadership, and a public presentation of the team’s findings. The workshop and presentation were open to the public and included a wide variety of participants, including area residents, property owners, the business community, city officials, local developers, and real estate brokers. Based on their experiences in other parts of the country, the team provided Denver with options and strategies for consideration that could support the Living Streets Initiative.

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Special Thanks

To Mayor John Hickenlooper and Councilwomen Peggy Lehman, Marcia Johnson, and Jeanne Robb for their participation in the workshop and for encouraging the exploration of new planning and design solutions for Denver's commercial corridors. And to the students in the University of Colorado Denver, College of Architecture and Planning's Planning Studio I class for their participation in the workshop and the assistance they provided to the consultant team prior to the site visit.

Workshop Participants

Participants in the workshop and meetings represented a wide range of viewpoints and interests: property owners, businesses, real estate professionals, interested citizens, city officials and staff, and others. The participants listed have been consolidated from sign-in sheets that were circulated during the workshop and are included for reference purposes only. This list may not represent the full number of attendees. Individuals may not have seen the sign-in sheet at the workshop, or they may have chosen not to sign in.

Greg Adams	Catherine Dockery	Peggy Lehmann	Jeanne Robb
Jeff Becker	Crissy Fanganello	Frank Locantore	Ray Rosado
Paul Bonaventura	Alan Gass	Jill Locantore	Terry Ruitter
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Ms. Belzer specializes in connecting regional economic and demographic growth trends to real estate development activity and local policy initiatives. Her work draws on traditional urban economics and innovative analytical techniques to provide strategies for addressing growth and development-related issues. Ms. Belzer is an expert on transit-oriented development, fostering mixed-use districts, and attracting local-serving retail attraction.

Jim Charlier, President, Charlier Associates, Inc.

Mr. Charlier is a nationally recognized transportation planning professional with 31 years of experience in local, regional, and statewide settings across the country. He has provided transportation planning services to clients throughout the United States and is a frequent speaker, lecturer and facilitator on urban transportation planning challenges and opportunities.

Niko Letunic, Planner, Eisen | Letunic

Mr. Letunic is the co-founder of Eisen | Letunic, a transportation, environment, and urban planning firm located in San Francisco, California. He has extensive experience as an environmental planner in both the public and private sectors. Prior to co-founding Eisen | Letunic, he worked as a planner at various Bay Area government agencies, including the U.S. EPA, the Bay Area Air Quality Management District, the Association of Bay Area Governments, and the city of Oakland.

Tim Van Meter, Architect/Partner, Van Meter Williams Pollack

Mr. Van Meter's experience has ranged widely from buildings, to landscape designs, to urban designs for districts and neighborhoods. As a partner in Van Meter Williams Pollack, Mr. van Meter has focused on mixed-use developments, urban infill projects, and affordable housing. He has led the design team on many of the firm's complex design projects, formulating the program, building consensus, and developing design solutions.

Rick Williams, Architect/Planner, Van Meter Williams Pollack

Mr. Williams' work has been on the forefront of mixed-use pedestrian and transit oriented planning and urban design. As a partner in Van Meter Williams Pollack, Mr. Williams focuses on planning and urban design projects involving mixed use, pedestrian and transit oriented developments, as well as project management and construction administration efforts for a variety of the firm's building projects.

Amy Doll, ICF International, managed the ICF consulting team.

Adhir Kackar, Clark Wilson, and Lynn Richards, participated from U.S. EPA's Development, Community and Environment Division

PUBLIC INVITED!

The Metro Denver Living Streets Initiative &
The U.S. Environmental Protection Agency Present:
Living Streets Technical Workshop



From July 30 - August 2, staff from the US EPA's Smart Growth Implementation Assistance Program and a group of nationally renowned land use, urban design, and transportation experts will explore the potential application of Smart Growth principles along one of Denver's urban thoroughfares. As a kick-off to the City's Living Streets Initiative (www.denvergov.org/), this intensive conceptual planning effort will begin a dialogue with citizens, stakeholders and community leaders about Denver's corridor redevelopment goals and objectives, as well as Smart Growth Principles including context-sensitive and complete streets concepts. The workshop will use the Cherry Creek corridor with its variety of street environments as an urban laboratory. The Cherry Creek corridor includes Speer Boulevard, 1st Avenue, Steele Street, Alameda Avenue, Leetsdale Drive, and Parker Road. Specifically, the workshop will focus on the segment of the corridor between University Blvd and Quebec Street (1st Avenue, Steele Street, Alameda Avenue and Leetsdale Drive).



DENVER
THE MILE HIGH CITY



GLATTING JACKSON KERCHER ANGLIN

Schedule of Events: US EPA Complete Streets Technical Workshop*				
	7/30/2008	7/31/2008	8/1/2008	8/2/2008
8:00		EPA Team Design Workshop	EPA Team Design Workshop	
		University of Colorado Denver College of Architecture & Planning	University of Colorado Denver College of Architecture & Planning	
9:00				
10:00		1250 14th Street -14th & Larimer; Rm. 470	1250 14th Street -14th & Larimer; Rm. 470	
		The general public is invited to view activities in progress throughout the day.	The general public is invited to view activities in progress throughout the day.	Presentation of Findings 1250 14th Street, Rm. 470
11:00				
12:00				
1:00				
2:00				
3:00				
		Cherry Creek Corridor Public Listening Session Colfax Events Center 1477 Columbine Street		
4:30				
5:00				
6:00			Charrette Open House 1250 14th Street, Rm. 470	
7:00	Living Streets Symposium Enrique Penñalosa Colfax Events Center 1477 Columbine Street			
8:00				

* See reverse for description of events & explanation of the design workshop.

Description of Events

Complete Street Technical Workshop with the US EPA July 30- August 2, 2008

Cherry Creek Corridor Public Listening Session

Wednesday, July 30th – 4:30 p.m. to 6:00 p.m.

Audience: Residents, property owners, business owners, community organizations within the Cherry Creek corridor

Description and Purpose: This session is a specific time for residents and stakeholders from the Cherry Creek corridor to share their views and opinions about corridor redevelopment. The consultant team will use feedback from session participants to inform their conceptual design work during the complete streets workshop.

Location: Colfax Events Center, 1477 Columbine St., Denver, CO (on Colfax across from City Park Esplanade)

Living Streets Symposium

Wednesday, July 30th – 7:00 p.m. to 9:00 p.m.

Audience: General public, practicing professionals, students

Description and Purpose: Join us for an evening with Enrique Peñalosa, former Mayor of Bogotá, Colombia for his talk entitled “Living Streets: Our Cities Depend upon Them” followed by a question and answer panel.

Location: Colfax Events Center, 1477 Columbine St., Denver, CO (on Colfax across from City Park Esplanade)

Design Workshop

Thursday and Friday, July 31st and August 1st – 8:30 a.m. to 6:00 p.m.

Audience: General Public invited to view activities (see below for a more detailed description of the workshop activities)

Description and Purpose: Using the urban laboratory, the consultant team will illustrate how complete street approaches could potentially be applied to corridors in the city. Illustrations will elaborate on context sensitive and complete street concepts and are intended to educate the community and city staff on the technical specifics of complete streets. The conceptual designs that are developed during the workshop will be able to be generalized to other corridors in the city. The workshop will be open to the public. The public can drop into the workshop to learn more about complete street approaches, and view how such approaches can help the city achieve the goals of the Living Streets Initiative.

Location: University of Colorado College of Architecture & Planning • 1250 14th Street (14th & Larimer) – Room 470

Design Workshop Open House

Thursday and Friday, July 31st and August 1st – 6:00 p.m. to 7:30 p.m.

Audience: General Public

Description and Purpose: Specific opportunity for the public to learn about complete streets and view the illustrations that the consultant team is developing during the workshop.

Structure: Presentation (recapping the day’s technical workshop activities) at 6:00 PM to public, followed by Q & A session.

Location: University of Colorado College of Architecture & Planning • 1250 14th Street (14th & Larimer) – Room 470

Presentation of Findings

Saturday, August 2nd – 11:00 a.m. to 12:30 p.m.

Audience: General Public

Description and Purpose: Recap of the complete streets workshop and presentation by the consultant team of the concept illustrations developed during the design workshop. Presentation followed by Q & A.

Location: University of Colorado College of Architecture & Planning • 1250 14th Street (14th & Larimer) – Room 470

What will the consultant team do during the workshop?

The US EPA consultant team will conduct an intensive workshop to develop conceptual designs for the application of Smart Growth methodologies in Denver using the Cherry Creek corridor as an urban laboratory. The following types of issues will be addressed through the workshop process:

- Opportunities to improve connectivity and direct routing within the corridor.
- Opportunities to improve pedestrian, bicyclist and transit movement along and across the corridor.
- Opportunities to improve/further develop key nodes along the corridor.

Note: The Design Workshop will be open to the public. The public can drop-in to the workshop to learn more about complete street approaches, and view the consultants as they work. An open house on each night will provide an opportunity for the general public to meet the consultant team and view/comment on their ideas/work. Corridor residents and stakeholders that are unable to participate in the Listening Session are encouraged to attend Thursday or Friday’s open house.

