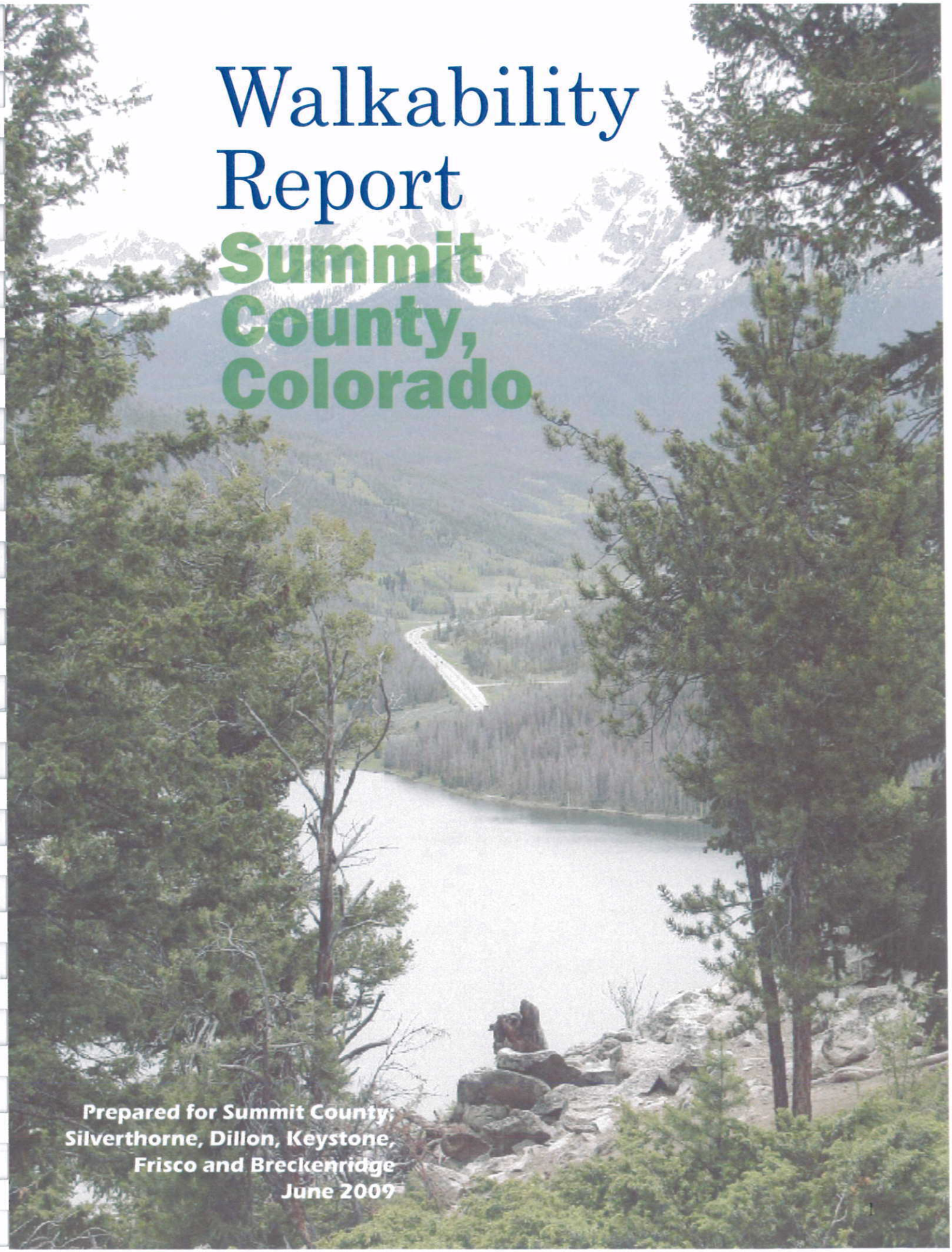
Walkability Report

Summit County, Colorado



Prepared for Summit County, Silverthorne, Dillon, Keystone, Frisco and Breckenridge

June 2009

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Background

Walkability Audit and Report Walkable Communities are the most timeless human settlements, going back thousands of years. Much of North America has lost its walkability traction. This walkability report measures how far Summit County has gotten out of step. It is intended to guide land use and transportation decisions in Summit County; to protect, preserve and restore quality of life, culture, buildings, nature and human health. In one sense, walkability not only determines whether people will continue to have walking as a viable mode of transportation and as a restorative measure for personal health; but as a means and method to provide sustainability, as well as set a scale, pace and measure for community building and eventual economic prosperity. Walkable scale forms a blueprint for what we value. When so honored, walkability principles and scale assure compact land form, restoration and protection of landmark buildings. They provide a richer, more diverse mix of important community parts, and a sensible pattern and distribution of these parts. Through it's time honored, compact form, walkability assures proximity to nature, protection of rural lands and open space. Although walkability audits are only one set of steps to assess economic and community health, they bring together and inspire a broad range of people; they restore confidence, build collaboration and bring about a collective community vision that has legs and traction.

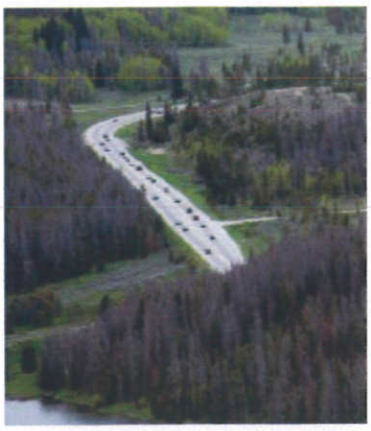
Walkability includes:

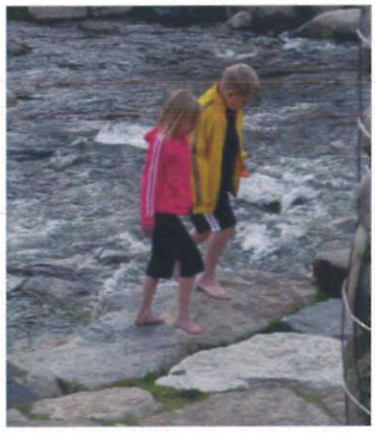
Smart Land Development
Like most places in our nation, Colorado's community development practices are in transition; a reducing emphasis on strips and sprawl, an increasing focus on centers and hearts of communities. This shift and emphasis brings about protection of open space, land preservation, affordable transportation, a sound tourism base, age-in-place neighborhoods and vibrant local and regional economies. Meanwhile, we are almost too late. Research reveals:

Through sprawl patterns of development, Colorado and Summit County have increased sedentary lifestyles and obesity. Sprawl has isolated and stratified people and led to high dependency on cars. Infrastructure costs to support this outward growth are not sustainable. In the aging society we live in, this is becoming increasingly problematic.

- Land development in Colorado has greatly outpaced population growth, resulting in the loss of agricultural and rural lands (sprawl). Energizing sprawl fueled the decline of cities and towns. Such changes are particularly noted in precious legacy lands that can ill-afford any further loss. At the same time, many communities throughout Colorado lack adequate work force or affordable housing. This forces many in the working and service classes to drive long distances at increasing costs, or to be transported by public agencies at costs we are unwilling to fund, or to live in inadequate housing, or both. Summit County has the potential to capitalize on these problems by building needed infrastructure and complete towns where travel times and distances are shortened for many; where new housing product types fit into the community, naturally; where social equity and equality are realized through thoughtful, holistic, complete, designs.
- Land use, transportation and health agencies can work together collaboratively to overcome the problems associated with conventional sprawl and strip patterns, to build communities that become prosperous as they focus on building the kind of places where people want to live, where others want to start up small, new, innovative businesses. Summit County is well located to allow a future agreeable and attractive to many. We can and should pass on to our children heritage lands and towns.

Smart Transportation is a thoughtful approach to planning and design of roadways links transportation investments to local context. This include financial, community, land use, transportation and environmental contexts. A sound project arises





out of a planning and design process that is sensitive to the needs of both, land use and transportation, includes input from the local stakeholders, reasonably mitigates impacts on the environment, and includes a budget that is scaled to the size of the problem.

ABOUT Dan Burden and the Walkability Movement

Dan Burden, co-founder of Walkable Communities, Inc. and a senior urban designer and principal of Glatting Jackson Kercher Anglin, Inc., is an internationally recognized authority on bicycle-and pedestrian-oriented facilities, active transportation, healthy communities and programs. This involves street corridor and intersection design, traffic calming, Safe Routes to School, campus planning and designing sustainable communities. He has worked in nearly 2,500 communities throughout North America as part of his mission to help get the world back on its feet. Each town Dan has visited has helped him broaden his vision, sensitivities and commitment to help all towns of all sizes and complexities through their individual journies as a place overly comfortable and dependent on cars, to one where people come first and foremost, always. Enrique Penalosa (former mayor of Bogota, Columbia) discovered a timeless truth about cities, and says it best; *You can have a town that works for cars or a town that works for people, but you cannot have both."* As it turns out, in North America, those towns that have done the most to write their destiny for their cars, are struggling. Those that use a more traditional style, focusing instead on their people, prosper. Cars should be accommodated, not pampered.

Above: Dan Burden

Dan is not simply a technician and auditor, he is an advocate. Unlike many civil servants that are asked to follow their elected leaders, in 1980 the government of Florida hired Dan to be an advocate for change. Sitting deep inside the Florida Department of Transportation, in his role as the nation's first (combined) bicycle and pedestrian coordinator, he perfected this advocacy method in government, then took it outside to form a voice that would reach back inside government. In Dan's advocacy role he is quick to dispel both technical and institutional brushoffs.

Above: Sarah Bowman

More information can be found at www.glatting.com or www.walkable.org.

WALKABILITY AUDITS

Walkability audits, also called *walkability workshops or walking classrooms*, are powerful planning and teaching tools that help turn blocks, streets, corridors, downtowns, waterfronts and neighborhoods into walkable and livable places. During a walking audit, stakeholders trek the road to simple discoveries about the place, together. A walking audit allows all people to see conditions and opportunities through a new set of lenses and they often teach participants how to *see*.

Dan Burden pioneered the idea of taking human-scale, hands-on planning to the streets through walkability audits. In the early 1980's, Dan learned that engineers designing streets and intersections often had never walked the corridors they were designing. Once he took them to the field, the corridors that would impact the health and well being of the neighborhood, the downtown, the people, the businesses and especially motorists took on new and improved qualities and completeness.

When Dan first started taking engineers and planners to the streets, he was surprised when some of them refused to cross intersections during walks because they felt they were "too dangerous". One engineer even said, "I will drive across and meet you on the other corner."

Today, walking audits are recognized by many in planning, engineering, architecture and landscape architecture as a best practice to help diverse groups of people learn from one another. It helps level the playing field and bring down the "shields" between neighborhood advocates and technical staff. Issues are better understood and addressed while being "walked out." In fact, by the end of a walk, many have learned they have much more in common than they thought. They often have new and more focused issues to talk through once they get back to meeting rooms. Presentations, discussions and ideas are tightened to reflect reality, based on what was actually observed.

People taking part in walking audits claim they will never take walks or study projects the same way. Some graduate students in urban design have claimed that they learned more in a two-hour walking audit than in an entire semester of urban design classes.

Walking Audits and Team Photos

Breckenridge

Dillon

Frisco

Silverthorne

Summit County

Report Framework

In the past year and a half, since January 2008, much has happened to the American and world economies. These are deep-seated problems and solutions will not come quickly. But almost all analysts are reaching similar conclusions: the non-sustainable sprawl patterns and principles to which we have built, and the unhealthy lifestyles they have fostered, are nearing their ends. Rather, building or reviving sustainable, connected, healthy and happy centers will provide a future that is logical, "green," socially engaging and prosperous.

Much of this report provides validation that a small, dedicated group of Summit County citizens and leaders are alert to these problems and are willing to help its people get back on track. Indeed, Summit County's historic town-making pattern and its recent new investments in its downtowns are an indication that a growing number of people are willing to come together to set a course for a prosperous and healthy future. Seen from a "15,000-foot-high lens," Summit County has not yet suffered badly from sprawl, and looks mighty fine. On the ground, though, several missteps and missed opportunities are noted. The fixes for many of these missed opportunities are affordable, such as completing sidewalks, linking trails and neighborhoods, improving public space, putting some roads into a more urban form and building compelling gateways, bike lanes and roundabouts.

This report outlines numerous "low-hanging fruit" projects that will help provide immediate inspiration, stimulus and lift during the County's ongoing makeover. Many other opportunities are mid-priced and can be funded locally, while a few are longer-range initiatives, such as ongoing remakes of SR 9 and U.S. 6. in places like Silverthorne, Dillon, Frisco and Breckenridge. Meanwhile, there are hints that broader based future transportation and community development monies may help bring about an improved transportation balance -- and this may come sooner rather than later. Positioning and timing Summit County's vision and people will be critical to securing state or federal funding.

The walkability audits validated many things County leaders already know. Summit County and the many communities have an abundance of "places" and historic forms that make the communities good placess to live and invest. The presence of well located, quality downtowns, with good streets, roads, trails and great neighborhoods make for a good start for the future. With a modest number of added investments, such as building true village centers in places like Silverthorne, Dillon and Frisco, it is possible to bring Summit County back to a more sound and solid economic, social, physical and psychological life for its residents and visitors.

WALKABILITY & WALKING

Walkability -- *the measure of the overall walking and living conditions in an area, defined as "the extent to which the built environment is friendly to the presence of people walking, living, shopping, visiting, enjoying or spending time in an area."*

Factors improving walkability include: mix of land uses, high levels of street connectivity, high residential density (as residential units per acre), plenty of places to go near the majority of homes. Walkability also requires street-level details that include "transparency," or a high percentage of occupied buildings with transparent windows and doors at the street level, as well as orientation and proximity of homes and buildings to watch over the street, and buffer pedestrians from moving cars. In Summit County this requires policies and practices that keep walking trails and pathways open in winter months.

Walkability is enhanced with quality placemaking, including well-laid-out public streets, squares, plazas and small parks. Walkable streets create a human scale and a sense of enclosure to the street, helping to keep vehicle speeds low. Walkways must be buffered, not immediately adjacent to moving traffic. Use of planter strips, on-street parking or bike lanes achieve this while helping create "enclosure."

Walkability also is improved with enjoyable walkways of sufficient width to be comfortable for two or more people to walk side by side; and wider if volumes of pedestrians are moderate or high. Walkability also calls for ease and frequency of convenient street crossings for pedestrians. Low vehicle speeds and volumes allow this to happen naturally, but at higher speeds, formalized crossings are necessary.

Walkability is improved aesthetically as an area takes on its own charm and sense of place (imageability) and is further enhanced when walkway environments are rich and complex, with many things to see and experience.

Measure -- Counting the number of people walking, lingering and enjoying a space is a good way to quickly determine how walkable a block, corridor or neighborhood is. The diversity of people, and the presence of children, seniors and people with disabilities, denotes the quality, completeness and wholesomeness of a walkable and livable space.

Why is walkability important?

As recently as 15 years ago, many people throughout the country didn't understand the importance of building walkability and place. Downtowns and village centers lost vibrancy. Land uses became more and more separated from one another. Most new homes were built with large lots (low density) and in a suburban form. Buildings no longer watched over streets, and people lost interest in being there. Sidewalks and crossings were omitted, and it became physically challenging to conduct errands without using a car. Transit became erratic. As a result, car use by the average American driver grew from 5 miles per day in 1945 to 27 miles per day in 2007. Indeed, in the last twenty years per capita traffic volume grew five times faster than our population.

Such auto growth and dependency is not affordable, sustainable, healthy or smart. Isolation and loneliness of people, as well as reduced levels of volunteerism, resulted from these impacts in most towns and cities. Although this is a national phenomenon, Colorado has been hard hit, since much of its growth occured in post-auto years. Herein lies the potential and promise to evolve as a sound, solid, sought-after community through designs that work well and well into the future.

Our economy is over a barrel, literally and figuratively. Americans are being hammered at every turn. Falling home values, rising gas prices, and Wall Street bailouts with fallout on Main Street. Hanging over it all is a sense that we have come to the end of the road with our over-dependence on oil.

- Build for America

Public streets form and frame so much of our public realm that by emphasizing speed of cars, we destroy character and our sense of community. Once streets are rebuilt for lower, but steady, speeds, it will be possible to provide new, mixed use buildings that create a sense of place, character and arrival. As these transitions occur land can increase in value from $5-15/sq ft to $35-60/sq ft.