ALL EVENTS ARE FREE AND OPEN TO THE PUBLIC

APPENDIX B: STREET DESIGN RESOURCES

This appendix includes a brief list of organizations, websites and books that provide guidance on street design.

Project for Public Spaces - www.pps.org

This non profit group helps communities “turn their public spaces into vital community places, with programs, uses, and people-friendly settings that build local value and serve community needs.” It also serves as a clearinghouse for resources about place-making. Its website includes case studies on over 80 great streets from around the world.

National Complete Streets Coalition - www.completestreets.org

This is a large coalition of diverse groups working to promote “complete streets,” or streets designed to be safe for all users. The coalition’s goal is to “help with the adoption and implementation of 5 statewide and 25 regional or local complete streets policies by 2008.”

Livable Streets Network - www.livablestreets.com

The Livable Streets Network is an “online community for people working to create sustainable cities through sensible urban planning, design, and transportation policy.” It provides free, open-source online resources such as Streetsblog; Streetfilms, a collection of short films about sustainable urban transportation; StreetsWiki, a community-created library of reference articles; and LSNGroups, a forum and meeting space.

Characteristics of Great Streets - www.planning.org/greatplaces/

The American Planning Association annually ranks Great Streets in America as part of its Great Places Program. Its website includes case studies and images of information on 20 great streets and a list of the 12 characteristics of Great Streets.

Great Streets! - www.greatstreets.org

This website includes a dozen case studies of “main streets,” primarily in the western U.S., and image galleries of six categories of streetscape elements: street trees, planting strips, sidewalk benches, street clocks, street lamps, and “bricks and mortar.”

Great Streets - By Allan B. Jacobs; The MIT Press, 1995

This book, already a planning classic, describes great streets, both ancient and modern, from around the world. More importantly, it carefully analyzes the physical and social characteristics that make some streets great, such as building heights, street widths, tree spacing, and use patterns. It covers various street types, including boulevards, commercial strips, small-town main streets, and residential roads.

APPENDIX C: LIVING STREET CASE STUDIES

Denver is not alone in its effort to redevelop and transform its streets. A number of other communities, including Austin, Texas; St. Louis, Missouri; Chicago, Illinois; San Francisco, California; and Washington, D.C., have recently launched similar efforts. This appendix includes information on these efforts and more in-depth case studies of efforts in Arlington County, Virginia, Palo Alto, California, and Boulder, Colorado. The Arlington County, Palo Alto and Boulder case studies are taken directly from a 2006 EPA SGIA report “Achieving the Vision: Options for the Route 1 Corridor”. This report can be downloaded at www.epa.gov/smartgrowth/pdf/collegepark.pdf (75 pages, 4.5 mb).

St. Louis’ Great Streets Initiative - www.greatstreetsstlouis.net

Launched in early 2006, this effort of the East-West Gateway Council of Governments, in St. Louis, Missouri, seeks “to expand the way communities think of their streets.” The initiative has developed an online “Digital Guide,” which provides planning, design, and process-related recommendations for making great streets happen. The initiative will also be providing planning and design assistance to communities in the St. Louis region for demonstration projects.

Downtown Austin, Texas, Great Streets Master Plan - www.ci.austin.tx.us/greatstreets

The Austin plan seeks to create “vibrant, multi-functional, pedestrian-dominant, commercial corridors...to affect the livability, safety and aesthetics of Austin’s downtown streets.” The plan’s six guiding principles are: manage congestion; create balanced/active streets; design streets as places; create interactive streets; impart pride of place; and integrate public art. In 1996, Austin voters approved dedicating \$5 million in bonds to kick-start the “Great Streets Program.”

Washington, D.C., Great Streets Initiative - www.greatstreetsdc.com

DC’s initiative is a “multidisciplinary approach to corridor improvement comprising public realm investments, strategic land use plans, public safety strategies and economic development assistance.” The District Department of Transportation has committed more than \$100 million over four years to design, improve, and maintain designated corridors. In January 2008, an additional \$95 million was committed by the District government in targeted Tax Increment Financing for neighborhood economic development projects along the six priority corridors within the city.

San Francisco Better Streets Plan -www.sfgov.org/site/uploadedfiles/planning/Citywide/Better_Streets

San Francisco’s plan “will create a unified set of standards, guidelines and implementation strategies to govern how the City designs, builds, and maintains its pedestrian environment.” The plan is designed to carry out the intent of the city’s “Better Streets Policy,” which calls for streets to be designed in keeping with “best practices in environmental planning and pedestrian-oriented, multi-modal street design.”

Columbia Pike Special Revitalization District

Arlington County Zoning Ordinance Section 20
(Appendix A) – “CP-FBC”

Adopted February 25, 2003

Arlington County, Virginia; State Highway Rte 244

Columbia Pike Vital Statistics

Average Daily Traffic: 30-40,000

Through Lanes: varies, 4 to 6

Typical Right of Way:
varies, 75 to 120 feet

Adjoining land uses:
Retail, office, multi-family
residential, civic

Transit: bus, 10,000 daily riders;
5-minute rush hour headway

Context

Arlington, Virginia—an urban county inside the Beltway directly across the Potomac River from Washington, DC—has seen explosive development along the Metro [subway] corridors over the past 30 years while Columbia Pike, the “main street” for the southern portion of the county, has languished.

The Pike, a historic thoroughfare from the Pentagon to the Arlington/Fairfax County Line, saw virtually no development throughout the boom years of Northern Virginia. It resembles any number of strip commercial zones across the United States: an “arterial” that carries approximately 30,000 vehicles a day (a figure that has remained stable over the past 20 years); a street that varies in width from 4 to 6 lanes; lined primarily with parking lots and one and two story structures, built primarily from post-WWII to the early 70s; a mixture of local retail and some national chains, fast food, new and used car dealerships, several large garden apartment complexes, and a few high rise apartments and condominiums.



Background

The Columbia Pike Revitalization effort was initiated by Arlington County to bring new life to this 3.5-mile urban corridor. The County leadership—elected Board, county staff, and the quasi-governmental community-based Columbia Pike Revitalization Organization (CPRO)—recognized that the Pike represented the most underdeveloped area in a county that is otherwise built out. They wanted to encourage redevelopment, but at the same time, wanted to direct/control the *type* of development – creating a mixed-use, pedestrian environment (which was virtually non-existent) while planning for future light rail or bus rapid transit (BRT) along the corridor; retaining the ethnic/eclectic diversity of the community; and maintaining small, locally owned businesses and existing affordable housing.

CPRO and the county staff embarked on a 150-meeting, two-year educational and visioning process, meeting with local business and property owners, the many neighborhood and condo associations along the Pike, etc., and producing a preliminary vision of what the community desired for Columbia Pike. The County Board endorsed a plan in March 2002, “The Columbia Pike Initiative: A Revitalization Plan,” that targeted specific areas for redevelopment and introduced New Urbanist concepts.

Case Study: Columbia Pike, Arlington County, Virginia

During this period, the County recognized that the tools then available—the existing Euclidean zoning ordinance, which addressed the usual items of land use, floor-area ratio, and building setbacks—could not and would not produce the desired results (a traditional Main Street), but rather, more of the same. The old code produced suburban sprawl – requiring setbacks, on-site parking, etc. – and used developer proffers in attempt to achieve desirable development, which were time-consuming as well as ineffective/non-existent where and when the economics for redevelopment were not strong. Even traditional “urban design guidelines” would not get at the root of the problem: the creation and definition of the street or public space. Arlington County was looking for a new tool—a mechanism that would move the plan from concept to reality, not another vision plan that would not self-implement.

Form-Based Coding

With a clear form-based code, owner and neighbor can easily see and understand the possibilities for future development. Unlike Euclidean Zoning, which segregates housing, recreation, workplace and government into distinct zones of land use, the form-based code sets careful and clear controls on building form, with broad parameters on building use, to shape clear public space (good streets, neighborhoods and parks).

The base principle of form-based coding is that *design is more important than use*. With proper urban form, a greater integration of building uses is natural and comfortable. This principle is not dogma, however, and recognizes that there are exceptions to its rule. There have always been “noxious uses” (whether biologically or socially so) that must be kept separate from our neighborhoods. Also, by its nature, retail activity gains synergy from other adjacent retail uses. Form-based coding recognizes and addresses these conditions.

Simple and clear graphic prescriptions and parameters for *height, siting and building elements* address the basic necessities for forming good streets. Most allow variation within parameters (building height may vary, for instance): however, some are straightforward prescriptions (such as the *build-to line* for main street buildings). Where conventional zoning controls land use to an extreme level of specificity, form-based coding fosters and protects a healthy balance, while allowing small-scale market economics to function, by establishing broad parameters for *uses*. For short-term implementation purposes, it is perfectly appropriate to target a specific mix of uses.

By keying the form-based code to the street frontage, the code provides a different kind of “zoning”—one relative to the logic of the street. Form-based coding provides detailed information about building possibilities (parameters) to landowners and neighbors. In addition, a clear master plan, implemented/enforced through the regulatory instrument of form-based coding, allows smaller landholders the advantages of participating in a larger project (synergy and predictability).