Boulder, Colorado

Basalt, Colorado

Crested Butte, Colorado

Overview and Guiding Principles

Walkability audits are only one tool to restore life and bring community-making into focus. Recommendations provided here focus mostly on the physical form of a neighborhood, city or region. This includes sidewalks, intersections, trails, streets, parks, plazas and buildings. It also addresses how these parts should be arranged, and how streets, buildings, parks and even open space should "behave." If buildings are not set in the right location, or streets do not create a proper enclosure, for example, traffic speeds will be too high and people will not feel comfortable walking.

As time honored town making principles have been violated, this will be pointed out. As physical improvements are needed in general and with specific sites, these will be explained. Needed changes are called "opportunities" and they can be made immediately or incrementally, as funds are located and prioritized.

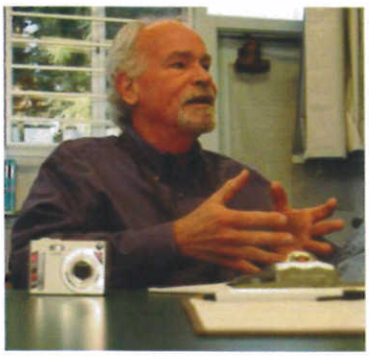
We suggest starting small, with a few agreeable, achievable model projects and changes. Retiming traffic signals, painting narrower lanes and planting rows of street trees can be done under most existing town budgets. Eliminating ugly off-street parking, or significantly dressing up a town blemish until an investor can be found, can also bring about a better place.

This document does not provide an outline for long term changes that are needed, such as fundamental restructuring of codes, policies and practices. This requires follow-up trips by experts in urban design, a special look at specific corridors by a balanced team of specialists who can overcome conventional thought. These experts can prescribe and write specific plans, such as traffic calming, corridor, mobility and transit plans, accessibility plans, a downtown plan, and other specific planning efforts that set the stage for future funding.

State health statistics reveal that the combination of a sedentary lifestyle, lack of active transportation and poor access to healthy foods has led to a decline in overall health, and is adding to health care costs. Now, through initiatives of the Health Department, Summit County can embark on healthier, better-connected, more prosperous futures, as evidenced by the enthusiam and conviction with which residents, health officials and community leaders recently launched this effort. This report helps explain how combining land-use planning and transportation planning as a single community-building tool helps communities thrive and, in fact, will be the mark of successful, sustainable communities in the future.

Fifteen Walkable Community Principles

1. *Low speed, attractive streets*
2. *Fine grained, well connected, streets and walkways*
3. *Streets and buildings align to form strong, compelling views*
4. *Streets work for everyone (all ages, all abilities, all uses)*
5. *Mix of buildings and uses, allowing easy walking access*
6. *Welcoming, socially engaging mixing places*
7. *Compact housing and many housing types and range of cost*
8. *Emphasis on downtown and other key centers*
9. *Well located parks and open space (easy reach to all)*
10. *Well located schools, within walking distance of homes*
11. *Easy access to efficient and welcoming transit*
12. *Land use and transportation partnerships*
13. *Homes and buildings face principle streets, parks, schools*
14. *Codes, taxes, other incentives favor compact land form*
15. *Decisions favor long term, sustainable growth and value*



Summit County Walkability Steps
Toward a More Healthy and Prosperous Future

Summit County, Colorado, distinct as one of the nation's "highest playgrounds", provides unique challenges. In order to preserve its culture, charm, history, natural features and place, steps must be taken to focus on community access and growth patterns that support a growing, more economically diverse range of population. As Summit County sets a vision and plans for designing more compact land forms which work for its people, it will become a healthier, better-connected, more prosperous and sustainable place.

Successful and prosperous towns are scaled to the human foot. This historic right-size, right-scale concept allows communities to focus on town centers that are accessible and affordable for the community and for people.

In Summit County this movement is evidenced by the enthusiam and conviction with which residents and key leaders in many communities throughout the County came together to focus on a set of walkability audits, recent changes to several downtowns and the ongoing work to invest in main street redevelopment programs.

Community walkability audits were held in a combination of downtowns, surrounding historic neighborhoods, several strips and a number of other locations throughout the county. The audits provided insights on how these places and the greater region can benefit by a renewed focus on its people, rather than car dependency.

The walkability assessment took place from June 8-12, 2009 with an opening workshop, followed by a series of walkability audits and presentations. More than 100 residents, regional health officials, developers, planners, county leaders and community advocates walked the streets with walkability expert Dan Burden, a principal and senior urban designer with Glatting Jackson Kercher Anglin, Inc., and co-founder of Walkable Communities, Inc.

The walkability audits revealed how the historic neighborhoods and main street environments had good original "bones" (i.e. an urban form of well connected streets, proper orientation of buildings, parks, schools). But in many communities, recent community development patterns have resulted in fractured, poorly connected, largely unwalkable neighborhoods. For example schools have become larger, and are not well placed. All of these areas, including historic cores, are in need of improvements and adjustments to make them truly walkable communities, a place where walking isn't just a form of exercise, but also an easy and direct means of transportation. As auto-dependency has built in the region increased traffic volumes, street widenings and other conditions have been allowed to occur that further reduce safe and comfortable walking, even to the most common destinations.

The two scenes below illustrate the difference between a street and buildings designed primarily to move cars and make snow removal easy, and a street focused on creating place. Proper street dimensions, building orientations patterns and detailing work together to bring speeds under control, create a sense of enclosure, and a desire to spend more time in the community.

Before

After

This change in focus toward walkability and placemaking creates potential to attract new jobs and reduces the time people sit in queues of cars waiting to get to winter facilities, while enriching the lives of those living and working here year-round. Employees and retired people are increasingly considering lifestyle and sense of place as much as they consider cost of living, salary and other benefits. Employers looking to locate in a city consider these same attributes. Today, the high recreational value of Summit County looks inviting to many.

What went wrong and how will we correct it? The old way of thinking was to build roads for higher speed to allow easier access to escape the centers of towns. These new or rebuilt streets were commonly stripped of parking and trees. Zoning codes were altered to favor or force parking lots placed in front of buildings. Auto-centric designs even crept into downtowns. Taxation rules and other regulatory measures rewarded property owners for not putting land into its most sustainable and best use.

Now these rules are changing. Towns of the future that thrive will install more on-street parking, plant trees to create vertical walls and edges to streets and in other ways significantly "green up," and provide enclosure and a human scale to village streets.

How will this take place? Using town making and placemaking principles, empty parking lots will either be replaced with mixed use buildings, or otherwise made into attractive gathering places. Parking lots will no longer be a visual blight. And everywhere in a central town, more parking will be put back on the street, helping calm traffic speeds and creating an important buffer and edge. This edge will separate moving traffic from pedestrian and retail activity.

After years of taking a different route, designers and elected leaders have learned that towns designed for people are packed with people and have a sense of place; and that towns designed for cars are packed with cars and underutilized space. Towns that thrive are designed for large numbers of people and jobs. These towns accommodate or tolerate cars; not the other way around.

Summit County has the right "bones."
What will work best in the future is largely what worked best in the past. When people walked, biked and used transit more, when land uses were calibrated to a human scale -- smaller, mixed and closer together -- there was a high degree of social mixing and social equity; infrastructure was affordable and sustainable. Summit County is well positioned to take advantage of its historic grid, and excellent street connectivity. Sustainability

A combination of state and national practices, making lanes wider than necessary for the mission, providing more lanes than needed in some locations, and speeds higher than they should be for a village, has created a number of walkability challenges. Using a context sensitive approach, as roadway sections are brought into a "village building" form, people will not use their cars to simply move from one parking space to another across streets they feel uncomfortable crossing by foot.

In Keystone, below, could the non-essential outer two lanes be converted into parking spaces? Parking placed here frees up valuable land, brings speeds back under control, and makes pedestrian crossings much shorter, causing less delay. Such changes, however, require education, collaboration and close coordination between state, county and local officials.

Below: Tools already in place in some parts of Summit County can be used more broadly. For example, the medians used here cut the crossing distance for pedestrians in half, reduce the amount of snow that must be removed from the roadway, and otherwise helping to bring speeds under control. Using an improved edge line here (10 inches wide) and narrowing the street to 10 foot wide lanes, can further reduce speeding.

This high school campus is isolated from most of Summit County's population. Although this resource is now in place, too little thought was given on how students, staff and others would get to the campus, especially by foot or bicycle. Improved walking and bicycling is being worked on.

Above and below: Another way to bring down speeds and make better use of roadway right-of-way is through back-in angled parking. The presence of parking further slows traffic speeds, provides a useful resource (parking) where it is most needed, and allows a more comfortable place for bicyclists and pedestrians (reduced speeds). Back-in angled parking takes up only one-third of the space as off-street parking (turning radius and access is already provided in on-street locations), and is a green, sensible way to convert excess space into a valued resource.

practices place more trips closer to home, calling for greatly improved aesthetics for streets, reduced speeds, and improved tools for keeping traffic in motion. Meanwhile, there is a missed opportunity. As each village center strives to draw in a growing clientele, and as infill investments are made in existing or new centers, both SR 9 and U.S. 6 will require new streetscapes, lower speeds, more parking, properly oriented buildings and identity as "place".

Macro Level Current Conditions. Summit County already has many pockets of settlement that form the base needed for success. Due largely to its preserved buildings, mixed town development, well located neighborhoods and historic block form, Summit County has a link to a promising future, prosperity, and health.

Meanwhile, not all of the County is as fortunate. There are dozens of blocks in Silverthorne, Frisco, Dillon, Keystone and Breckenridge that are heavily focused on suburban design. These areas can be transformed, but they will require a shift from suburban to city-making principles. These principles are referred to as traditional or walkable.

Tradtional Towns with "good bones" (e.g. street patterns, block forms, building orientation, distribution of schools and parks) over the years have proven to heal from job losses and recessions more quickly than those that lack these qualities. By focusing on some immediate fixes to insert missing pieces (town makeover) and then addressing long term commitment to creating place, Summit County will weather these storms of change just fine.

Applying Walkability Principles

Breckenridge Today (basic alley)

During the walkability audit of Breckenridge, participants identified ways to convert alleys, parking lots, undeveloped downtown land, main street, and side streets into more green and attractive, welcoming, navigatble places. Participants learned about the role of buildings to "activate" the street.

Breckenridge Future walkable corridor

As Breckenridge transforms itself from areas of large parking lots to one of spaces that attract people, the above alley can be transformed into an "A" Street, where building are oriented to watch over this space, and where visual focal points draw people toward the heart of Main Street.

Placemaking, Sustainability, Complete Streets

Placemaking -- Placemaking is the transformation of a street, sidewalk, plaza, square, paseo, open lot, waterfront or other space to be attractive, rewarding and a community source of distinction and pride. Good places make good experiences possible and have consequences in our lives. Being in places involves social encounters, immersion in the sights, sounds, sun, wind and atmosphere of a locale, and encourages curiosity about the traces of thought, imagination and investment that have guided their construction and use over time. Why is place-making important now? It is largely due to economics, ecological sustainability and a desire by people to be more socially connected.

Sustainability - Sustainability is meeting today's needs without borrowing from the needs and opportunities of future generations. Recalibrations are taking place on where and how jobs are created. Vast changes in local and national economics are already occuring based on a growing desire to be more conscious and considerate of what and how much is consumed. Indeed, all urban design is changing as new non-carbon sources for energy and reduced consumption of energy separates out struggling towns from the most sustainable and thriving towns.

Sustainable Transportation -- Sustainable transportation is about meeting present transportation needs (all users without any exclusion) without compromising the ability of future generations to meet their needs. The practice of sustainable transportation developed in reaction to the mistakes of conventional transportation policy, practice and performance throughout this country during the past half-century. Urban transportation systems based only on the car (efficiency and safety for the motorist) have proved unsustainable, consuming excessive energy, affecting the health of populations and delivering a declining level of service despite increasing investments. Many of these negative impacts fall disproportionately on those social groups who are least likely to own and drive cars. The sustainable transportation movement is gaining force and is helping to shift the emphasis in public spending and actions away from building and supply, to management and demand.

Complete Streets -- Street designs need to shift toward all streets being walkable, bicycle and transit friendly. This "completion" goes hand-in-hand with more balanced, affordable street designs, placemaking and active transportation. People walking or riding bicycles are improving their physical, emotional and social health through active transportation.

Snow and Snow Removal

Walkability is achieved by paying close attention to details. Extra design must be built in to accommodate a variety of people (residents and visitors to Colorado) seeking the high country Colorado experience. Summit County is one of the nation's highest and most challenging places to keep walking open and accessible year round. Tourists coming to enjoy mountains and lakes and other area attractions can also be attracted to a variety of shopping, eating and other entertainment experiences. But the atmosphere must reflect and respond to the Colorado climate -- with a special focus on keeping trails and walkways open and accessible. This won't be easy.

When residents, and especially children, are required to turn to street walking in harsh winter conditions walkability can be expected to drop significantly. Winter brings on problems with low light and low visibility as well.

Winter cities must learn to deal with large snow loads. This requires the purchase, operation and maintenance of specialized equipment to keep walking pathways open. Snow removal for pedestrians should be maintained at the same levels and care as provided to motorists.

Residents should expect that transit and school walking trips will be given the first priority for snow removal. Meanwhile, with close collaboration and cooperation between state, county and town, snow removal teams are needed so that snow is not simply moved from the street to the recently plowed walkway or trail openings, back to the street and back to the walkway again.

Other snow cities, such as Keene, New Hampshire; Hamburg, New York; and Missoula, Montana have established practices that work under their extreme snow loads, such as stacking snow in the middle of the road. Summit County should study all best practices, including those in walkable, extreme snow cities in Denmark, Norway, Sweden and Finland.

ChangesandTransitions

Summit County has the opportunity to make a number of easy, short term, affordable changes to improve its active transportation, walkability, alternative transportation and livability. For instance signal timing, signing and pavement markings can all be adjusted to better accomodate a wider diversity of street users. The absence of strong, compelling edges, as well as the absence of a vertical wall of green can be mitigated through the planting of hearty trees on a number of key streets, creating added desire to travel at a lower speed through what is otherwise a bleak area.

Our recommendations start with low priced, low hanging fruit. Bike racks and indoor bike storage (protection from rain, snow and sun) are easy to develop; seating is cheap. Trees can be planted soon in a nursery then brought to appropriate streets when plans are completed. In many cases, bike lanes can be added by applying paint.

The recommendations provided are an assortment. Perhaps out of 100 opportunities, only 10 or 20 will be adopted. It is important to emphasize that Summit County won't be the first to carry out many of these recommendations. But be assured, treatments proposed here have been built hundreds of times.

Recommendations are a combination of many tools pointed out on the walk, and during the closing session by the author, Dan Burden. Although not all recommendations will be taken, it is important to emphasize that the principles in the adopted comprehensive plan call for a number of measures to make the town more livable, walkable and

Roundabouts allow roads to be better scaled (2-3 lanes versus 4-5 lanes), create an attractive terminating vista, allow for on street parking, and significant new "greening" and commercial retail success.

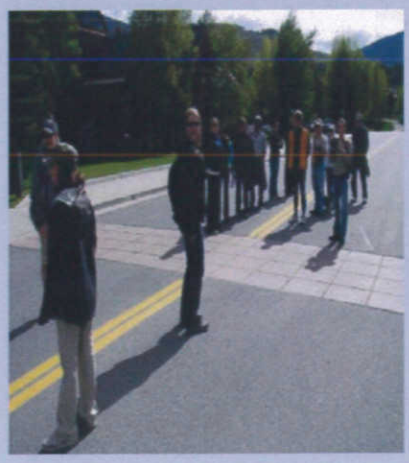
A recent project built in the San Diego (Bird Rock) area took 5 lanes to 2, moves 23,000 cars and trucks per day, getting people to their destinations in less time than with signals, and with a 90% improvement in safety. A similar project in Hamburg, New York, altered three key streets and provided the same level of achievements as Bird Rock. In order to design and gain stakeholder backing for a street remake it will be necessary to conduct a public charrette.