Similarly, the County Office of Economic Development provided additional impetus for the next step in the Columbia Pike Revitalization Initiative. They recognized that, in addition to the problems caused by the existing development regulations and approval process, the market gap between the County’s metro corridors and the Columbia Pike corridor were also a significant hindrance to the redevelopment of the area. Although land costs were less, in all other aspects the cost (and time) for development and construction were the same. The market demand on Columbia Pike was not strong enough to make up that difference, so as long as the status quo remained in place, the expectation was that the Pike corridor would remain moribund. The Columbia Pike Development Fund, established by the County Board and

Case Study: Columbia Pike, Arlington County, Virginia

administered through the Economic Development office, was used to hire the consultants to lead the charrette and write the form-based code.

Ultimately, the master plan and form-based code were “incentivized” through a streamlined administrative approval process and a few economic development tools, including a flexible tax increment public infrastructure fund, a rehabilitation tax exemption, establishment of a technology zone, and a parking strategy that includes a role for the public sector.

The Process

The County hired Dover, Kohl & Partners and Ferrell Madden Associates (through a public RFP process) to carry out a week-long public design charrette to develop a more specific Masterplan for the corridor as well as a *form-based code* to amend the zoning ordinance for the designated revitalization districts. Simultaneously, the County developed a new set of economic development tools (described more fully below) to work in conjunction with the new development regulations.

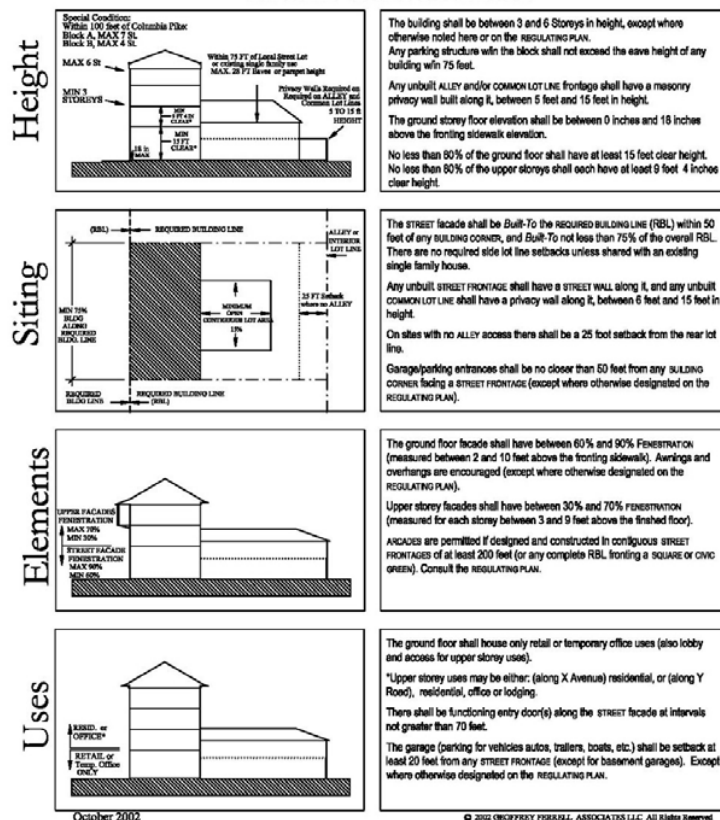
During the charrette week, the community was able to move beyond the NIMBY position of reacting to (and typically against) individual projects and more clearly define *what* they wanted and *where* – as well as the type of public amenities they expected. At the same time, the team further educated an already enlightened and savvy community about the idea of a form-based code; not only how it differs from Euclidian land use-based zoning, but also how it works from concept through implementation:

- the simplification and graphic nature of the code (regulating plan and building envelope standards);
- the idea that code is prescriptive / that the public site plan review process would be completed in advance; and that
- the architectural regulations could be as tight or loose as the community desired.

Columbia Pike Revitalization

Building Envelope Standards

Main-Street Sites



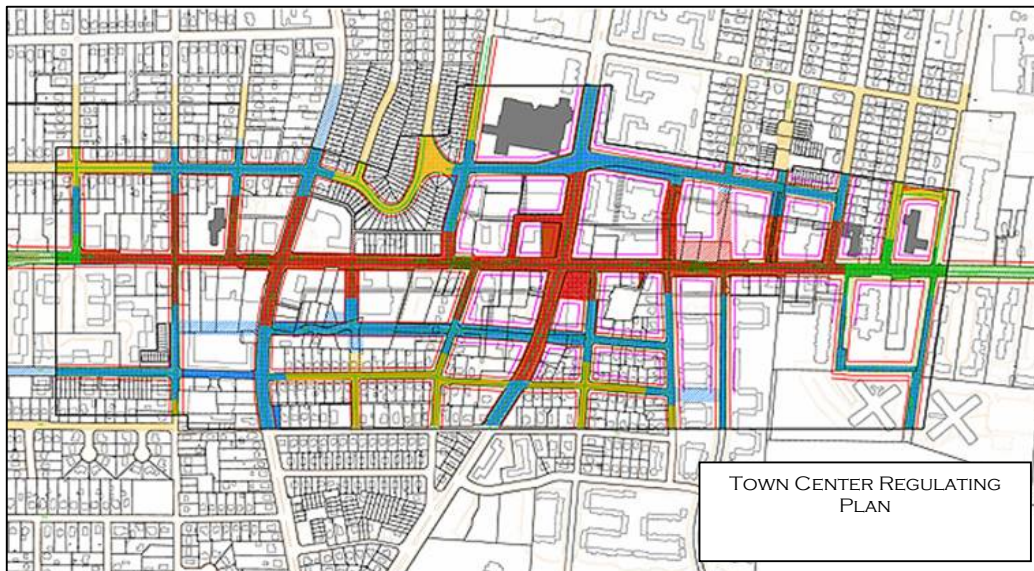
Case Study: Columbia Pike, Arlington County, Virginia

The drawings (and ideas) produced by the community during the charrette were synthesized into an illustrative Masterplan (providing a potential build-out scenario), and then coded in the Regulating Plan and Building Envelope Standards for the designated Revitalization Districts. These cover four sections of the Pike and its intersecting and immediately parallel streets.

TOWN CENTER ILLUSTRATIVE PLAN



The Community Vision



The regulating plan translates the vision to site specific development standards.

The result, as envisioned by the community, is illustrated in the following sequence.

Case Study: Columbia Pike, Arlington County, Virginia



How form based coding shapes development

Case Study: Columbia Pike, Arlington County, Virginia

Politics and Passage

Following an intense six-month period of work by the consultants and county staff—including more community meetings and hearings before the Planning Commission and County Board—the Columbia Pike Form-Based Code (CP-FBC) was adopted by the County Board as a new section of the zoning ordinance in February 2003. Compared to similar efforts, whether in Arlington County or elsewhere in the U.S., amending the zoning ordinance for Columbia Pike and approving the new Form-Based Code was an expedited process. Time to prepare and adopt: Community education and visioning process: 18 months. Drafting Form-Based Code and adoption: 6 months.

This rapid change could be attributed to several factors, including, in no particular order:

- A county leadership who desired change for the Pike and recognized that “business as usual” would produce the usual results
- A lengthy public visioning/educational process
- The decision to make the CP-FBC an optional overlay, which removed/lessened the possibility of the issue of “takings” or “downzoning”

Before adoption, there was considerable debate/discussion on three issues in particular, each of which were resolved/addressed in different ways.

- Parking
- Street Width(s)
- Historic Properties

New Development and Design Regulations: Content and Administration

The new Form-Based Code is optional, a decision made by the County to avoid any potential “takings” issues. It has no impact on existing buildings and uses. In addition, if they choose to do so, all property owners still have the right to redevelop using their existing underlying zoning and by-right options, or to proceed through the County’s alternative “Site Plan” approval process.

However, most of the parcels along the Pike were simply not developable under the existing zoning—whether due to current requirements, such as on-site parking, or economic feasibility under the by-right FAR. Prior to the passage of the CP-FBC, developers had been hesitant to use the “site plan” process along the Pike to address the site limitations (even though it has been used extensively by developers in other areas of the County, particularly the Metro corridors). The site plan process has come to be viewed as cumbersome, unpredictable and very expensive. On Columbia Pike, where return on investment for new development pales in comparison to other areas of the County, site plan is simply not considered an option by property owners and the development community.

The CP-FBC approval process is streamlined. For all properties less than 40,000 sf, development under the CP-FBC is a by-right option with approvals handled administratively by county staff in 30 days or less. For properties over 40,000 sf, the projects can proceed under an expedited special exception use permit process, as long as the development follows the FBC. Approval under special exception is expected within sixty days. In both cases approval is based on an objective set of standards rather than a particular planning commissioner’s, County Board member’s, or community activist’s like or dislike of the day. They are review processes, not opportunities for individuals to redesign the project or Code.

Case Study: Columbia Pike, Arlington County, Virginia

To ensure that the FBC is being followed and that the community is aware of the projects prior to approval, the County has established a notification process for the affected/adjacent neighborhood associations and their representatives are included on the Administrative Review Team.

The Code is organized around a series of street frontages—“main street”, “local street”, “avenue”, and “neighborhood street”—with *building envelope standards* established for each. In addition there are architectural standards—essentially a “dress code”—which are fairly loose (the community desired an eclectic style, rather than limiting new development to any particular aesthetic), primarily addressing windows, materials, doors, roofs, and walls and fences, etc.

Progress: New Projects Following the Form-Based Code

Several mixed-use redevelopment projects are in various stages of the County proposal and review process. Several property owners and developers are in discussion with County staff and the Revitalization Organization to determine what is possible on their properties under the new Code and several properties have changed hands or are on the market. New development valued at over \$1 billion, in more than 10 separate projects, is now in the design and/or construction stage. All of this activity has begun since the creation of the Columbia Pike Initiative and the passage of the form-based code—in a geographic area that had only seen the development of a couple of fast food restaurants and a drive-through national drugstore chain in the past three decades.

In a particularly positive example of the power of the FBC, a townhouse redevelopment project has been approved and is under construction on a property immediately adjacent to the revitalization district. Although the CP-FBC did not apply because it was outside the district, when the developer initially unveiled the proposed project to county staff and the surrounding property owners, the neighborhood requested that the developer follow the FBC because they knew what to expect. By following the FBC, the developer worked with the community and gained their support for the project. The project then moved through the process in the minimum period of time, received positive testimony by the affected neighborhood associations, and was approved unanimously by the County Board.

Community goals fulfilled by the Form-Based Code

Each of the following features will contribute to the overall design and scale of the Pike, creating the desired pedestrian-oriented main street and village center environment.

- *Allow a variety of uses to create vitality and bring many activities of daily living within walking distance of homes*

All of the FBC frontage designations, with the exception of *neighborhood street*, allow for a mix of uses, with shopfront buildings being required on the *main street* areas, (with the expressed intent of requiring ground floor retail, although there is some flexibility initially) with either office or residential above.

- *Foster Mixed Residential Density and Housing Types*

A mixture of housing types are allowed on different street types—from apartments, to townhouses and live-work units, to detached single family—and regulated by placement on the lot and mass, rather than density. In addition, the Code expressly allows accessory and English basement units.

- *Stimulate Infill and Rehabilitation Activity*

The Code was created to stimulate and then shape infill development.

- If property owners choose to redevelop under the more prescriptive Form-Based Code, they gain more development potential than under current by-right zoning.
-

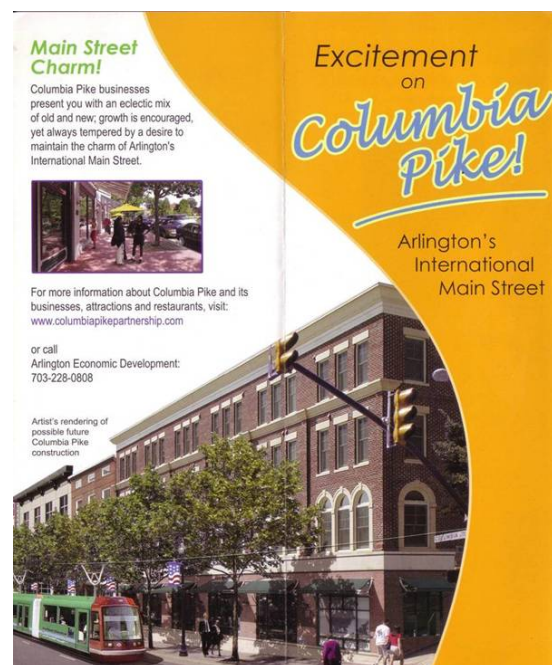
Case Study: Columbia Pike, Arlington County, Virginia

- Use of the code also opens the door to use of the County economic development fund. The fund was created specifically to spur appropriate growth on the Pike.
 - Small properties have been relieved of on-site parking requirements, providing owners with greater flexibility/ability to redevelop or rehabilitate their properties. This leads to two significant benefits. The community is no longer held hostage waiting for a large developer to assemble parcels and build a “mega project” when “the market” is ready. Secondly, it responds to the community’s desire to maintain an eclectic mix of building types and businesses by promoting small scale development by existing property and business owners.
- *Building Design and Scale*
- The Code specifically addresses design and scale through the Regulating Plan, Building Envelope Standards, and Architectural Standards in a number of ways:
- Limits the maximum floor-plate of new construction
 - Requires that individual large building façade composition be broken up to read as separate buildings at prescribed minimum-average intervals
 - Provides minimum and maximum heights (based on stories rather than feet)
 - Requires functioning street entries at maximum average distances
 - Forbids parking lots and structures at the street frontage
 - Requires interior block vehicular access through the creation of an alley system
 - Reconnects streets through some existing mega-blocks.
 - Provides incentives for protection and inclusion of “historic” structures and facades in new development

Economic Development

Although the new development regulations and process—the form-based code—represents the primary tool for stimulating development and redevelopment, the county has established several other instruments. These economic development tools include: a flexible tax increment public infrastructure fund (TIPIF), a rehabilitation tax exemption, establishment of a technology zone, extra development potential for preserving or renovating historic structures, outreach by the small business assistance network, and a parking strategy that includes a financial role for the public sector. *New development valued at over \$1 billion, in more than 10 separate projects, is now in preliminary design, administrative review or construction.*

The TIPIF operates similarly to a TIF, but was established to provide public investment in infrastructure for individual major redevelopment projects, (such as replacing sidewalks, undergrounding utilities, or building a parking structure) that could



Case Study: Columbia Pike, Arlington County, Virginia

make a difference in whether or not a specific project moved ahead, as well as for other public infrastructure or amenities that would support the entire corridor revitalization effort.

Arlington County already had a Rehabilitation Tax Exemption. However, in conjunction with the new development regulations, the exemption was amended in 2003 to make it more flexible by broadening the eligibility requirements, increasing the emphasis on new construction, and expanding the areas in the corridor in which the exemptions applied.

Similarly, the Technology Zone, which reduced the Business Professional Operational License, was already in existence. In 2003, the geographic area was expanded to include all of the areas within the Columbia Pike revitalization districts.

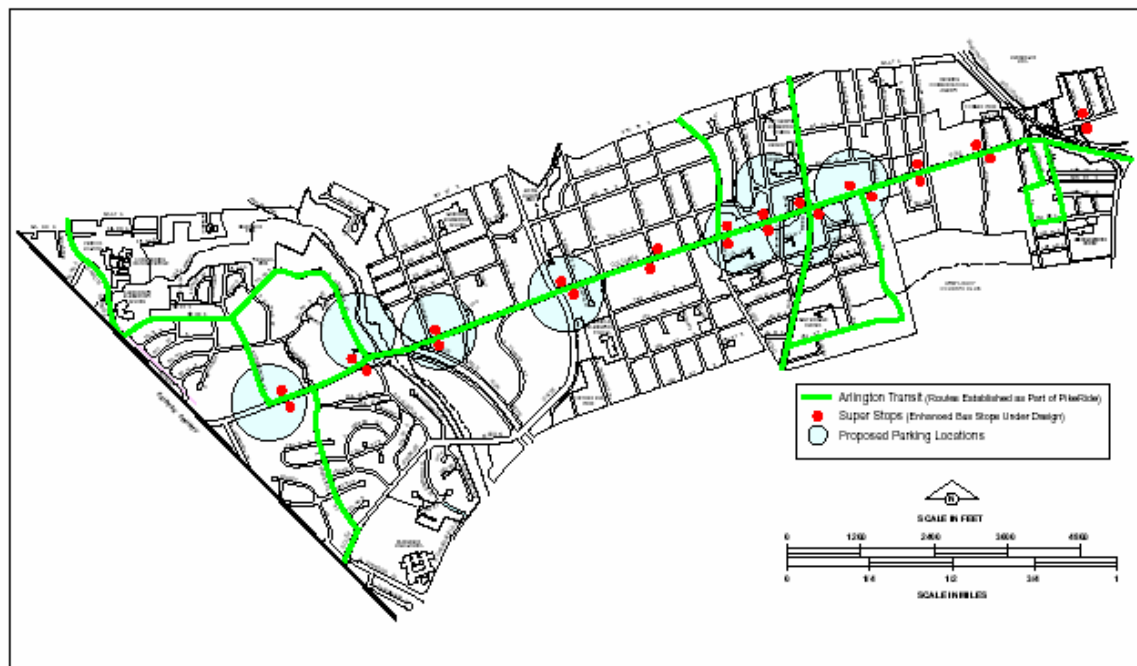
Additional incentive to renovate or restore historic buildings was provided by allowing two additional stories to be built, within the same overall building envelope height, when the original building was preserved and incorporated in a redevelopment project. This tool has proved to be rather popular and is currently being reviewed by the County.

The Small Business Assistance Network and the Columbia Pike Revitalization Organization have undertaken research and outreach specifically to support and provide resources to the existing small businesses along the Pike. This effort has included promotional materials (above image) as well as community events, such as the annual blues festival, to attract people to the Pike community.