Example of a former 4-lane road, placed on a road diet by adding on-street parking, bike lanes, one travel lane in each direction and a raised median. This style of roadway design (boulevard) is 30-50% safer than SR 9 and US 6 today. An engineering analysis and public charrette would be applied to confirm the ability for converting Summit County roadways to a higher urban form and performance. With the aid of roundabouts, it is possible to move 30% more traffic at lower speeds, with reduced noise and delay compared to the performance of existing roads today. *(Kirkland, Washington, 17,000 ADT)*

Recommendations for: Silverthorne

Silverthorne's walking audit was held in and around the town hall, along the Blue River Trail, crossing SR 9 on E. 6th Street, along SR 9 to the south, then into both portions of the western and eastern side shopping districts. The walk also took participants down to the tunnel under SR 9, exploring nearby intersections. During the walk the following general and specific recommendations emerged:

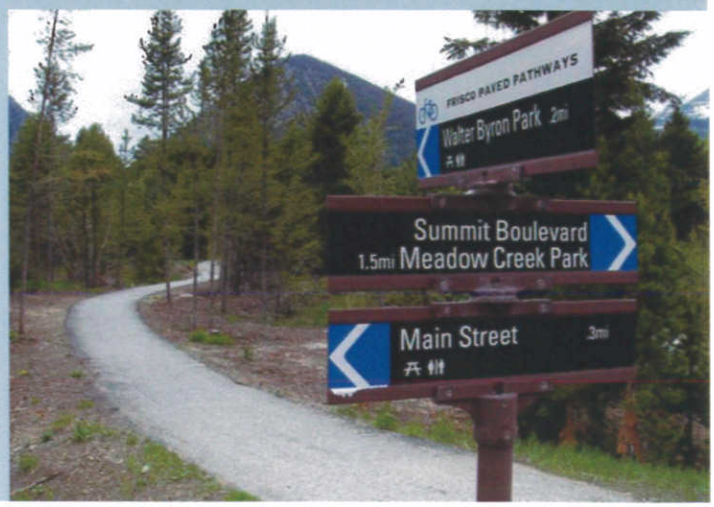
- A median crossing of E. 6th Street is appropriate for the Blue River Trail.
- The intersection of E. 6th Street at SR 9 is overly wide and fast. This intersection could be analyzed to determine if a roundabout would be appropriate at this location. A roundabout at this location could serve as a gateway feature. (See section, "Roundabouts.")
- Consider adding colorized bike lanes along SR 9 throughout the community to create an edge buffer and provide additional support for bicycling. (See appendix section, "Reasons for Bike Lanes and Highway Shoulders.")
- Near transit stations, consider adding colorized bike lanes to reduce the visual width of the road and create breaks in medians to enhance safety for pedestrians crossing the road. (See appendix section, "Reasons for Bike Lanes and Highway Shoulders.") Include sidewalks to allow people to get to transit without walking in the road. Add a triple canopy of trees in and around the area to define the space as low-speed travel, transit and walking.
- Consider applying village-creating principles in the area of the transit station at E. 4th Street to make it a town center connected to the town hall and post office. (See section, "Street Connectivity and Village Development.")
- Leaving town hall and coming to E. 6th Street, a median crossing would be appropriate.
- A frontage road on each side of the commercial district, with front-in angled or back-in angled parking, could set a better stage for an urban fabric to develop in town. Today the corridor lacks a coherent, meaningful sense of place; buildings sit too far back from the street to create an urban pedestrian friendly shopping district. (See appendix section, "Codes to Create Traditional Walkable Communities.")
- Throughout the community, but especially in the commercial district, buildings should address the street with their "A" sides facing the principal streets. (See section, "Converting 'B' Streets to 'A' Streets.")
- Silverthorne needs to detach itself from the suburban form that currently downgrades it from competing mountain resort towns.
- A frontage road could increase on-street parking opportunities within the commercial district by 60 to 110%. Since off-street parking takes three times as much land as on-street parking, this could substantially reduce land consumption, and improve overall attractiveness and land value.
- Off-street parking should be phased out over time. As part of this process, Silverthorne should look at shifting from a "minimum parking required" code standard to a "maximum parking allowed." As part of this process, significant new parking should be provided on-street.
- Discussions were held on the need to formalize a gateway entry feature into Silverthorne.
- The park entry on SR9 north of the Silverthorne Pavilion to the downtown has very low utility with its present design. The park could be redesigned to become a community asset and therefore the gateway to downtown, making this area of downtown much livelier and interesting.
- As time and opportunity allows, convert the strip centers on each side of SR 9 into attractive mixed-use villages, including new streets, park space, mixed uses, housing and other features of a village. (See sections, "Street Connectivity and Village Development" and "Converting Suburban Strips to Mixed-Use Villages.")
- Wayfinding and related navigational support should be added throughout the community.
- Discussions were held on how to best adapt the outlets stores at Silverthorne mall into a true town center. Concentrating growth in this area will help further energize it as a town center, while reducing the need to drive to supporting services. This will require a master plan approach. (See section, "Converting Suburban Strips to Mixed-Use Villages.")



Recommendations for: Frisco

Two areas in Frisco were audited: Main Street and the length of SR 9 near the freeway. During the walk the following general and specific recommendations emerged:

- Discussions were held on the need to formalize a gateway entry to the Main Street area. At Main Street and SR 9, a roundabout would be an effective strategy.
- The park near the intersection of SR 9 and Main Street is underutilized and has very low utility with its present design. This could be worked into the gateway entry, making this area of downtown much more active and interesting.
- In the Main Street area, travel lanes are much wider than needed. Side streets can be narrowed through the use of wider curb extensions. Parking could be increased by up to 40% by adding back-in angled parking. This also would allow the addition of bike lanes. (See appendix section, "Reasons for Bike Lanes and Highway Shoulders.")
- Off-street parking should be phased out over time. As part of this process, Frisco should look at shifting from a "minimum parking required" to a "maximum parking allowed" code. As part of this process significant new parking should be provided on-street.
- Bike lanes can be added to SR 9 to reduce its visual width, create an edge buffer, and provide additional support of bicycling. (See appendix section, "Reasons for Bike Lanes and Highway Shoulders.")
- As time and opportunity allow, convert the strip centers on each side of SR 9 into attractive villages, including new streets, park space, mixed use housing and other features of a village. (See section, "Converting Suburban Strips to Mixed-Use Villages.")
- From I-70 along SR 9 past Frisco's Main Street area, frontage roads would be a recommended strategy. A boulevard of four lanes with a median could create a gateway into Frisco and a prominent address for a new orientation of the buildings through the current strip center. It is recommended to add a great canopy of trees in the median and on both sides of the road, and to add bike lanes on both sides of the road. (See section, "Converting Suburban Strips to Mixed-Use Villages" and "Reasons for Bike Lanes and Highway Shoulders.")
- Wayfinding and related navigational should be added throughout the community.
- Discussions were held on how to best adapt the large civic and agency commercial park into a village. Concentrating growth in this area will help further energize it as a town center, while reducing the need to drive to supporting services. This will require a master plan approach. (See section, "Converting Suburban Strips to Mixed-Use Villages.")



Recommendations for: Dillon

Central downtown and the waterfront areas of Dillon were the focus of the walk. This area can be made more appealing and prosperous through a focus on the following locations and principles:

- Due to its unique setting above the lake, Dillon has the potential to be of equal quality and provide comparable aesthetic drama as Lake Louise in Alberta, Canada, with a focus on public art, gardens, fine landscaping and open space.
- Future infill, restoration and converted building projects should be arranged in patterns to better watch over the waterfront and key walking corridors. (See section, "Converting 'B' Streets to 'A' Streets.")
- Dillon's work to include public art should be continued, as it helps create a sense of place and highlight the community's identity. Public art also helps fuel revitalization. A good reference is Grand Junction, Colorado.
- Single use (residential) buildings facing the lake should become mixed use, greatly increasing the number of reasons and rewards offered to those choosing to walk along the waterfront.
- Additional lake front parking, once removed from open lots, can be arranged on the street in a charming, well landscaped set of inset parking spaces.
- Waterfront buildings should be rebuilt to create a strong, compelling sense of public space.
- Masses of parking in the waterfront area should be moved to other locations, allowing a park and public realm atmosphere to emerge.
- Parking on the main entry road should remain, but be significantly screened through use of tree wells that feature vertical walls of trees and appropriate ground cover.
- Temporary placement of attractive, seasonal, movable planters in these locations can bring about a sense of place.
- Placement of several new flanking buildings along the entry corridor will help create an identity and sense of place.
- Added street connectivity is needed. A master plan to illustrate future developments will help guide and inform decision making for the next 20 years. (See section, "Street Connectivity and Village Development.")
- The waterfront should still feature easy access to the lake. Land use policy should be revised, especially to set the stage for a mix of compatible uses to emerge. (See section, "Codes to Create Traditional Walkable Communities.")
- Use of mini-circles, roundabouts and other traffic calming measures should be employed to provide easier, lower speed turns, and to form attractive focal points.
- Use of attractive design features such as paseos or other passageways, as well as courts, can complement new village style buildings, and add to walking and connectivity.
- Significant added building density in the core can help enliven the downtown and add to the number and diversity of people spending time in public spaces.

Recommendations for: Breckenridge

The audit started at Breckenridge's Town Hall, and traveled along the back parking lots behind Main St., to Main St and down Lincoln St. We walked the corner of Lincoln and Ridge St and then down Ridge St., turned on Washington and went back to Town Hall. Rain required the remainder of the audit to be done by car: the open plot next to the elementary school on Airport Rd., then up to County Road 430. We then drove to the southern end of Breckenridge and audited the Warrior's Mark section. During the walk the following general and specific recommendations emerged:

- Breckenridge should be congratulated for using many of the newest tools and enhancements available to improve the community. Residents and leaders should continue looking for ways to make their town an even better place, such as the recommendations below, which can be extended to every town audited in Summit Co.
- Washington St. is one of only a few one-way streets in Breckenridge. One-way streets generally aren't advisable, but to make them safe for pedestrians and more conducive to livability, the openings of all one-way streets should be reduced to 14 feet wide and trees and ground cover should be added to curb extensions to create further visual tightening. (See section, "Complete Streets and Road Diets.")
- On Main Street, consider a colorized center lane through town to reduce the road's visual width and improve traffic operations. An example of where this is done well is Manitou Springs.
- Provide on-street parking on all streets, using care to remove as much off-street parking as possible. Screen remaining off-street parking lots.
- Wherever sufficient road width exists, consider adding back-in angled parking to reduce travel widths and maximize parking availability.
- Near the gondola entrance to Main Street, create a well-defined village feature that draws people into it and directs them to the lane leading to downtown. It could be something as simple as a series of very attractive buildings or a cluster of small shops that serve as a focal point as people exit the gondola . This might require an urban design study. (See sections, "Street Connectivity and Village Development" and "Codes to Create Traditional Walkable Communities.")
- Avoid the urge to create pedestrian-only zones along primary shopping streets, but consider the value of side streets that are pedestrian only, with designated times for deliveries by vehicles.
- At the corner of Ridge St. and Main Street, build a small, identifiable, mixed-use development to anchor the corner and identify it as an emerging shopping/ retail district.
- The new Colorado Mountain College campus area holds great promise as a mixed use area with residential, retail and urban services uses. Create strong connections from one use to another, and add trails to the greater community.
- The area of CR 430 to Wellington should be studied for significant traffic calming, possibly to include curb extensions and medians to hold speeds lower than present. (See sections, "Complete Streets and Road Diets" and "Road Diets.")
- Street connectivity should be continued into all neighborhoods, such as Warrior's Mark.
- Provide setbacks on all commercial districts to allow for sidewalks; these act as a buffer to moving cars and create enclosure for pedestrians.
- Continue the process of identifying mid-block crossing points, using curb extensions or medians as appropriate to modify driving behavior.
- When streets are reconstructed add valley gutters, and well-landscaped inset parking (on-street).
- Expand the wayfinding and navigation system to make all foot travel comfortable and easy.
- Transform alleys into "place" by emphasizing the use of new buildings (in open lots), trees, create focal points, provide street furniture.
- Study the installation of a roundabout at the top end of S. Main Street (at S. Park Avenue junction). (See section, "Roundabouts.")
- Add additional curb extensions to create inset parking (on-street parallel) on Main Street, as well as other appropriate side streets and parallel streets.
- Provide a "climbing lane" on Ski Hill Road.

Recommendations for: Summit County

The audit of Summit Count included Dillon Valley Elementary School, the US 6 corridor at Razor Drive in Keystone, Summit Cove Drive, Summit Cove Elementary School, Swan Mountain Road (including a stop at Sapphire Point), Farmers Corner at the corner of Swan Mountain Road and SR 9, Summit County High School and County Commons. During the walk the following general and specific recommendations emerged:

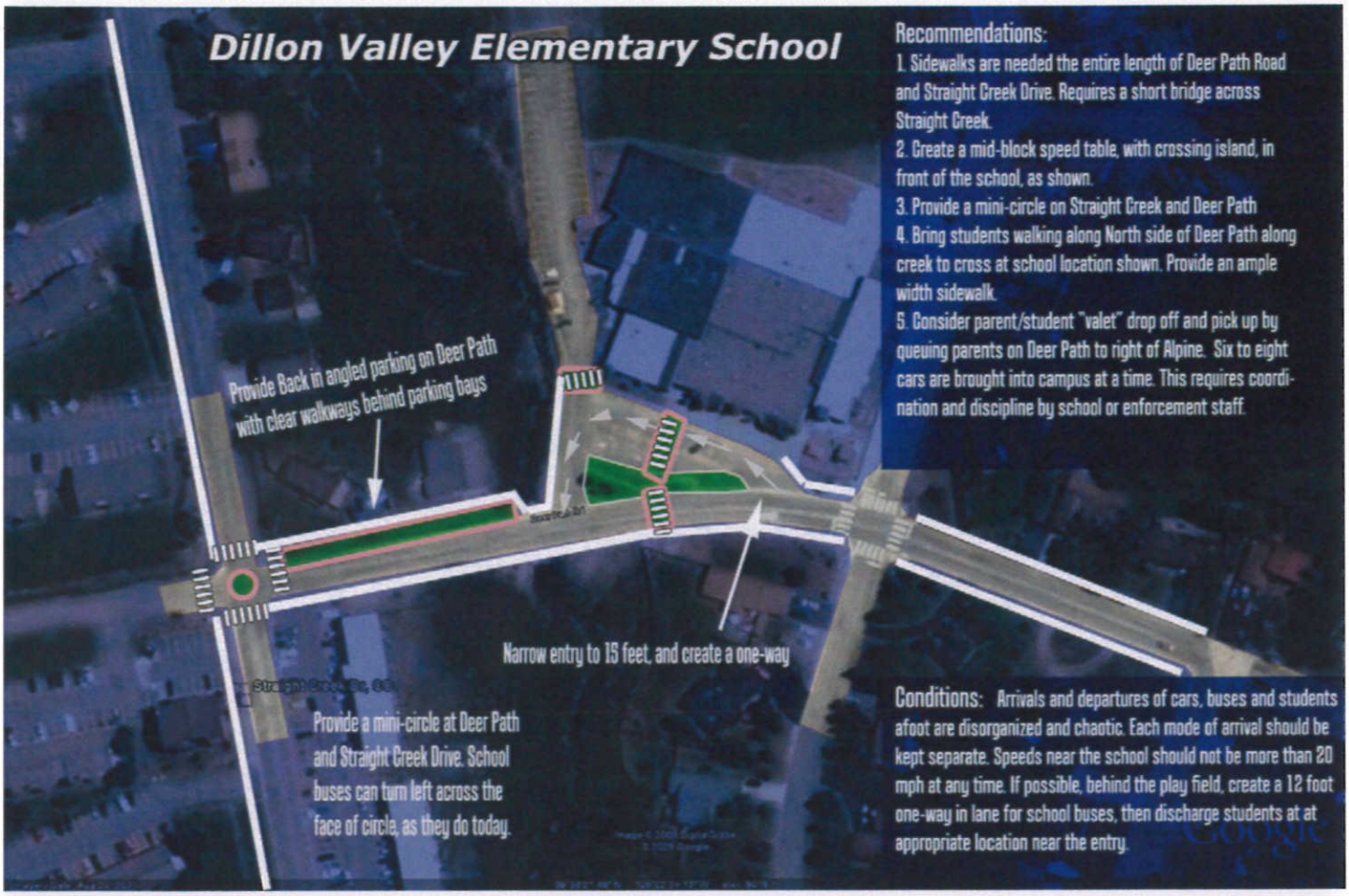
- Over time, the County Commons area should be well connected and have proper building orientations to maximize people walking from building to building without needing to get into cars. (See sections, "Converting 'B' Streets to 'A' Streets" and "Street Connectivity and Village Development.")
- At County Commons, a parking structure should be planned to minimize conflict with the community master plan. It should be planned like a campus, with parking moved toward the outside of the campus where it does the least harm and allows people to walk within the campus. Create a master plan to ensure future development is consistent with walkability. (See section, "Street Connectivity and Village Development.") The campus should be built long-term to be cohesive, compact and coordinated.
- All traffic signals should be studied to create increased walkability and reduce traffic speeds. When practical, signals should be replaced with roundabouts to further reduce speeds, reduce speeding and increase pedestrian safety. (See section, "Roundabouts.")
- Improve school walkability by completing missing sidewalks, especially within the final ¼- mile of the journey-to-school from all directions near Dillon Valley Elementary, Summit Cove Elementary, Summit County High School at Farmers Corner. Prioritize these sidewalks and crossings by first connecting the areas that have the greatest numbers of homes with school-aged children.
- Separate modes of arrival (school buses and parent drop-off) from pedestrian arrivals and departures.
- Place mid-block crossing islands and chicanes near schools and at important crossings to slow traffic to 15-20 mph 24 hours per day and to make crossings easy for all ages.
- Eliminate R-T-O-R (Right Turn on Red) at schools.
- Mini-circles can be installed around some school areas. Mini-circles are attractive, move traffic quietly, with no impact on drainage.