Perhaps most significantly, the County has taken a proactive role to create a “park once” environment. This has included developing a parking strategy for the Pike that includes flexible parking solutions, such as public participation in the creation of shared parking, as well as enhanced public transportation.

Note that the parking and transit plan is part of the economic development of the corridor.

TRANSIT IMPROVEMENTS AND PROPOSED PARKING LOCATIONS



Case Study: Columbia Pike, Arlington County, Virginia



Current conditions



Possible BRT



Could transition to LRT

Transportation

Today, the Columbia Pike corridor is the busiest local bus corridor in Virginia, but the revitalization plan also incorporates the anticipated evolution to streetcar, light rail or bus rapid transit. The plan designates four “centers”—each to have at least one future transit stop—where more dense, mixed-use redevelopment is encouraged through the FBC. The Departments of Public Works and Planning worked with the consultant team to establish minimum street standards for the future transit-way—street widths, sidewalks, tree pits, medians—while maintaining pedestrian-oriented centers throughout the long-term redevelopment of the Pike.

Case Study: Columbia Pike, Arlington County, Virginia

COLUMBIA PIKE CORRIDOR ILLUSTRATIVE PLAN



Four designated transit-oriented centers

Columbia Pike originated as a transportation corridor approximately two centuries ago, and changed character several times. One significant recent change brought about by the charrette and form-based coding was a redefining of, or shift in thinking about, the concept of “street”. No longer does “street” just mean the travelway in the Columbia Pike community. *Street* includes the entire public space between building faces. This means the street (and related public policy and investment) should be shared by pedestrians, bicyclists, public transit riders *and* drivers.

As a result, the County has undertaken several pedestrian and bicycle initiatives. Improving sidewalks and pedestrian facilities, and providing safer crossings of the Pike, has been a priority. Planning is underway to establish parallel bike routes throughout the corridor, as well as bicycle lanes on the Pike (where appropriate) as redevelopment occurs.

Street Space Task Force

In conjunction with passing the Code, the County Board established a citizen task force to review the recommended street space standards, with particular focus on the necessity of dedicated lanes for future transit development. Citizens were concerned that dedicated lanes would provide little benefit in reducing travel times while greatly detracting from the pedestrian environment by creating an extremely wide right-of-way at the western end of the Pike.

The task force focused on several issues relating to street space and the pedestrian realm, ranging from traffic speed, lane widths, dedicated transit lanes to crossing distances, the importance of street trees and on-street parking, and the way in which the character of the Pike—and therefore street sections—could change across the length of the County. The task force meetings included technical input and assistance from the relevant county staff and transit and urban design consultants, as well as Virginia DOT (VDOT), the Washington Metropolitan Transit Authority (WMATA) and other pedestrian and transportation consultants from across the country. This effort produced recommendations and supporting documents, the *Columbia Pike Street Space Planning Task Force Report*, delivered to the County in 2004.

Parking as part of the Comprehensive Transportation Plan

In order to relieve citizen anxiety, the County has begun considering parking as public infrastructure. Although the FBC included specific standards to enhance the pedestrian environment, such as not allowing above-grade parking within 25 feet of the required building line (which in effect forbids surface parking at the street and indirectly requires parking structures wrapped by liner buildings) and relieving small properties of on-site parking requirements, the County fully engaged in the parking issue, developing a multi-faceted parking strategy, addressing such issues as public and shared parking, off-peak on-street parking, fees in lieu of providing parking, zone stickers for adjacent residential areas, etc.

Case Study: Columbia Pike, Arlington County, Virginia

Key tools

- An upfront *public participation charrette* process solidified community support and coordinated multiple government entities (crucial due to the complex character of the area: multiple parcels and property owners; numerous stakeholders; and involvement of multiple levels of government).
- The *form-based code is a regulatory document*, part of the zoning ordinance rather than a set of guidelines. Provides predictability for citizens and developers.
- *Parking is managed as part of a comprehensive community plan*, not wholly delegated to individual property owners.
- County approaches the initiative as an interdisciplinary endeavor. Implementation staff come from both Departments of Planning and Economic Development and of Department of Public Works.

Resources

Columbia Pike Form Based Code

http://www.doverkohl.com/project_graphic_pages_pfds/Columbia%20Pike.pdf

Form Based Zoning, Columbia Pike as example: <http://www.planning.org/pas/member/pdf/QN1text.pdf>

APA Planning Advisory Service Report

<http://www.planning.org/bookservice/description.htm?BCODE=P526>

Arlington County information re: Columbia Pike

<http://www.arlingtonva.us/Departments/CPHD/Forums/columbia/CPHDForumsColumbiaColumbiaPikeInitiativeMain.aspx>

Columbia Pike Partnership

http://www.columbiapikepartnership.com/FORM/index_E.html

Presentation at RailVolutions

http://www.railvolution.com/rv2005_pdfs/rv2005_325d.pdf

Columbia Pike signalization

http://www.gmupolicy.net/its/Signalpriorization_files/Signalpriorization.htm

Article about trolleys on Columbia Pike

<http://www.washingtonpost.com/wp-dyn/content/article/2006/01/11/AR2006011100762.html>

El Camino Real

Palo Alto, California; State Highway Route 82

Context

El Camino Real is the oldest road in the west, and a dominant local feature in the city of Palo Alto, which is halfway between San Jose and San Francisco. It serves significant local and regional traffic as a principal arterial. It carries substantial bus traffic, and is close to a major commuter rail station. Some locations see major pedestrian movement, with high street crossing volumes at commercial and school crossings. Finally, El Camino Real serves local bicycle trips.

Land uses along El Camino Real in Palo Alto include major commercial development, most of which is auto-oriented, and a bit of which is pedestrian-focused, such as retail shops and restaurants. Multifamily housing appears along the street at numerous locations. Design of these uses varies, with mid-century development featuring front-facing parking lots, large setbacks, and little architectural detail, and both older and newer development featuring side- or rear-located parking, smaller setbacks, and greater architectural detail. Stanford University abuts El Camino Real on the west side of the northern end of the section. Nearby land uses include major activity centers such as business parks, mixed-use downtown areas, and a regional shopping mall.

Little vacant land exists along El Camino Real, but substantial growth is projected for the city and the region, and it is expected that a significant portion of the city's growth will occur along this street, especially as a location for multifamily housing.

The City of Palo Alto and Stanford University recognize the changing role of El Camino Real and want to transform the corridor into a mixed-use urban inner-city arterial complete with street-oriented uses, wide sidewalks, adequate lighting, bike paths and other appeals to the community.

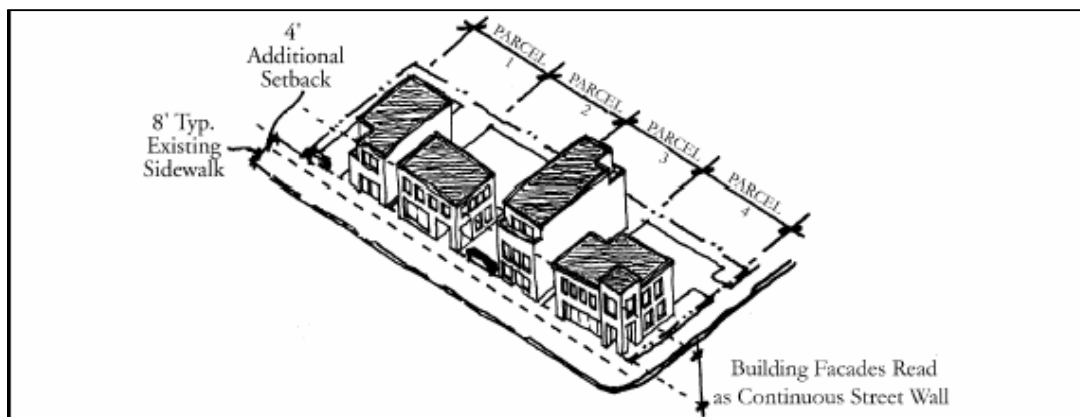
Design Guidelines

The El Camino Real project addresses the character and form of the buildings and private sector land not through specific development *regulations* but through *design guidelines* that serve to frame the discussions between the community (& its adjudicative review boards) and the developers/builders.

El Camino Real Vital Statistics

Average Daily Traffic: 45-55,000
Through Lanes: 6
Typical Right of Way: 120 feet
Length of Section: 4.3 miles

Adjoining land uses:
Educational, commercial,
multifamily residential



Case study: El Camino Real

Nationally, this is a conventional approach, leaving the implementation of the vision/master plan in the realm of local politics and procedure. Much then depends on the level of public involvement and other ‘political’ contingencies – development is left in the realm of negotiation. Quoting from the document:

... The purpose of these design guidelines is to:

- Provide a set of guiding design principles for public officials, developers, designers and the community **with which to anticipate, evaluate and encourage appropriate** development;
- Give the jurisdiction **tools to evaluate and direct** project design;
- Provide developers with clear direction as to what type and quality of development the city **desires, anticipates and will approve**;
- Give the community a better understanding as to what type and quality of development the city and community should anticipate and expect along South El Camino Real...