(contiuned)

Recommendations for: Summit County

- US 6 in the Keystone commercial area should be reduced to one lane in each direction, allowing improved pedestrian access across the roadway.
- Study the potential for a gateway roundabout in the commercial Keystone area, with the use of modern roundabout, traffic will move with less delay, use fewer lanes and reach destinations with greater safety.
- If needed, internal access can be created and managed using a frontage road system. The frontage road can provide back-in parking, which is safer and more convenient than any other form of parking.
- Model the SR 9 and Swan Mountain intersection near Farmers Corner for a two-lane roundabout. Short term, provide this intersection with new geometric and operations designs that include urban pork chop islands to support students walking to and from the school (see section on recommended treatments)
- Reduce motorist threats to pedestrians by providing "pedestrian lead intervals" (PLI) for all phases of pedestrian crossings, and provide Right Turns On Red.
- Use curb extensions extensively near intersections that are overly wide.
- Build improved shoulders on Swan Mountain Road, and especially consider adding a colorized "climbing lane" for steep (3+ percent) uphill portions of the Summit County bicycle system. Do not trap bicyclists in downhill bike lanes, unless they are very well maintained and wide.
- Provide attractive, functional bike racks in all important destinations, especially employers with 20 or more staff, entertainment, civic destinations and bus stops.
- Bike storage can also include indoor parking, especially for employers with over 20 employees.
- Locate bike parking where there are many "eyes" on parking. Cost range ($500-$5,000 per station).
- Provide additional attractive seating throughout each town center.
- Highest priority sidewalks should include filling gaps along principal roadways (arterials and collectors) and especially SR 9 and US 6.
- Oversized roads and lane widths are a problem in a number of locations in Summit County. On most principal streets, motorists only require two ten or eleven foot lanes, with an occasional third lane near key intersections.
- Freeway area roads have speeds much higher than are friendly for walking and bicycling.
- Use bike lanes, frontage roads and other visual techniques, as well as actual narrowings of through lanes to bring speeds back toward urban levels.
- Look for early opportunities to complete other missing street connections.
- Modify codes to provide higher street connectivity, appropriately scaled blocks and frontage.
- Modify codes to provide "eyes" on the street, where the "A" side of a property faces the principle use (street, road, park, school). The "A" side has the primary entrance and maximizes pedestrian activity.

Dillon Valley Elementary School

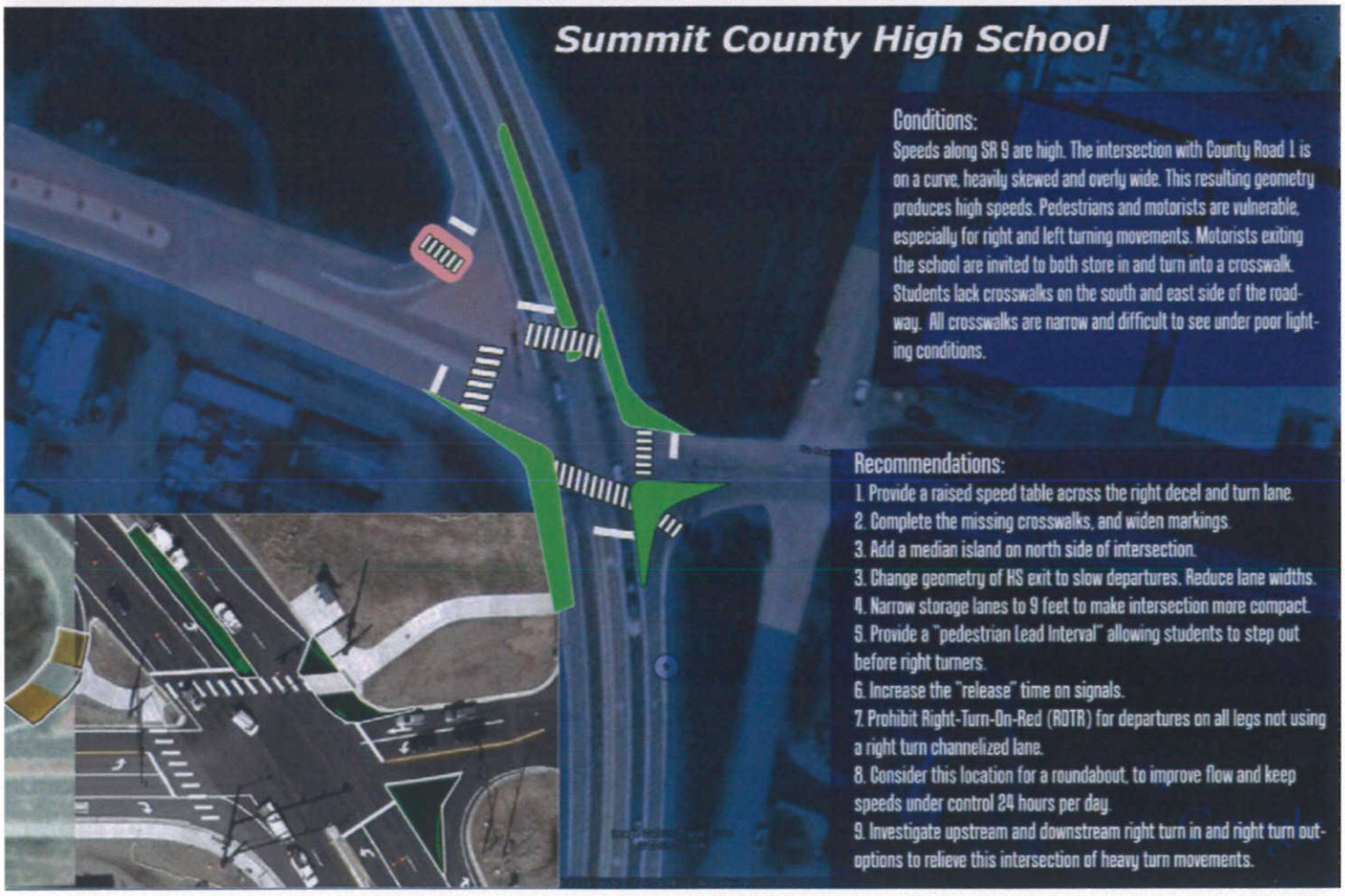


Recommendations:

1. Sidewalks are needed the entire length of Deer Path Road and Straight Creek Drive. Requires a short bridge across Straight Creek.
2. Create a mid-block speed table, with crossing island, in front of the school, as shown.
3. Provide a mini-circle on Straight Creek and Deer Path
4. Bring students walking along North side of Deer Path along creek to cross at school location shown. Provide an ample width sidewalk.
5. Consider parent/student "valet" drop off and pick up by queuing parents on Deer Path to right of Alpine. Six to eight cars are brought into campus at a time. This requires coordination and discipline by school or enforcement staff.

Conditions: Arrivals and departures of cars, buses and students afoot are disorganized and chaotic. Each mode of arrival should be kept separate. Speeds near the school should not be more than 20 mph at any time. If possible, behind the play field, create a 12 foot one-way in lane for school buses, then discharge students at at appropriate location near the entry.

Summit County High School



Conditions:

Speeds along SR 9 are high. The intersection with County Road 1 is on a curve, heavily skewed and overly wide. This resulting geometry produces high speeds. Pedestrians and motorists are vulnerable, especially for right and left turning movements. Motorists exiting the school are invited to both store in and turn into a crosswalk. Students lack crosswalks on the south and east side of the roadway. All crosswalks are narrow and difficult to see under poor lighting conditions.

Recommendations:

1. Provide a raised speed table across the right decel and turn lane.
2. Complete the missing crosswalks, and widen markings.
3. Add a median island on north side of intersection.
3. Change geometry of HS exit to slow departures. Reduce lane widths.
4. Narrow storage lanes to 9 feet to make intersection more compact.
5. Provide a "pedestrian lead interval" allowing students to step out before right turners.
6. Increase the "release" time on signals.
7. Prohibit Right-Turn-On-Red (ROTR) for departures on all legs not using a right turn channelized lane.
8. Consider this location for a roundabout, to improve flow and keep speeds under control 24 hours per day.
9. Investigate upstream and downstream right turn in and right turn out-options to relieve this intersection of heavy turn movements.

Complete Streets and Road Diets

A number of other opportunities can be applied with little funding. Summit County should provide a number of tools leading to reduced speeds on major streets.

- Major streets with moderate to high volumes of traffic should be transformed into "Complete Streets." Bike lanes, trails, sidewalks, streetscaping, curb extensions, mid-block crossings and other tools are applied.
- Traffic calming and traffic management techniques should be used. On-street parking can be striped, curb extensions, tree wells and medians can be added. Such improvements not only bring down speeds, they improve town centers and connect streets by reducing noise and perceived danger.
- Most principal streets should have lanes narrower than today, especially when combined with bike lanes. Bike lanes add a buffer to parking and sidewalks. There are 22 benefits when bike lanes (or paved shoulders) are added (see Appendix).
- Sidewalk construction and maintenance should be greatly improved, especially within 1/4 to 1/2 mile of town centers and schools.
- ADA ramps (Universal Design) need attention in many locations.

Above and below: Example of a two lane road with a median, inset parking, one ten foot wide lane in each direction and bike lanes. A roadway based on these concepts can move up to 20,000 ADT (if used with roundabouts at key intersections). If round-abouts are not used, more lanes are added at intersections for storage and turns at key intersections -- not the entire section.

(Photo: Issaquah Highlands, Issaquah, Washington)

COMPLETE STREETS

Before

After

Physical form to support walking is found everywhere in a street environment. Top left, a 30 foot wide street creates high speeds and dangerous crossings. Top right, the same road narrowed to two 10 foot lanes, plus a bike lane and curb extensions, produces lower speeds and safer crossings.

Center photos: Left: a wide (55 feet) high speed driveway entry and very wide crossing for pedestrians. Right: a 14 foot driveway crossing. Lower panels illustrate the importance of combining parking lots, and of keeping corner turning radii compact to minimize exposure and speed to pedestrians.

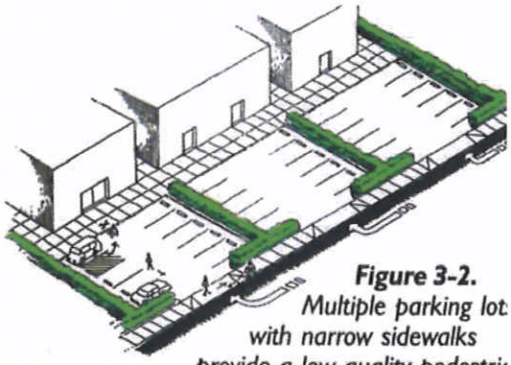


Figure 3-2. Multiple parking lot with narrow sidewalks provide a low quality pedestric experience and increase the number of potentic

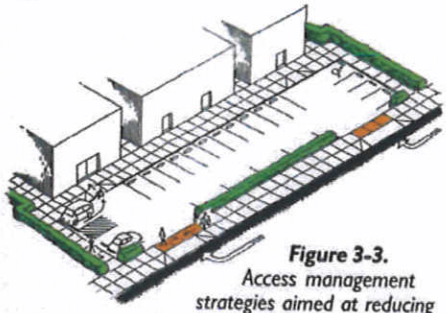
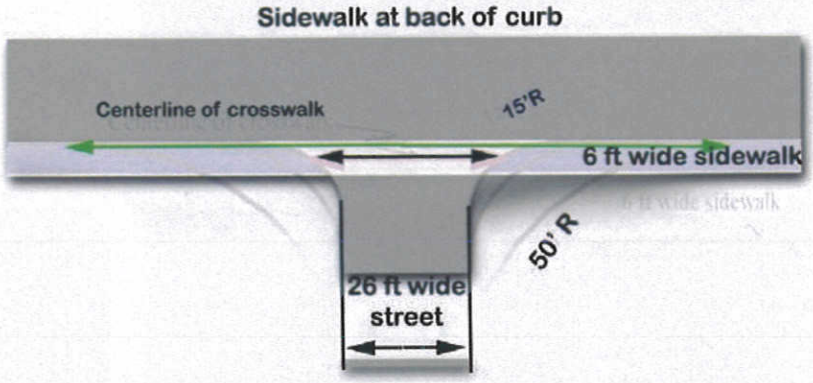
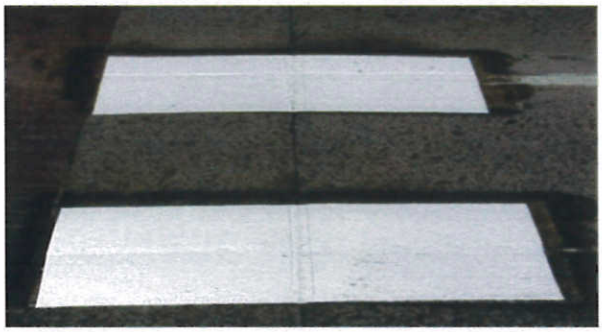


Figure 3-3. Access management strategies aimed at reducing the number of driveway crossings and increasing the width of the sidewalk corridor significantly improve the pedestrian experience.

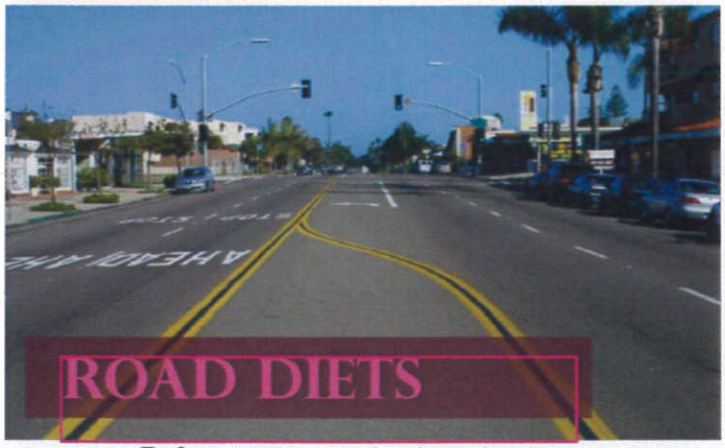
Effect of Corner Turning Radii on Pedestrian Crossing Distances



Radius	Crossing Distance	Increased Crossing	Percent Increase
15'	37'	+11'	42%
25'	50'	+24'	92%
50'	89'	+63'	203%



Additional tools can be used to aid pedestrians in crossing streets safely. Curb extensions reduce crossing distances. Landscaping helps channel pedestrians to ramps. Using two ramps per corner simplifies crossings. Color contrast is an aid for older pedestrians and pedestrians with visual problems. Count down timers are now recommended as a soft replacement for all urban area signalized crossings.