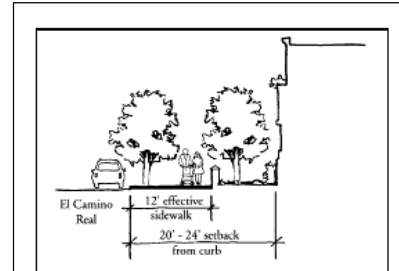
... The design guidelines will be **extensively used by the review boards**, including the Architectural Review Board (ARB), the Planning Commission and the City Council. The guidelines are **intended to direct the project design process toward solutions** that, given site conditions and the requirements of the development program, best meet city goals and community values and expectations.

The ultimate regulatory force of the *El Camino Real Design Guidelines* aside, these are an excellent presentation of the **type and quality of development the city desires, anticipates and will approve**. Clear statements of principle, generally explained graphically, are presented for the complete street-space.

The *El Camino Real Design Guidelines* recognize the corridor as a series of places with distinct character. It does a thorough job of providing guidance on the full range of corridor development and redevelopment issues. Chapters include: *District Vision, Site Planning and Landscape Guidelines, Building Design Guidelines, Signage, Renovations and Façade Improvements, and Exclusively Residential Projects*. An instructive appendix provides conceptual schematic design examples for a variety of building project scales, ranging from tiny infill projects to full-block developments.

The *El Camino Real Design Guidelines* are not regulatory, but provide guidance to an existing review process. While they do not act as a *rule-book*, they provide a very useful *play-book* for Corridor development.

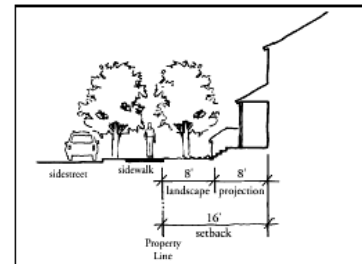
The ultimate value of the Design Guidelines is their clarity. No citizen, public official, or developer could reasonably fail to understand the ultimate goal of the master plan – and that is a first condition for the implementation of any community vision.



GUIDELINES 7.1.1 & 7.1.2. Exclusively residential projects are required to be setback 20-24 feet from the El Camino Real curb with a 12-foot effective sidewalk lined by double rows of trees.



GUIDELINE 7.1.2. Low screen walls and shrubbery may be used to create privacy between the sidewalk and adjacent residences. Sidewalks must be at least 8 feet wide, lined with a row of trees on each side.



GUIDELINE 7.1.4. Residential projects are required to be setback 16 feet from the sidewalk property line, with a sidewalk lined by a double row of trees. Stoops and porches may project eight feet into the setback.

Case study: El Camino Real

Economic Development

The design guidelines were received enthusiastically by the development community and have been consistently implemented for the past 3 years.

Recognizing that the entire two-mile stretch of El Camino Real could not be a continuous pedestrian-oriented corridor, the City's approach involved a node and corridor concept. This method focuses on three pedestrian nodes (mainly at intersections) and two areas that are more auto-oriented. This creates synergy among auto-oriented uses and pedestrian passages.



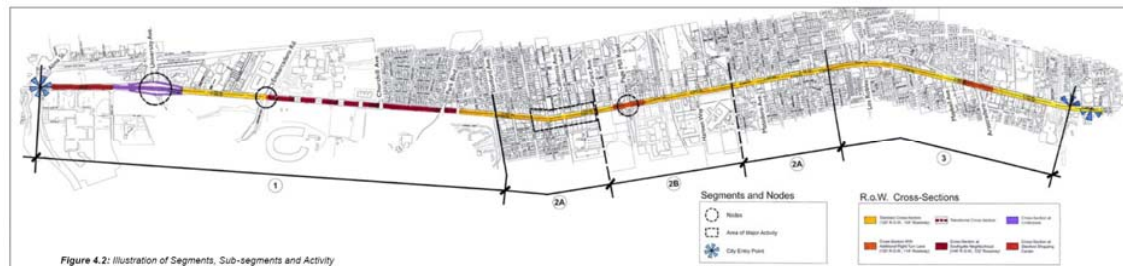
The development community continues to be strongly supportive because the guidelines promote quality design and corridor image, which in turn have increased property values along El Camino

Case study: El Camino Real

Real. Roughly a dozen new redevelopments have occurred along the 4.3-mile stretch since the design guidelines have been implemented.

Transportation

The section of El Camino Real being redesigned and reconstructed is shown following:



Current conditions

Vehicle Traffic Characteristics. Traffic volume is 45-55,000 vehicles per day. With the effects of congestion and traffic signal delay, peak-period travel speed is approximately 17 mph, although in between signals, 85th percentile speeds exceed 40 mph, more than 5 miles above posted speed.

Transit Characteristics. Major bus lines run along this section of El Camino Real, at frequencies of 10 minutes during peak periods and 20-60 minutes during off-peak periods. There is a major commuter rail station nearby.

Redesign

Palo Alto applied for and received a grant from the California Department of Transportation (Caltrans) to redesign El Camino Real. \$280,000 (including a local match) became available for planning and design work. The consulting team was Community Design + Architecture (urban design), Fehr & Peers Associates (traffic engineering), Urban Advantage (visual simulations), Reid Ewing of University of Maryland (context-sensitive design), and Joe McBride of UC Berkeley (urban forests). About the same time, the then Director of Caltrans, Jeff Morales, began a Context Sensitive Solutions (CSS) program whose aim is to make state highways more compatible with their land use contexts. The redesign of El Camino Real, to be more like a main street, is the kind of project envisioned by CSS, and the department has looked favorably on it.

The main transportation problems with El Camino Real as it currently exists are poor aesthetics, high vehicle speeds, and difficult pedestrian crossings (see set of pictures on next page). Based on the plan prepared by the consulting team, the City of Palo Alto has proposed the reconstruction of El Camino Real to create:

1. An aesthetically attractive corridor that projects a positive image for Palo Alto.
 2. A fully multi-modal urban thoroughfare that maintains mobility and improves safety for transit, trucks, and autos, while improving safety and convenience for pedestrians and bicyclists; and
 3. A center of community activity rather than a barrier between activities on each side of the street.
-

Case study: El Camino Real

Existing Roadway with Aesthetic, Speeding, and Crossing Problems



The plan for El Camino Real pursues the community's goals by:

1. Planting hundreds of median trees to create a tree-lined street.
2. Reallocating the 120 ft right-of-way by narrowing travel lanes from 12 to 11 ft, allowing parking lanes to substitute for shoulders, widening sidewalks, adding pedestrian refuges in the medians, and adding corner bulb-outs to shorten pedestrian crossing distances; and
3. Dropping from 6 to 4 or 5 travel lanes near intersections with low cross street traffic volumes and high pedestrian crossing volumes.

Median trees: Debate over the role of median trees has been a substantial barrier to full implementation of the El Camino Real plan. Around year 2000 a group called Trees for El Camino Real began to lobby and fund-raise for the installation of median trees. Having raised several hundred thousand dollars, the group only needed Caltrans approval to begin planting trees. About one-third of the median length through Palo Alto is wide enough for trees under current Caltrans clearance policy, which requires a minimum median width of 12 feet. The rest of the median is of substandard width.

Case study: El Camino Real

Caltrans is conducting a pilot study of median trees on El Camino Real. Several hundred trees are currently being planted on the northern section next to Stanford, and a second planting in the southern section is now underway. These are sections with the 12 ft medians, but under the pilot, trees are being planted even on the median noses of 8 ft width. Just north of Palo Alto, the city of Menlo Park is using the flexibility of the pilot project to plant trees on medians of only 5 ft width.

Reallocation of ROW: Caltrans has had no objection to narrowing lanes, providing a parking lane in lieu of a shoulder, or adding bulb-outs. Here the main challenge is cost. The entire reconstruction is estimated to cost \$32 million. It is unclear when this portion of the project will become feasible.

Narrowing near intersections. The selective narrowing to 4 lanes faces the same financial constraints, and also faces some political obstacles. This section of El Camino Real has 4 major four-way intersections with cross-street traffic of up to 50,000 average daily traffic (ADT). The uniform six-lane section of El Camino Real is scaled to these intersections. El Camino Real also has 17 T-intersections with much lower cross street traffic volumes, on the order of 10k ADT. Two of these have high pedestrian volumes due to school crossings, neighborhood commercial areas, and (in one case) a train station. At these two intersections, pedestrian crossing volumes are so high that vehicle traffic from the side streets clears faster than pedestrian traffic crossing the street, and narrowing El Camino Real to four lanes would actually reduce intersection delay. Traffic simulations showed that as long as the four-lane sections did not extend to the major intersections, overall travel time along the arterial would not be significantly affected. The problem here is that some residents equate any narrowing with increased congestion. To address this, a field test of the 4 or 5 lane segments is included in the plan.