Before 78 foot crossing for pedestrians

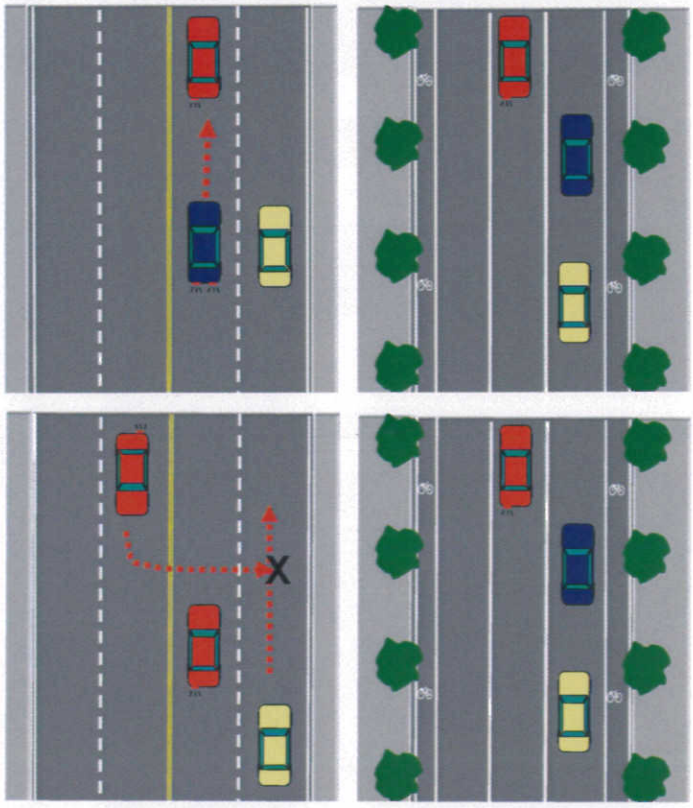
After 14 foot crossings for pedestrians

Road Diets. Any time a roadway is widened to more lanes than needed, safety and operational problems are created. In many cases, it becomes necessary to add costly signals. The consequence is that pedestrians have greater difficulty getting across widened streets, motorists are exposed to additional crashes and crash types, speeding increases and turns become more difficult.

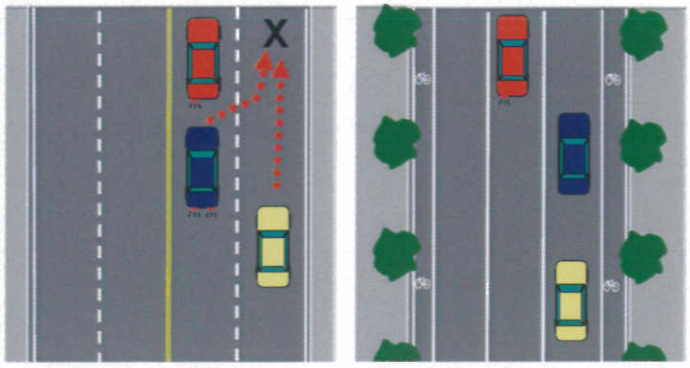
The panel of images on the top are of a road diet from five lanes to two lanes. The roadway is LaJolla Boulevard in San Diego, California. Commercial businesses were suffering and speeding was common. Following the lane reductions, signals could be taken out. The 23,000 vehicles per day move slower, but without stopping, they get home sooner and much more safely. Just as important, today there are many hundreds of pedestrians and bicyclists coming to the commercial center. Business has improved and new stores and shops are joining the street.

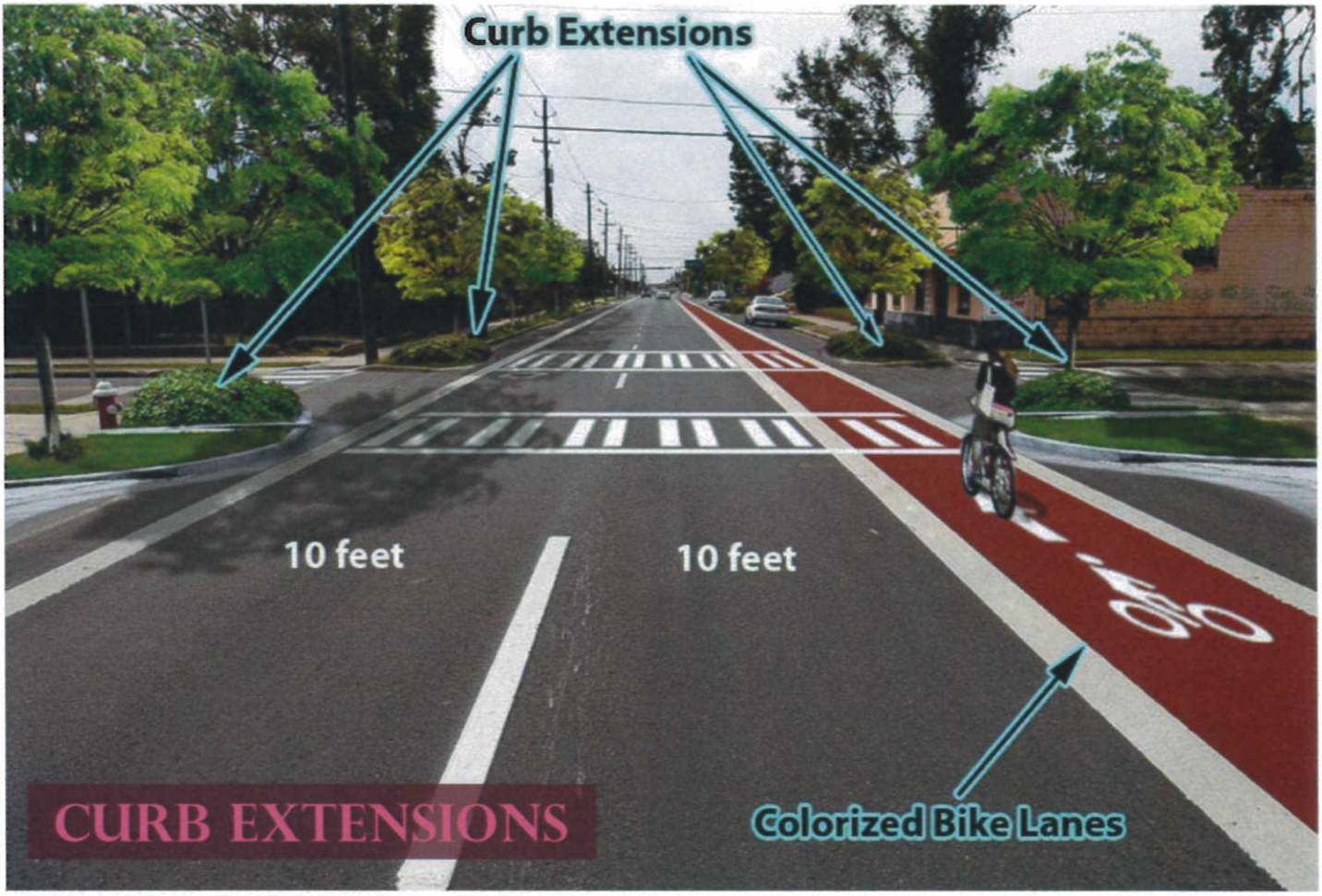
The most common road diet is the popular 4-3 (plus bike lane) conversion. Seattle, Washington, has now performed 23 road diets. In all cases, the same traffic is served. Crashes are reduced from 20 to 60%. On average, the success of retailers improves from 20 to 30%. Shop owners report people now feel more comfortable getting into and out of parking spaces and appreciate the quieter, more pleasant environment.
Below: Data from Seattle, Washington road diets.

Roadway Location	Date Change	ADT Before	ADT After	Collision Reduction
Greenwood Ave N N 80th St to N 50th	Apr-95	11872	12427	24 to 10 58%
N 45th Street Wallingford Area	Dec-72	19421	20274	45 to 23 49%
8th Ave NW Ballard Area	Jan-94	10549	11858	18 to 7 61%
Martin Luther King Jr W North of I 90	Jan-94	12336	13161	15 to 6 60%
Dexter Ave N Queen Ann Area	Jun-91	13606	14949	19 to 16 59%
24th Ave NW NW 85th to NW 65th	Oct-95	9727	9754	14 to 10 28%



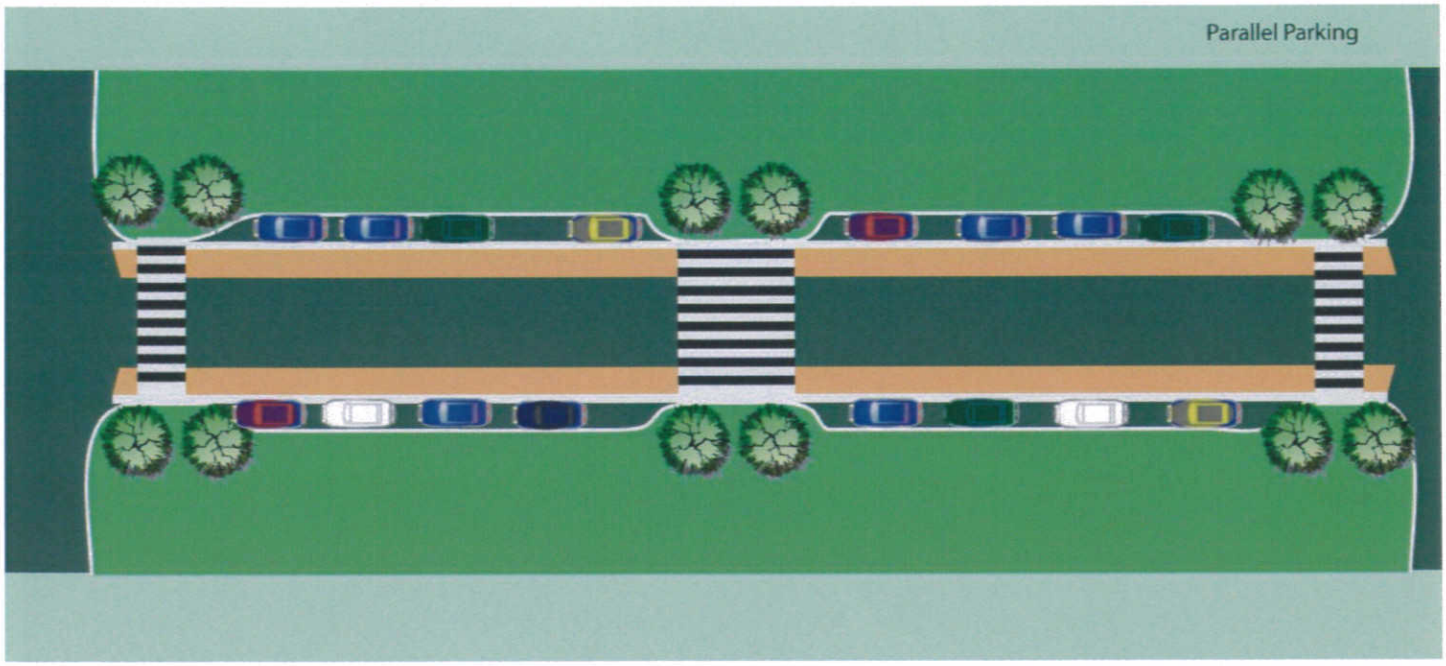
Safety. *Four lane sections do not provide motorists safe places to make either right or left hand turns. Driveway and side street entries are dangerous. By taking away two through lanes, then adding back a third lane (turn lane) and bike lanes motorists are able to get out of harm's way. Turning cars are stored in left turn lanes and drivers know that the vehicle they see ahead is the only vehicle. With four lanes, a multiple threat crash is created where the near car screens the hidden car.*





Curb Extensions, like the large photo shown above in Fairhope, Alabama, will help transform Summit County to a more attractive, natural, functional and prosperous town and county center. Curb extensions are designed to capture all space not used by autos. In Arcada the spaces where curb extensions will be applied are already painted out in yellow no parking zones. By adding curb extensions, Summit County will turn these vital spaces into civic and retail uses.

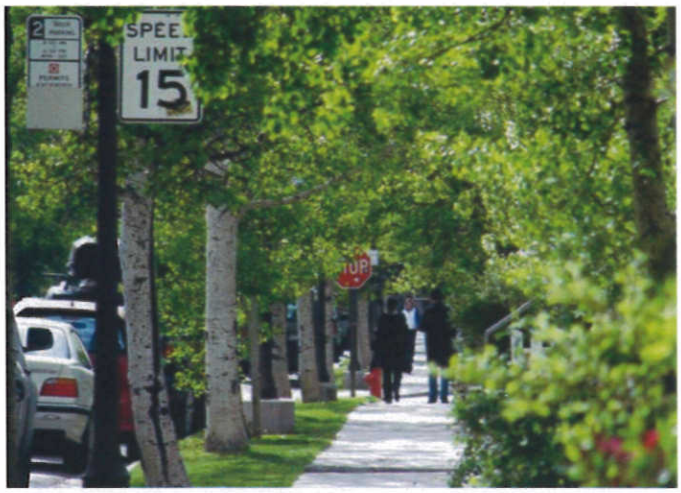
Left panel: All work perfomed in transforming the town and county center should be performed in a way that it least disrupts local businesses. Winter Park, and Sanford, Colorado replaced sewers, water lines and other infrastructure as part of its reconstruction. Streets were worked on at night, then covered during the day to maximize retail success.



Complete Streets vary in design based on the type of street involved, speed and volume, block form, whether parking is needed or not, climate, demographics and other factors. These sections illustrate a number of desired features, including support for walking and bicycling along streets, and the ability to cross over. Trees are generally spaced every 15 to 30 feet.

Minimum dimensions for an evironmentally friendly street are provided in the bottom illustration. A center turn storage lane of ten feet, two travel lanes of ten feet each, two five foot bike lanes (using an extended gutter pan that is saw cut for joints), two bays of parallel parking (7'), two planting strips (5') and two sidewalks of at least five feet each can fit inside a right-of-way under 70'.

Roadways of the future must create attractive "addresses," provide a social environment and sustainable transportation, while continuing to move traffic safely and at reasonable speeds. Stakeholders should look at alternatives that work for everyone. Future roadways must "invite" buildings to form a strong edge, and canopies of trees that complete vertical urban walls.