Plan for 6-4 Lane Hybrid Design



Figure 5.17: Corridor Concept Plan: 6/4-lane Hybrid Option - Configuration B

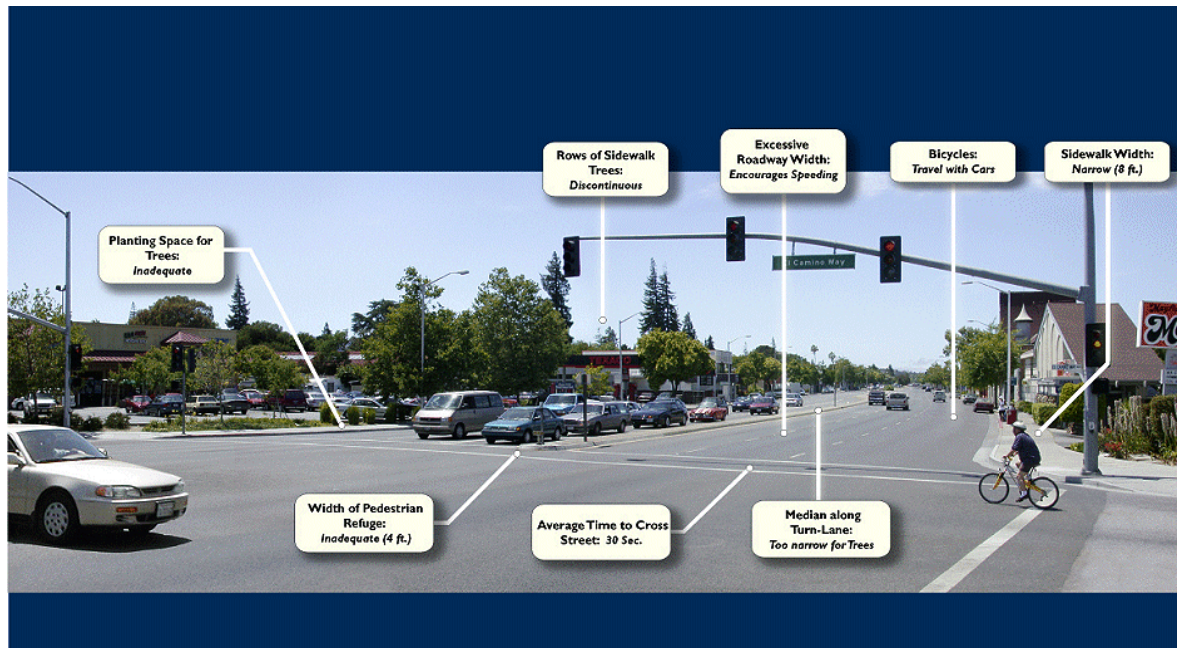
Finally, Stanford University is interested in creating a new bicycle connection through the eastern portion of the campus (the Arboretum) to El Camino Real. This would connect to the existing bike path along El Camino and be consistent with the City's Draft Bicycle Plan.

Case study: El Camino Real

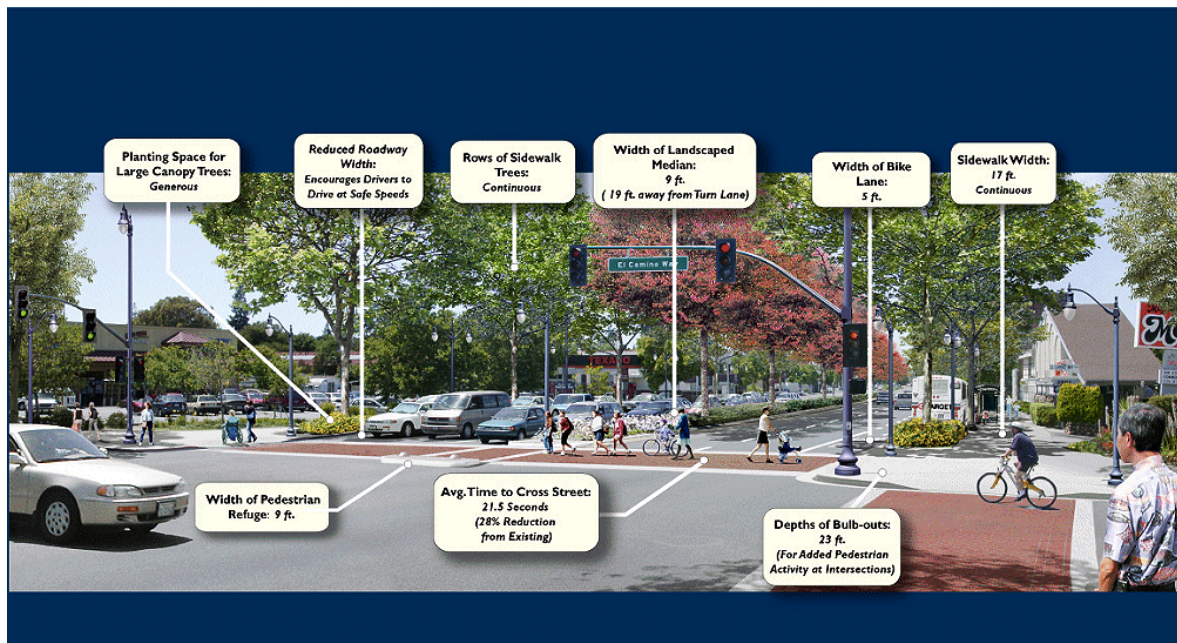
The University has also explored transforming the frontage of El Camino Real from on-street parking to a wider sidewalk with street trees.

Existing conditions and redesign

Existing



Redesign



Case study: El Camino Real

Existing



Redesign



Key tools

- Development guidelines to assure quality development, including the appendix of design solution examples. A great playbook to get developers headed in the right direction.
- The clear and specific numbers: quantitative information about the street sections and other design details. These give everyone *specifics*.
- Road network and streetscape improvements
- Tax increment financing of amenities
- The computer imaging.

Resources

El Camino real home page: <http://www.city.palo-alto.ca.us/planning-community/el-index.html>

Case study

28th Street

Boulder, Colorado; State Highway Route 36

Context

28th Street is the main roadway into Boulder from Denver, Colorado. It borders the University of Colorado at Boulder (CU) and serves as a prominent gateway and vital physical link to CU's campus. It exceeds its threshold volume for congested conditions. The 28th Street campus edge needs functional and aesthetic improvement.

28th Street Vital Statistics

Boulder Pop: ~100,000
Average Daily Traffic: 46,500
Through Lanes: 4

Adjoining land uses:
Educational, commercial,
residential

Planned Improvements

Developed and designed by the community in 2000, the 28th Street Improvements Project is currently underway. It consists of three sections:

- “Hello Boulder!”—the south section adjacent to CU’s Campus (from Baseline Road to Arapaho Avenue);
- “Service City”—the north section (from Pearl Street to Iris Avenue), and;
- “New Town”—the middle section (from Arapahoe Avenue to Pearl Street).

Upon completion in early 2006, 28th Street will be transformed into a multi-modal corridor with unique transportation, safety and visual enhancements.



Before



After

The new 28th St. will use functional art, water-wise landscaping and improved signage and landmarks to give the corridor a distinct character that animates Boulder’s gateway and draws attention to several landmarks, including Boulder Creek, Boulder Valley Regional Center and CU.



Future transit superstop on 28th Street, east side



...and west side

Improved Transportation

Improvements include creating a multi-modal transportation system to enhance safety and accommodate travel for motorists, bicyclists, transit riders and pedestrians of all ages. See accompanying pictures for example details.

Expanded Travel Choices and Regional Connections

Improvements will also include roadway enhancements, better lighting, new transit superstops, bus services, bike lanes, sidewalks and multi-use paths. This is the first time bicycle and transit facilities will be provided on the south section of 28th Street. In addition to linking to CU, it will also strengthen multi-modal travel throughout the region, connecting with the Twenty-Ninth Street retail project, the Boulder Transit Village area, local and regional transit routes, bus transit superstops and FasTracks.

Financing

The budget for “Hello Boulder!” was approved in 2000 for \$10 million. Slightly more than half comes from state and federal sources, while the rest comes from the City of Boulder’s Transportation Fund. Five million dollars of external funds (at minimum) is being invested in Boulder as a result of the project. Investments by CU and other private enterprises are also occurring.

Economic Development and Land Use Coordination

The 28th Street improvements are a strategic approach to public investment, designed to entice private enterprises to locate and do business along the corridor. Results so far are positive.

Twenty Ninth Street Retail Project. This project is Boulder’s new open-air retail district, built on the 62-acre site of the former Crossroads Mall. It is a lifestyle retail district consisting of three distinct neighborhoods that create a one-stop shop destination. The district will consist of approximately 850,000 total square feet of retail



Case study: Boulder 28th St.

space, 3,664 parking spaces and more than one-quarter will be designated to open space. Anchors include Foley's (150,000 sf - similar to Macy's), Home Depot, Century Theater (16-plex cinema) and Wild Oats (35,000 sf - similar to Whole Foods Market). The project will also include 150,000 square feet of class "A" office space and the first phase is scheduled to be completed by Fall 2006.

The University of Colorado has also developed a landscape plan, which includes new outdoor basketball courts with sunken bleacher seating, flower gardens and a path leading to the city's new multi-use path. As a beneficiary of the 28th Street Improvement Project, the University provided the City of Boulder with a sidewalk easement.