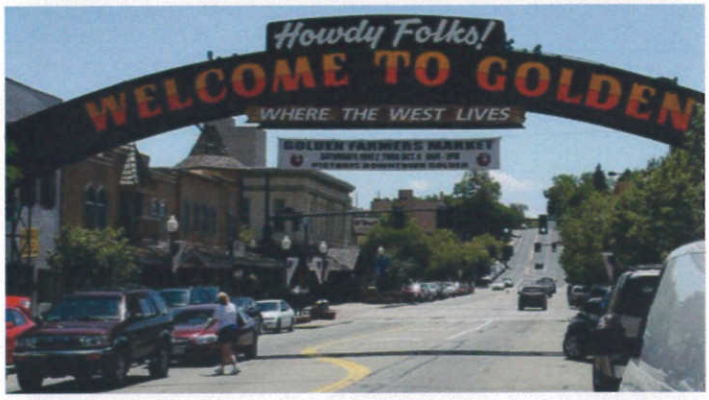


GREENING THE STREET

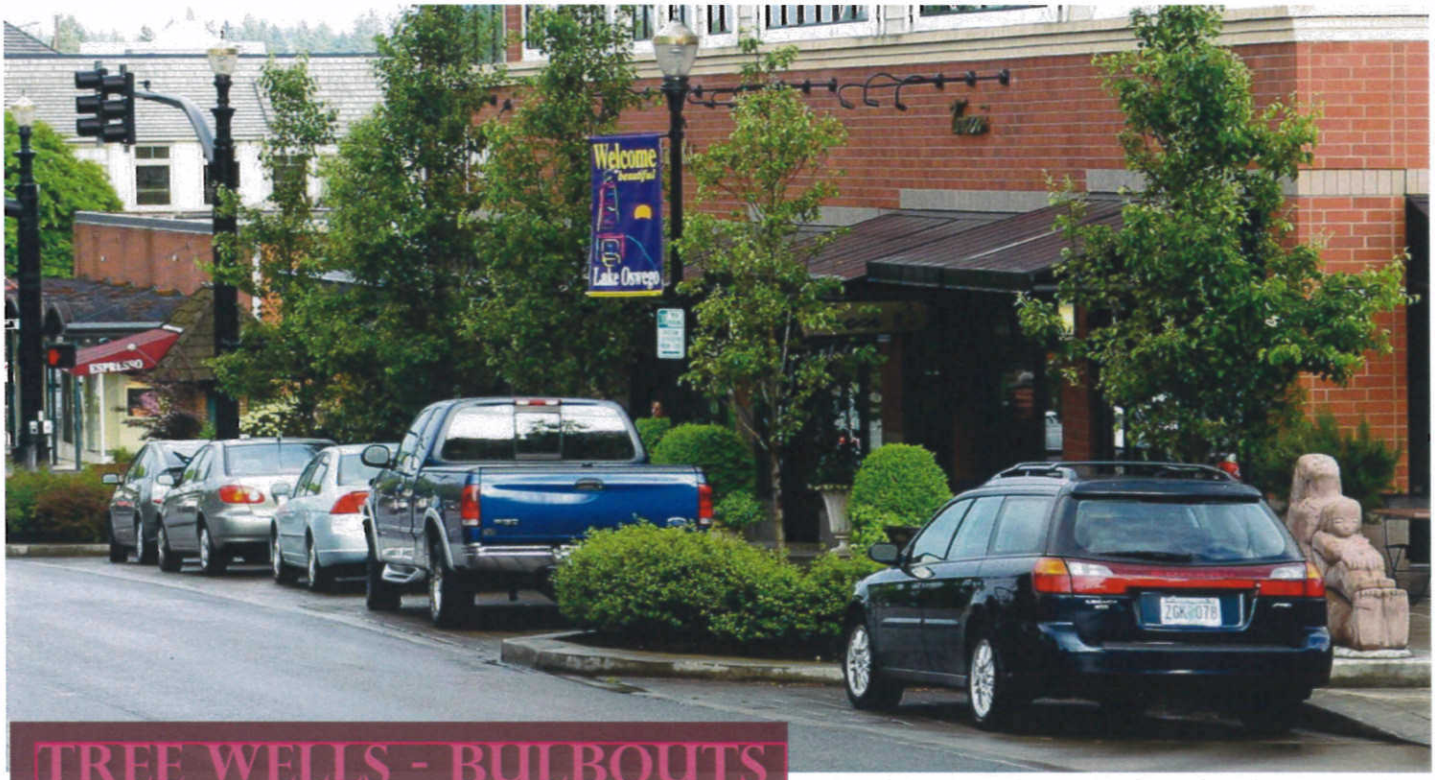
Above and right panels: Over time, Summit County strip centers, and downtowns, like Dillon, can be converted to lower speed streets that move traffic through improved intersection designs and higher street connectivity. This calls for master plans for each center. A significant investment in more compact, people friendly intersections, on-street parking, landscape materials and street furniture can pay handsome returns over time, both in retail sales inside area stores, and in overall increases in lodging, food and related tourist trade.

Frisco (above), Silverthorne (right panel) and Dillon (below) each have weak or discouraging entries into their town centers. Even the recently built Breckenridge roundabout appears to be more of a storehouse for signs and guard rail than a welcoming entry. Although all Summit County towns are somewhat at the mercy of the CDOT, there are plenty of good examples of where great architecture and street making can be complementary, inviting and encouraging.

Gateways into towns, especially near freeway exits, need to be compelling. Shown below are several gateways or gateway features that draw motorists, bicyclists and other tourists and business investors into a community. Roadway engineers generally lack the skills and sense of aesthetics to appeal to the human heart. Architects and landscape architects often hit the right balance between a "forgiving" roadway design, and an appealing sense of arrival.



GATEWAYS (WELCOME)



TREE WELLS - BULBOUTS

In some areas of Summit County, the building-to-building right-of-way is too tight to plant trees in sidewalk areas. Use of in-street tree wells can allow the street to be "greened" and often without removal of parking. Tree wells can either be installed to allow water to flow naturally in existing channels, or, if a complete reconstruction is needed, to insert drainage in a pattern that supports these green innovations. Tree wells are used on many local streets along with curb extensions. A number of state roads now use tree wells routinely in urban areas. Use of tree wells and curb extensions, in combination, help bring speeds to more appropriate urban levels.

ROUNDABOUTS

Above: Brighton, Michigan's roundabout handles 21,000 vehicles per day. Placement of roundabouts facilitates through-traffic and turning movements without requiring signal control. Roundabouts are made up of a circulating roadway with an island that is often used for landscaping or other decorative features. The circulating roadway is typically wider than the approach roadways and features an additional 'apron' against the edges of the island; both of these features allow for operating contingencies, especially with trucks, emergency response vehicles, and other large vehicles.

Roundabouts have been demonstrated to increase intersection volume by up to 30 percent. As the only requirement for yielding the right-of-way is to traffic already in the circulating roadway, vehicles can continue moving through intersections carrying a light volume, requiring no queue at the approach roadways and potentially allowing all intersecting streets to use the intersection at once. Due to their low speed (15-20 mph in and out on each leg), roundabouts also drop personal injury crashes by 80-90%. Roundabouts reduce delay to all types of movement, which reduces idling engines, air pollution, noise and lost time.

Roundabouts provide safer and more comfortable pedestrian crossings. Splitter islands serve as a pedestrian refuge. Allowing one car length between the crossing and circulating lane(s) optimizes roundabout efficiency for vehicles. Roundabouts reduce conflicts in multiple ways; when crossing, pedestrians face only one potential conflict (traffic either entering or exiting the roundabout, divided by the splitter island), and not the six conflicts per crossing leg in full-crossing intersections. In properly designed roundabouts, all conflicts are at low speeds for both entering and exiting traffic (15-22 mph). Roundabouts also create the least delay to pedestrians wishing to cross a street. Instead of waiting for up to two minutes to cross (common with a signal), the pedestrian reaching a roundabout rarely has more than a 2-8 second delay for each leg that they cross. Most bicyclists circulate with traffic (since it is now going their speed).

Bradenton Beach, Florida, once exposed pedestrians to high speeds at this crossing. On average, one pedestrian was killed each year. Walking for exercise, pleasure or transportation was supressed. Following the construction of the roundabout, all crashes disappeared, and a new stage was set for mixed use development. After fourteen years of operation, there have been no reported crashes of any type. New economic life has set a mood of prosperity to the entire shopping district. Today, there is an abundance of pedestrian life.

By helping rescale a roadway, roundabouts help set the stage for more successful retail trade and social life. The roundabout below transformed an ugly strip street in Golden, Colorado, into a much better proportioned street. Four roundabouts were built; all signals were removed. One surprising result: retail trade in the corridor outperformed all other streets in the state of Colorado during the last recession.

Above: Example of attractive, gateway mini-circles. Top photo, Holland, Michigan. Bottom Photo, Orlando, Florida. Both mini-cirlces manage traffic quietly, maximize on street parking by bringing speeds down, and offer attractive corners in the commercial districts they occupy. A mini-circle or two on key streets on gateway approaches to town, in downtowns and other locations will add charm, beauty and movement.

Mini-circles are low cost and attractive traffic management tools that can be easily designed and installed. Although costs can be as low as $15-25k, much more attractive circles are recommended for a number of historic roads where speeds are too high. A cost range of $75-125k would be appropriate for central locations, while modest price circles can be used elsewhere in the community.

Mini-circles reduce the potential for crashes by 90%. Yield controls are used on all approaches. Seattle, Washington, has placed over 1000 mini-circles.

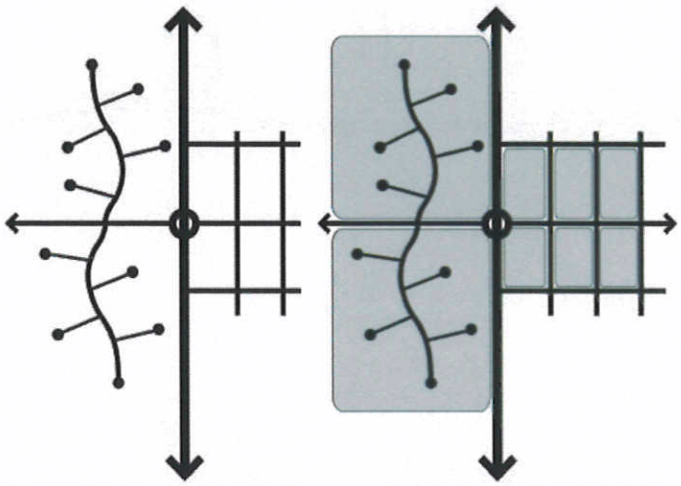
Street Connectivity and Village Development

The most feasible strategy to evolve a Town Center into a walkable place is to establish an interconnected network of streets that will create a fine grain series of developable blocks. This structure will support the most appropriate form, intensity, and character of new development and, over time, redevelopment with changing markets.

A network of connected streets will spread the traffic loads while providing pleasant accommodation of pedestrians and bicyclists. A network of streets provides multiple travel routes which, when implemented, will be far more resilient than dendritic models to incidents, emergencies, peak hour traffic loads, and maintenance needs, while increasing the safety for all transportation modes. In order for a Town Center to provide the most benefits to the City, its streets and paths should be extended into neighboring areas, as much as feasible.

When city streets are well connected, walking increases; when they are poorly connected, walking stumbles and falls. Both the form and the size of blocks determine walkability (see illustrations below).

Block Size **Block Form**



Broken or discontined street patterns force too much traffic into one place. Intersections become too large, and streets become hostile to pedestrian activity. If blocks become too long, speeds and traffic volumes also increase. Block sizes of 1200 to 1600 foot perimeters are best.

Shown in the upper right hand corner is an illustration (x-ray) of Barcelona, Spain, arguably one of the most walkable cities in the world. Note the older part of the city, a mish-mash of walking streets that originated more than 2000 years ago; then the more recent, gridded and diagonal corner clip pattern. Both the old and more modern are well connected and immensely walkable.

Note the patterns below. When blocks become too long it is impossible to get any place by foot that does not involve long walks. People become disconnected from friends, parks, schools, everything. This broken pattern forces trips to be made by auto.

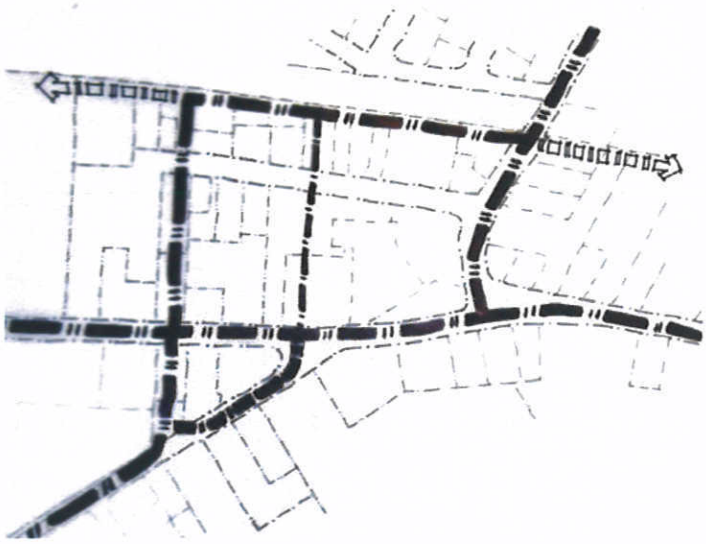
Street Connectivity and Village Development

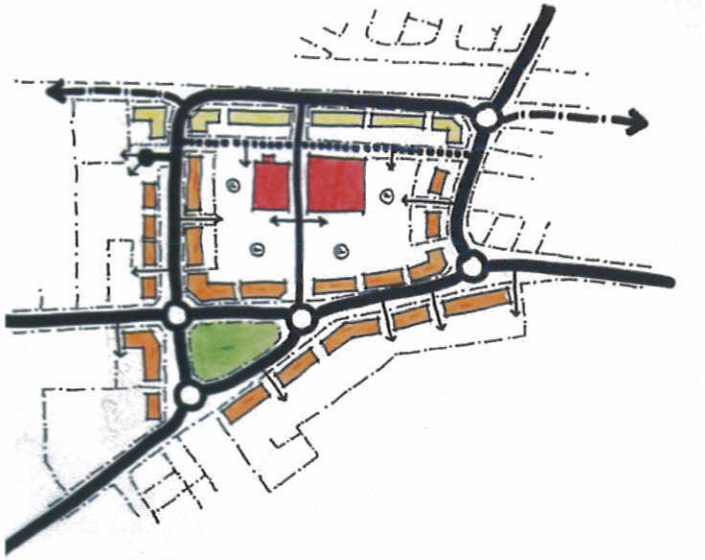
Traffic congestion can be relieved using techniques much smarter than adding more lanes. Note in the three illustrations to the right a progression of steps taken to move more traffic in a minimum number of lanes.

In the first illustration, the dog-leg street pattern, referred to as a confluence, forces traffic from four directions to share space along one street. This causes a traffic backup of one mile in each direction for hours each day.

In the second illustration the problem of congestion is resolved by adding in new streets through a strip center development. The confluence is removed, but traffic signals still keep traffic hostage to their inefficiencies.

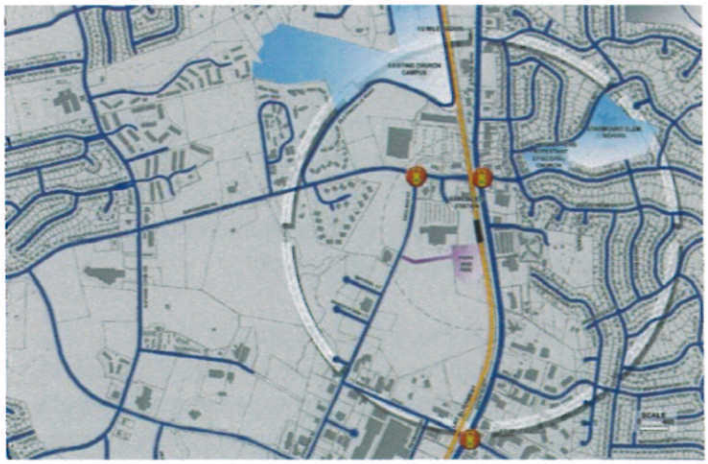
In the third Illustration all signals are removed and five roundabouts are installed. Each roundabout can handle up to 30% more traffic volume. The former strip now has significant new ability to provide unimpeded traffic flow and access. Most streets now become "A" streets, providing attractive walking, bicycling, driving and shopping experiences. The only "B" street is the thin line in the center ... a driving lane to access parking towards the center of the illustration.



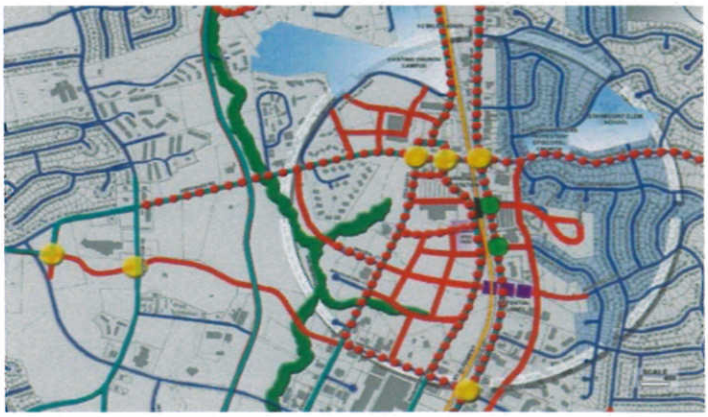


Street Connectivity and Village Development

A well designed Transit Oriented Development (TOD) style village can also relieve traffic for an existing neighborhood. In this Charlotte, N.C. neighborhood (first illustration) note that the block form is poorly connected. All traffic is forced down to three exits. This results in much of the traffic being forced into just two traffic signals. At some point, as further outer growth continues to occur, signals begin to fail for a number of hours each day.



The solution shown in the second illustration includes the creation of a new village that has significant added street connectivity. Since the rail line will now be used for transit, and it is undesirable to have too many at grade crossings, new connections were made with a tunnel crossing and only two new at grade crossings were planned. Thus, the traffic load was redistributed, with many people living in the neighborhood making better use of their internal streets.



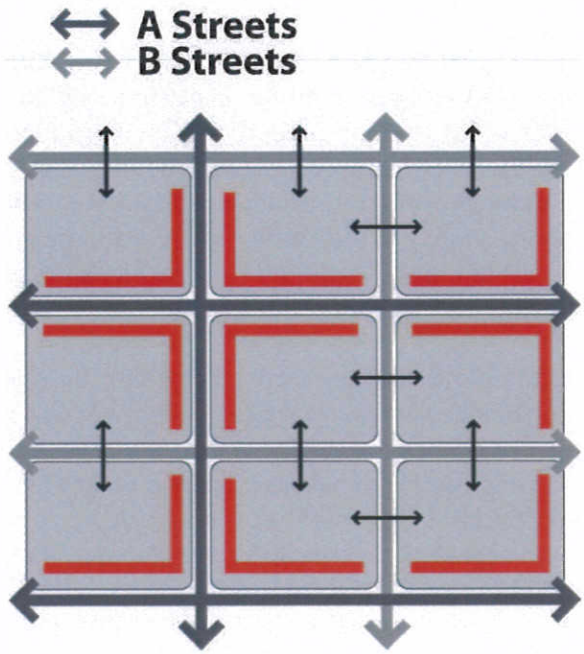
The resulting Transit Oriented Development (TOD) now provides many walk and bike-in service (entertainment, retail, services and civic buildings). Thus, pressure was taken off of the original two traffic-signal controlled intersections; trip lengths were shortened, and many people chose to either live in the new village, or simply walk or bike to these destinations.

Defining "A" and "B" Streets

One of the most important elements of any town center plan is the structure and organization of the streets and blocks. The plan should be framed with two types of streets: "A" streets and "B" streets. Each type of street connotes frontage requirements, which help organize the land uses on every development block.

"A" streets are the primary address streets for development and public spaces such as square and parks. These streets are intended to be very pedestrian–friendly streets with prime landscape treatments and pedestrian amenities. Curb cuts and driveways are prohibited on "A" streets. "A" streets typically include on-street parking to support the commercial, retail, residential, and other land uses along them. "B" streets are the secondary address streets for development. "B" streets allow driveways to provide access to parking, loading, dumpsters, and other utility functions of buildings. Buildings are also required to front the "B" streets.

The figure to the right represents the idea of "A" and "B" streets, with building frontages along the "A" streets shown with red lines.



In the two photos at the bottom of the page it is clear that two developers were involved. At the top, the developer privatized the neighborhood. Even though the developer was required to install sidewalks, the wall assures that no one will walk here.
In contrast, across the street (bottom photo), another developer "honored the street" by placing "eyes" to the street. In this case the street is being treated as an "A" street. Town codes must stress that if people are to walk to destinations, a series of "A" streets must be created, and developers cannot abut backyards to these important streets.

Defining "A" and "B" Streets

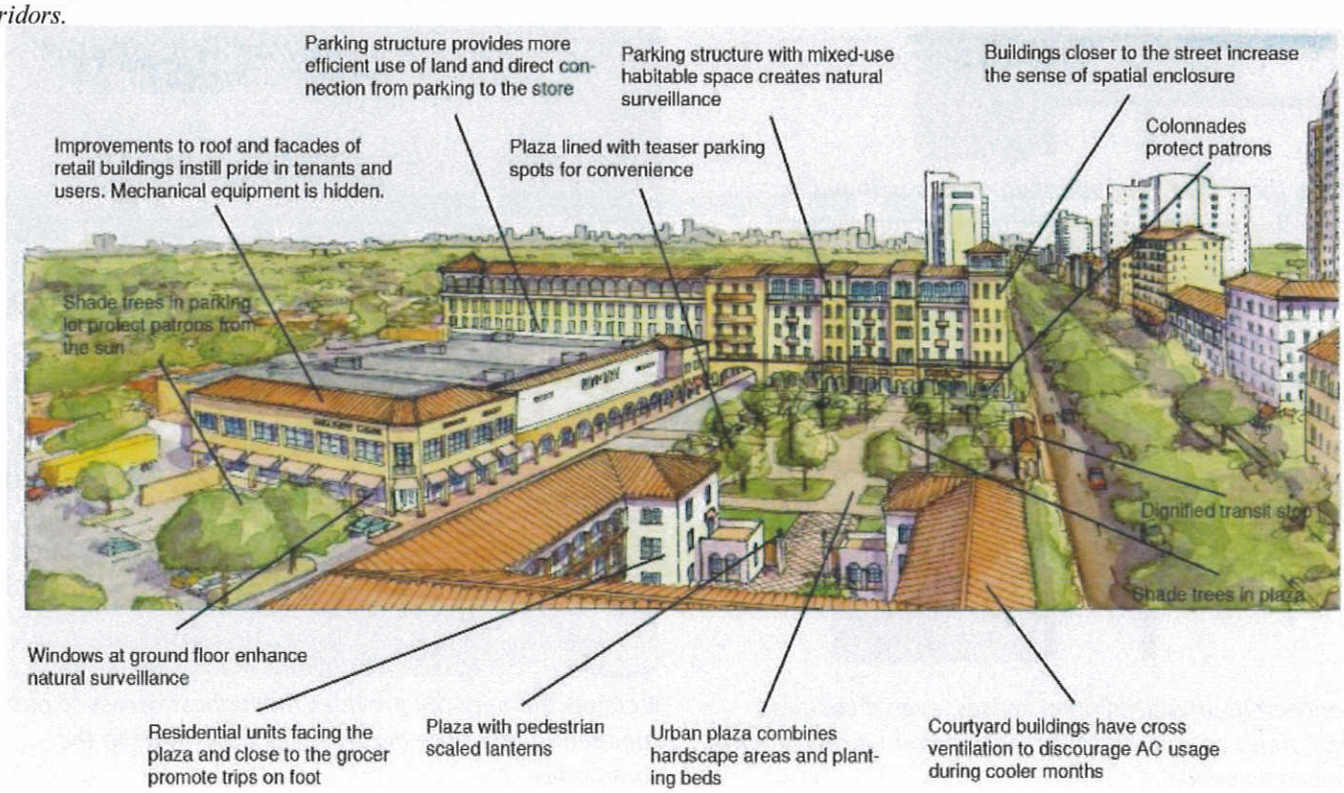
In the above scene, the functional use of a street is defined. Places where people want to walk are "A" streets (where buildings are designed to watch over the street). Meanwhile a series of "B" streets are needed to provide for utilities, services and other internal functions. For the most part people will not walk along "B" corridors.

Meanwhile, the above "B" street performs quite well for people who live here or make deliveries here.

In the images below, a street not designed for walking (left) can be transformed into an "A" street which watches over parks, schools or corridors where continuous walking trips are important.

Moving From "Placeless" to "Place"

Photos to the right: This suburban style street is transformed into the image below, changing the function of the street into an "A" category. In recent years teams of planners, engineers, architects and landscape architects have made transitions allowing areas to become alive and active; it often takes more than one discipline to do this. Indeed, those areas that do not transform well are areas where people didn't understand the multiple functions needed in corridors.

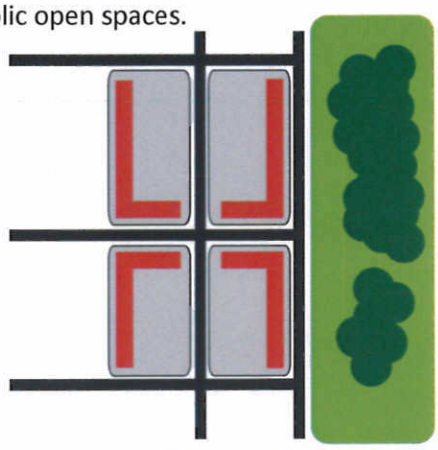


Optimizing Your Views

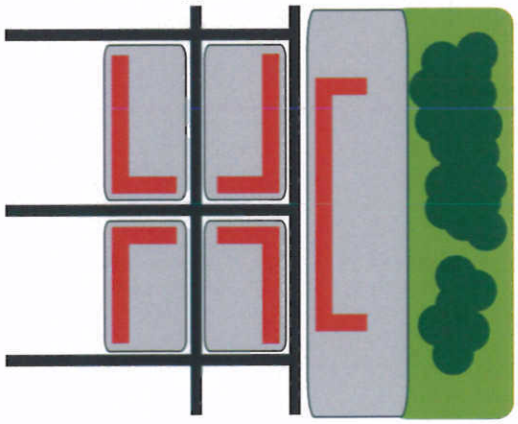
Increases Social Interaction and Social Equity

In addition to streets, open spaces such as plazas, squares, and greens are highly desirable components of the public realm. To keep them "public", streets should define the outer edges of the open spaces and then, across the streets, buildings should i) provide natural surveillance for both the street and open space and ii) define the public realm in a similar manner as streets do. The same principle applies to parks, linear parks, waterfronts, and similar components of the public open space system. When terminating views guide the human eye down a street, several important things happen. The iconic building, mountain or lake vista provides an attraction that draws the person toward the destination, just as an anchor store does in a mall. The terminal point also reduces the tendency to speed, since it forces motorists to focus in the short distance.

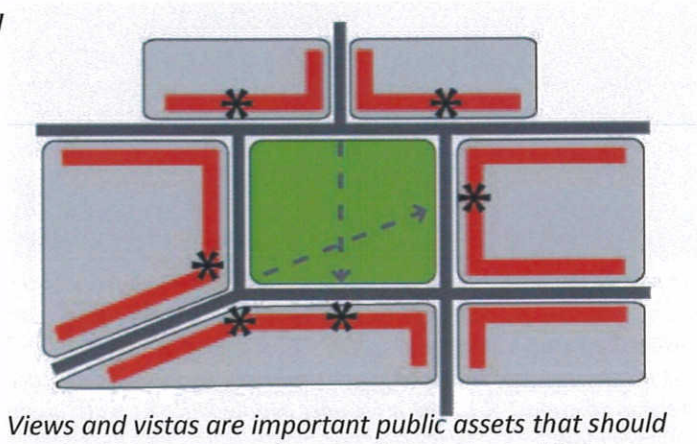
The public open spaces should be fully accessible to the community and perceived to be fully accessible by the community. Private buildings, even if they are open to the public, should not directly front (and never back) onto public open spaces.



Defining the edges of public open spaces with public streets maximizes opportunities to views and vistas.



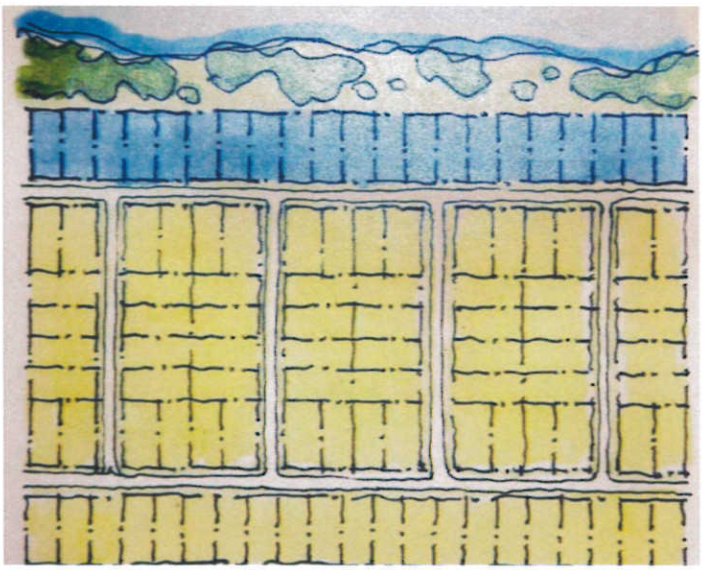
Disconnected, privatized open spaces, even if declared 'public', don't contribute to the public realm if they are not perceived as public.



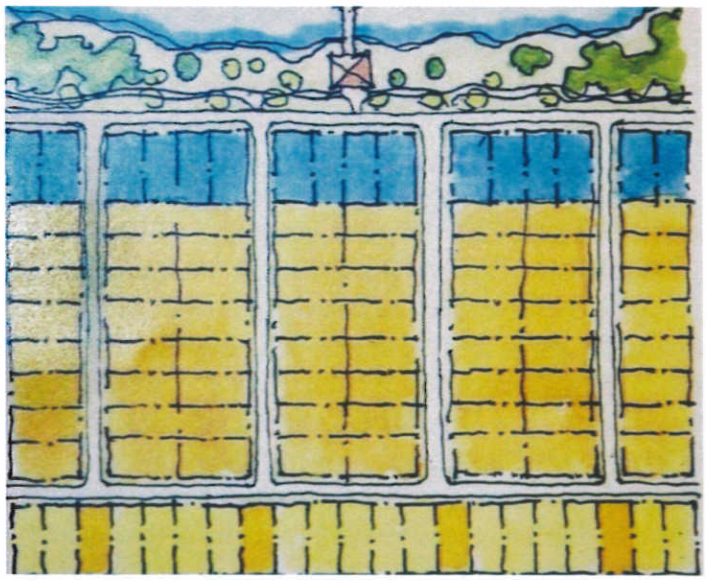
Views and vistas are important public assets that should be identified, preserved, created, and planned for.

A connected network provides the highest access to public spaces and therefore maximimzes their value to the community.

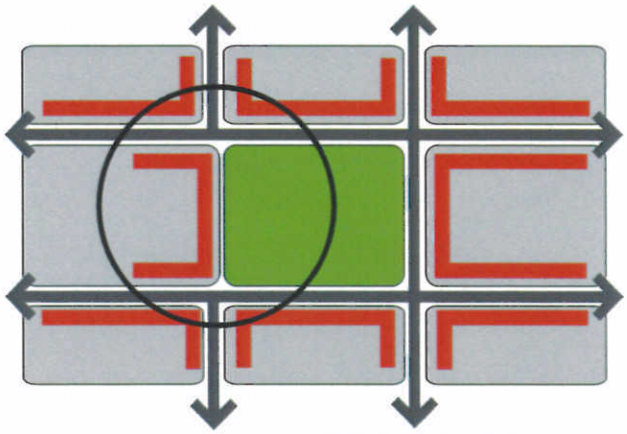
Privatized vs. Public Access



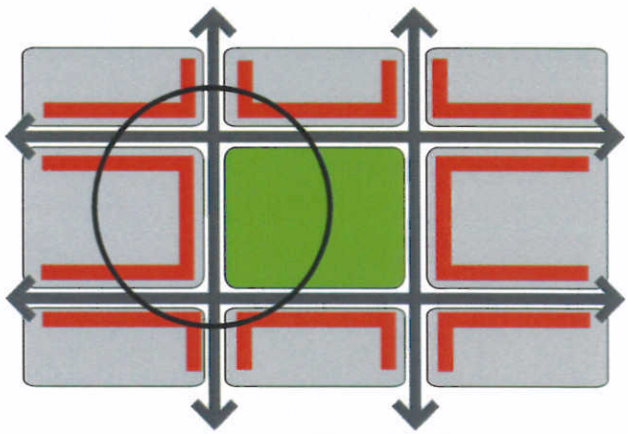
Privatized -- Wrong Way. *The above layout of streets privatizes the lake. Although homes along the shoreline may hold a 10% higher sale and resale value, the amenity, which should belong to the entire community, is now inaccessible to others. Even if public access is provided at some limited point, the overall value of homes going 2 to 10 blocks deep are devalued. The developer makes less money on total property values, and the community suffers from reduced social interaction and lack of access to a public amenity.*



Public Access -- Right Way. *This alternative design maximizes access to the neighborhood feature (lake, park, school). As access is increases, the number of walking and bicycling trips increased, there is less need for expensive and environmentally damaging parking lots, and the developer makes a greater return on investment. In the scene to the left, the project may not "pencil out" once all associated utilities, street and other costs are worked out. With higher values the project is more likely to be viable.*