Key tools

- Road and streetscape improvements
- Tax increment financing
- Public development of a framework plan for mall redevelopment that provided clear guidance about community desires.

Resources

<http://www.ci.boulder.co.us/publicworks/depts/transportation/projects/28th.html>
<http://www.ci.boulder.co.us/buildingservices/crossroads/index.htm>

APPENDIX D: SUGGESTIONS FOR IMPROVING BUS SERVICE

Bus service in the Fulcrum is generally better than many area residents and workers realize. The 83L operates every day with peak period headways of 10 minutes on weekdays and 30 minutes on weekends and holidays. East of Colorado Boulevard, it makes local stops.

Several strategies could increase ridership and make bus service more efficient in the Fulcrum:

- Denser development

Increasing development densities and encouraging mixed-use development could help increase the bus ridership base.

- “Queue jump” lanes

A queue jump lane allows buses to bypass waiting traffic by getting an early green signal. It can be provided through a right-turn-only lane or as a separate lane.

- Low-floor buses

Update the bus fleet with low-floor buses with multiple doors, like those, in use on the 16th Street Mall in Downtown Denver. A low-floor bus has no steps between the entry and the passenger cabin. This makes it easier for people, particularly seniors and persons with disabilities, to get on and off the bus.

- Upgrade boarding areas

Currently, waiting passengers have to make do with decrepit benches next to fast-moving traffic. Boarding areas could be upgraded with shelters with electronic signs providing GPS-based bus arrival information. This could help to brand bus stops and raise awareness of bus service and can have a surprisingly large impact on ridership.

- Create “super stops”

Super stops provide amenities like larger shelters, landscaping and vending machines and, more importantly, timed transfers between routes. Super stops would be most useful at intersections where the 83L meets other bus routes (University, Colorado/Alameda, Monaco and Quebec).

- Local area circulator

Establish a local area circulator to connect the main activity nodes from University Boulevard to Colorado Boulevard Avenue. It would primarily serve people traveling along the corridor, such as office workers on lunch break or afternoon shopper, rather than commuters. The circulator would also increase access to the Super Target retail node, which could encourage more development in and around it.

APPENDIX E: LIVING STREETS FUNDING SOURCES

This appendix includes information on potential funding strategies and resources and a list of street design resources.

Tax Increment Financing

TIF captures the future tax benefits of real estate improvements in a designated area to pay the cost of making those improvements in the present. In a basic TIF, property assessments are made at a pre-development level in the specified area. Bonds are then issued to finance a portion of the redevelopment or remediation costs. As property values and assessments in the area increase, the municipality uses the added increment in tax revenues to meet the debt service on those bonds. The technique requires the creation of a special district and the maintenance of two separate sets of tax records. An excellent resource to consult when setting up a TIF is the 2002 primer prepared for the National Association of Realtors, which is available at: www.realtor.org/smart_growth_nsf/docfiles/TIFreport.pdf (78 pages, 1.28 mb)

TIF bond proceeds commonly finance projects in non-blighted as well as blighted areas. They can be used for a variety of purposes associated with redevelopment; development; or related physical infrastructure improvements, such as elementary and secondary educational facilities, roads, bridges, parking facilities, recreational facilities, water and wastewater facilities, and electrical power plants. TIF has financed a wide variety of successful commercial and industrial projects.

Community Development Block Grant Funds

The Community Development Block Grants (CDBG) program is a flexible program in the U.S. Department of Housing and Urban Development that provides communities with resources to address a wide range of community development needs. The CDBG program provides annual grants on a formula basis to local government and states. Communities receiving CDBG funds may use the funds for many kinds of community development activities. Some examples include:

- Acquisition of property for public purposes;
 - Construction or reconstruction of streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works.
 - Demolition;
 - Rehabilitation of public and private buildings;
 - Public services;
 - Planning activities;
 - Assistance to nonprofit entities for community development activities; and
 - Assistance to private, for profit entities to carry out economic development activities (including assistance to micro-enterprises).
-

Impact Fees

An impact fee is a one-time charge intended to pass some costs for infrastructure to developers and ultimately those who purchase the new homes. These fees can be imposed to cover costs of improvements to roads, schools, water, sewer, parks and recreational facilities, and other municipal services.

Opponents often argue that impact fees stifle economic growth and reduce the supply of affordable housing. However, an analysis prepared by the Brookings Institution Center on Urban and Metropolitan Policy showed impact fees have either a neutral or positive effect upon economic growth, as measured by new jobs added. The Brookings Institution analysis examined economic development (job growth) in Florida's 67 counties. The authors found that either impact fees had no effect on job growth or the counties with impact fees added more jobs during the study period (1993-1999) when compared with areas lacking impact fees. This study can be downloaded at: www.brookings.edu/reports/2003/06metropolitanpolicy_nelson.aspx.

To create an impact fee ordinance that serves the mutual interests of developers and taxpayers, consider the following:

- Make implementation of impact fee ordinances contingent on sound master and capital improvement planning.
- Select and identify data determining the fee calculation, and update regularly.
- Exempt affordable housing.
- Exempt 55-and-over developments from school-related impact fees.
- Regionalize fees so developers are not assessed fees by different municipalities for the same project.

Transportation Enhancement Funds

Transportation Enhancements (TE) activities are federally funded community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic, and environmental aspects of the transportation infrastructure. Projects can include creation of bicycle and pedestrian facilities, streetscape improvements, refurbishment of historic transportation facilities, and other investments that enhance community access. The federal government provides funding for TE projects through surface transportation legislation. A listing of past projects funded by TE money in Denver and elsewhere in Colorado is available at www.enhancements.org/projectlist.asp.

The U.S. Department of Transportation provides thorough guidance on the types of eligible projects, which is available at www.fhwa.dot.gov/environment/te/guidance.htm#eligible.

Transportation, Community and Systems Preservation Program (TCSP)

The Federal Highway Administration (FHWA) provides funding for projects that integrate transportation, community, and system preservation plans and practices that: improve the efficiency of the transportation system; reduce the impacts of transportation on the environment; reduce the need for costly future investments in public infrastructure; provide efficient access to jobs, services, and centers of trade; examine community development patterns and identify strategies to encourage private sector development. Denver may want to coordinate with Colorado Department of Transportation about approaching elected officials to use TCSP funds in Denver. While the legislation describes TCSP as a discretionary grants program, it is routinely earmarked.

For more information, see the Federal Highway Administration's TCSP web site, <http://www.fhwa.dot.gov/tcsp/index.html>.

Buses and Bus Related Equipment and Facilities Program

The Federal Transit Administration (FTA) administers a program that grants funds for buses and bus-related facilities such as shelters and other passenger amenities. Eligible capital projects include the purchasing of buses for fleet and service expansion, bus maintenance and administrative facilities, transfer facilities, bus malls, transportation centers, intermodal terminals, park-and-ride stations, acquisition of replacement vehicles, bus rebuilds, bus preventive maintenance, passenger amenities such as passenger shelters and bus stop signs, accessory and miscellaneous equipment such as mobile radio units, supervisory vehicles, fare boxes, computers and shop and garage equipment. Eligible recipients for capital investment funds are public bodies and agencies (transit authorities and other state and local public bodies and agencies thereof) including states, municipalities, other political subdivisions of states; public agencies and instrumentalities of one or more states; and certain public corporations, boards and commissions established under state law. Funds are allocated on a discretionary basis.

For more information on available funding, see www.fta.dot.gov/documents/FTA_Bus_and_Bus_Facility_Fact_Sheet_Oct_05.pdf. For information on the program, see www.fta.dot.gov/funding/grants/grants_financing_3557.html.

Energy Efficiency and Conservation Block Grant Program

The U.S. Department of Energy's Energy Efficiency and Conservation Block Grant Program (EECBG) provides grants to U.S. local governments, states, territories, and Indian tribes, to fund projects that reduce energy use and fossil fuel emissions, and that improve in energy efficiency. This program was established as part of the American Recovery and Reinvestment Act of 2009. The appropriated funding level for this program is \$3.2 billion. Approximately \$2.7 billion dollars will be distributed on a formula basis to states, cities, counties and tribal governments; \$455 million of funds will be distributed on a competitive basis. Activities eligible for funding include:

- Development and Implementation of Transportation Programs to conserve energy.
 - Building Codes and Inspections to promote building energy efficiency.
-

-
- Development of an Energy Efficiency and Conservation Strategy and Technical Consultant Services to assist in the development of such a strategy.
 - Residential and Commercial Building Energy Audits.
 - Financial Incentive Programs and Mechanisms for energy efficiency improvements such as energy savings performance contracting, on-bill financing, and revolving loan funds.
 - Grants to nonprofit organizations and governmental agencies for the purpose of performing Energy Efficiency Retrofits.
 - Energy Efficiency and Conservation Programs for Buildings and Facilities.
 - Any Other Appropriate Activity that meets the purposes of the program and is approved by DOE.

Additional information on this program can be found at: www.eecbg.energy.gov/