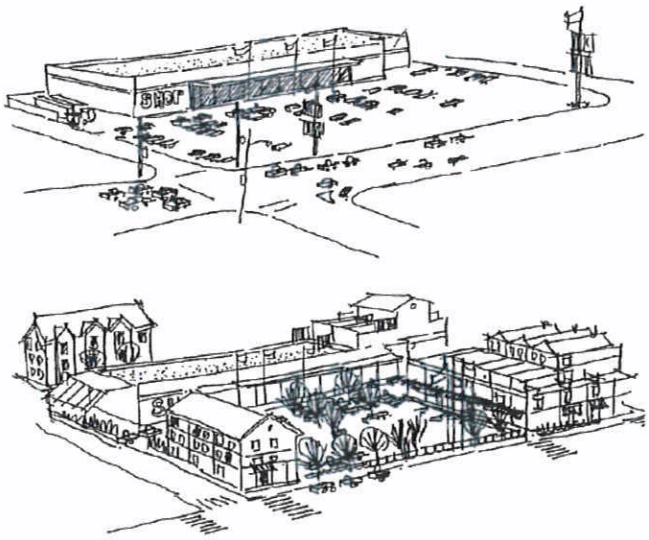
Wrong Way. *Streets do not connect on the left hand side. The above layout of streets breaks street connectivity and privatizes the park. This reduces access to the park. In a small park, this gives the park user the feeling that they are in someone's yard. Since the property often has its back to the park it reduces the "eyes" on the park and creates an increased risk that the park will not be used fully. Reduced park use, in turn, invites crime in the park and to adjacent property owners, thereby reducing property values.*

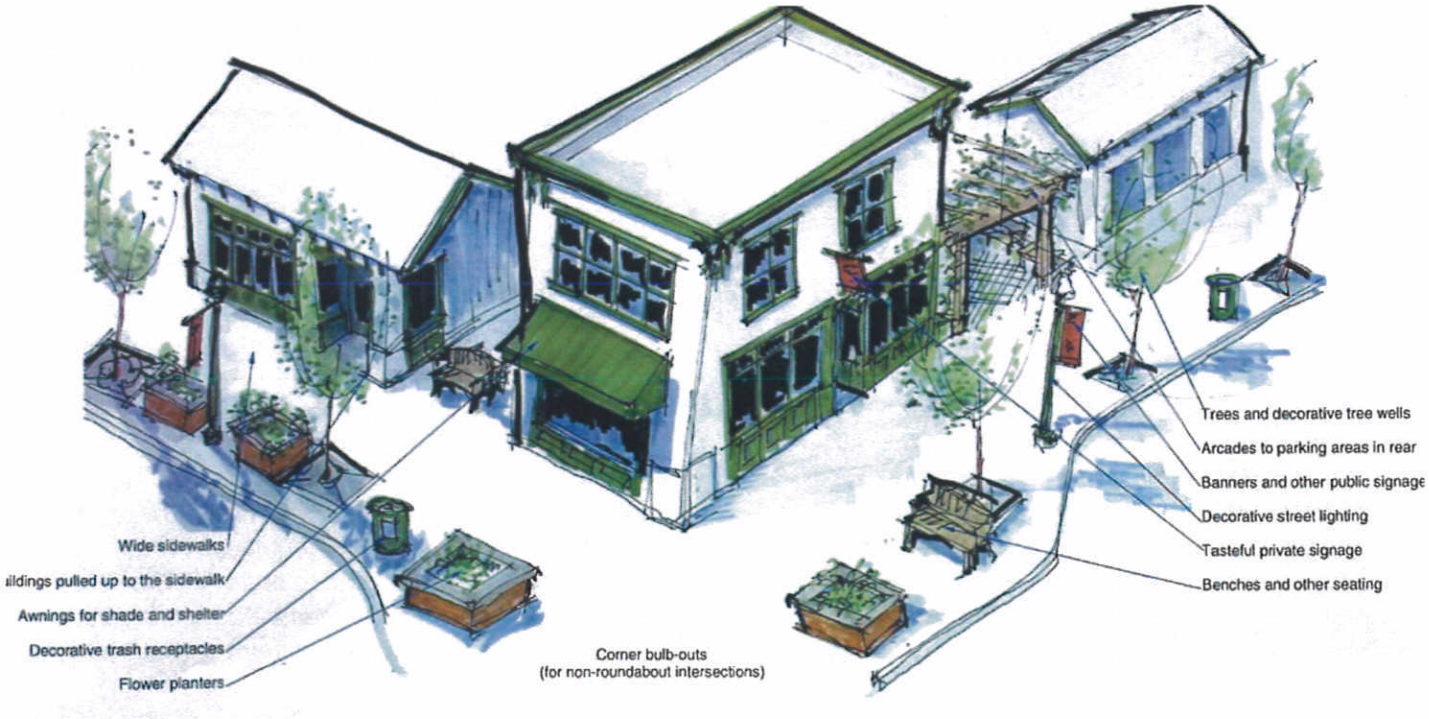


Right Way. *This design maximizes connectivity and access to the park, square or plaza. By placing more activity along the park (walking, bicycling and driving), it becomes more interactive and better used. Ideally, all streets surrounding the park will have either parallel or angled parking, thus minimizing the amount of park land that must be devoted to parking. This also lightens the environmental damage, since on-street parking takes up only 1/3rd the amount of space as off-street parking.*

Converting Suburban Strips to Mixed Use Villages

The conversion of a conventional strip center to a village center starts with taking critical corners and placing urban buildings there. These new buildings help size and shape the importance of the corner and the corridor. In time, well placed buildings are joined together to create vertical walls that provide character. This strategy works in small scale hamlets to larger scale shopping districts. Illustrations here show how the new visual qualities help dampen traffic speeds. Buildings start the critical process of "enclosing" streets, giving them a feel of "place" and importance. Gateways, such as Main Street in Frisco, call for a remake of its most significant arrival. The two photos below illustrate the importance of architecture and town form to controlling the speed of roadways. There is little more than engineers can do in the left panel to control speed. Meanwhile, careful, thoughtful, placement of buildings and placemaking brings speeds down, and thereby development opportunities alive.





Summit County towns have ample opportunity to study other winter cities, like Basalt, Boise, Telluride, Manitou Springs and Grand Junction. Converting from large open parking lot strips centers to more attractive, "Eco-Villages" comprised of mixed use centers, requires attention to many town making details such as significantly increased on-street parking, commercial parking garages that are attractive, plazas, wide sidewalks and narrow street sections, noise control, and overall quality aesthetics.

FromStripstoEco-VillageCenters

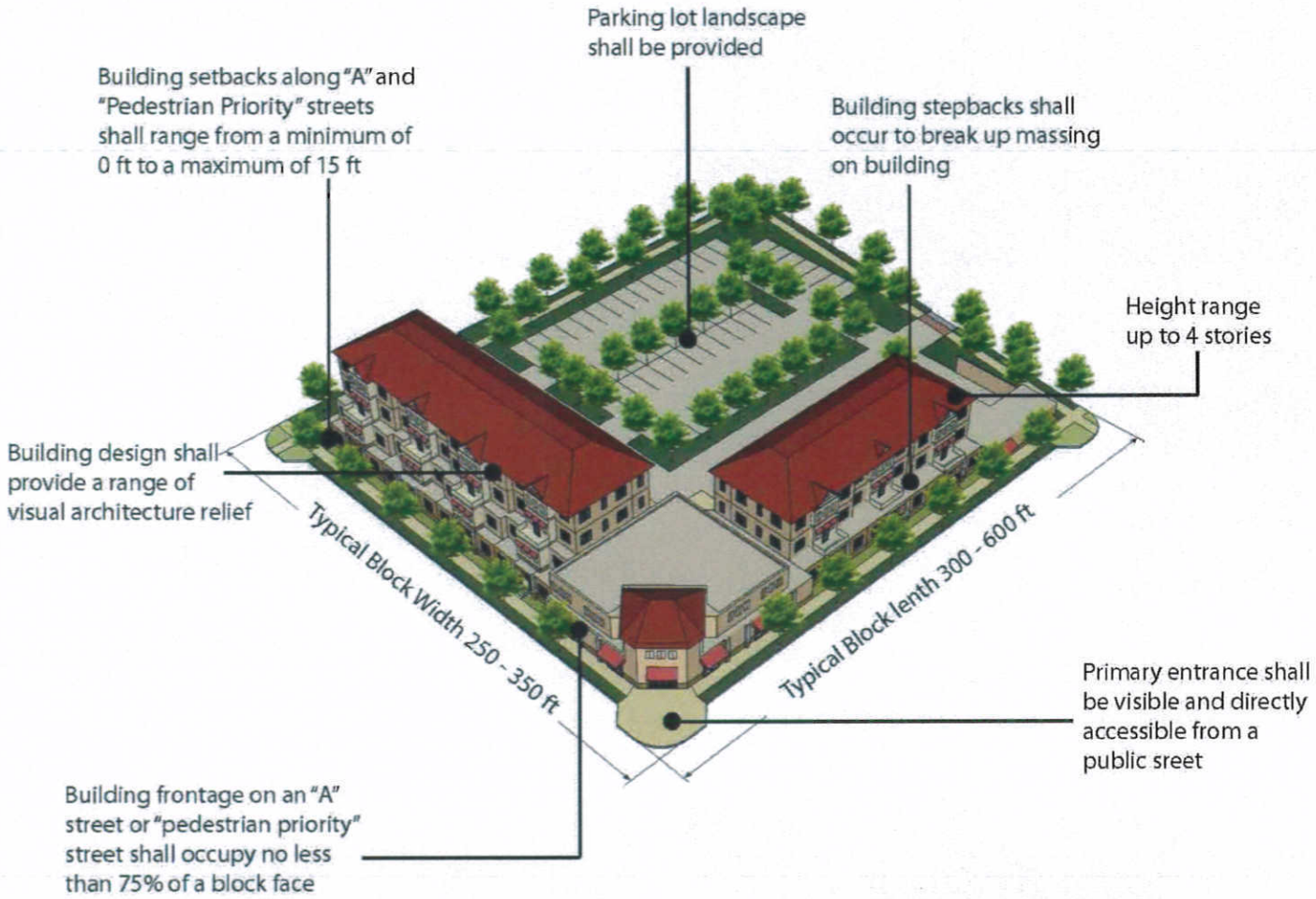
In walkable communities, centers parks, plazas and open spaces are ideally positioned within 600 to 700 feet of every house. The vision map for downtown San Luis Obispo, California, (shown to the left) illustrates how carefully this must be thought through. Whereas downtown centers, such as Breckenridge and Frisco provide this historic town-making form, other areas such as parts of Keystone, Silverthorne and Dillon lack such patterns and form.

Meanwhile, car-focused strip centers can be converted into walkable villages. By keeping block perimeters between 1,200 to 1,600 feet, people will be provided good places to live, shop, play and work, and have choices of routes to walk to their favorite destinations. Great mountain towns such as Crested Butte and Bassalt, Colorado, or Boise, Idaho (bottom photos) have designed their main streets to make them attractive, compelling and interesting places that people want to visit time after time; people are drawn long distances toward beauty.

Basalt, Colorado

Boise, Idaho

Crested Butte, Colorado



Corner Details The above illustration provides guidance on how to properly anchor a corner. Whether parking is open and exposed (as illustrated above) or underground and enclosed (photos to the right) depends on the allowed density. The more units and uses provided the easier it is to add underground parking. Underground parking provides a break from the weather, and a more pedestrian friendly street form. The remade Eighth and Pearl corner in Boulder, Colorado (to the right) is one of the best examples of urban infill fitting into the edges of a historic neighborhood. The building is scaled downward as it approaches the single family homes across the alley, behind. Nearby neighbors enjoy a sound buffer and many added shops and services within walking distance of their homes.

Appendix

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Suburban versus Urban Design

Photos above and below depict auto-centric, unwalkable environments (as found near freeway ramps). Streets above are dominated by parking lots and lack of connectivity into surrounding neighborhoods. The suburban corridor below ignores the needs of pedestrians and instead caters to vehicles. In these examples, land use and development weren't coordinated to encourage multi-modal access or to make this corridor truly accessible to everyone. Our most vulnerable citizens, seniors, children and poor people, are most impacted through strip designs.

Above and below photos depict traditional town forms with high levels of walkability. Summit County features many scenes simlar to the one below, but the community has slipped from time to time into an all too stark, auto-dependent form. Summit County's comprehensive plan sets a course to become more walkable, social, inspirational and physically attractive. The courage to take on and deliver the comprehensive plan principles through outstanding leadership is underway.

Codes to Create Traditional, Walkable Communities

Most land-use codes were written at a time when U.S. cities had an abundance of available land, water, clean air and other resources. Governments assumed continued availability of these resources, as well as unlimited financing, which led communities to construct poorly connected and outwardly expanding light-density development, supporting highways and other inefficient infrastructure. As a result, land uses were separated – sometimes by miles – and urban areas were allowed to decay.

Today, we have a better understanding of the limitations of our available resources. Roads, bridges, sewers and water lines that are now failing need to be replaced or refurbished. Costs of building roads, bridges and other infrastructure has increased 2-8 times from what it would have cost had we stayed current with maintenance needs.

Below: A recent investment on "D" Street in Ft Pierce, Colorado, helps anchor an important corner, slowing traffic and creating a strong, compelling sense of arrival and place. This building also provides a new police precinct station and a community gathering place.

Existing codes promote poor connectivity, which leads to higher dependence on cars – and even greater strain on infrastructure. Facing high gas and energy costs, residents are ready for change. But it will require more than Band-Aid solutions. Metaphorically speaking, we're talking surgery and radical changes to get our towns back to good health.

As we make "brick and mortar" changes to the physical infrastructure, we also should update the policy infrastructure, including land-use codes, to foster more livable, walkable communities.

Above: All buildings in time should be transformed to urban placements. The downtown business plan should support a returning town center population, allowing many people already living in the historic area to walk or bicycle to nearby destinations. New buildings, or adapted buildings, can provide important added presence of people in the downtown (see suburban vs urban form on page 9).

Many sidewalks have fallen into ruin. While investments in streets are behind the times, support systems for walking are at or below 20% of investments needed to support this mode of travel. Summit County needs to make an ongoing investment in walkability infrastructure. Below, a recently reconstructed sidewalk in Cambridge, Massachusetts, makes use of color to highlight walking areas, create a buffer to moving traffic, and otherwise support walking.

Moving Towards Change: Mixing Uses and Connecting Streets

Walkable and livable communities can't develop without transit, dense development, a mix of land uses and strong street connectivity. Most existing codes do not tolerate – let alone encourage – such forward-thinking development. Instead, codes have generated misplaced development, forcing residents into their cars and leaving their neighborhoods to access basic services.

Progressive officials and developers, planning board members, urban designers, the health community and others have seen the need to embrace a better system, one that promotes sustainability, eco-friendly practices, walkability, and transit-friendly designs. Unfortunately, their efforts have been slowed by outdated code and regulations.

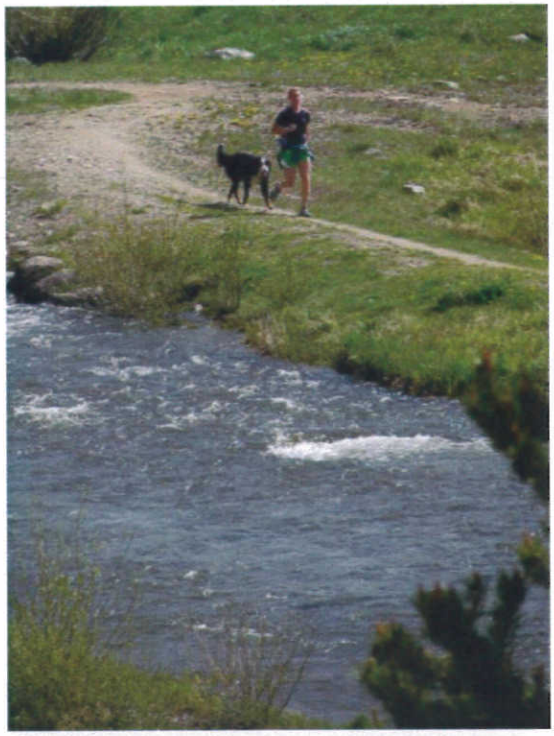
A number of cities throughout Colorado and the country have even drafted visionary plans. However, too often these plans are relegated to back shelves as leaders and planners grapple with code-related challenges. The question is: how can we shape codes to encourage better development?

The first step is to develop a process that is inclusive, comprehensive, integrated, transparent and clear. Many people need to take part, including many individuals and groups that have been staying home hoping someone else would take charge. Even more significant, there are groups that favor existing power systems that they understand and sometimes control. Great towns require everyone to be on board with needed changes. Otherwise those skilled at "griping" will effectively oppose and put down changes they did not initiate.

1. Fully engage all stakeholders to develop a vision. Enlist both the general public and the development community in the process of creating new code that supports smart, complete, and predictable standards for development. Include stakeholders with differing opinions to help create a vision that is holistic, practical and collaborative. Broad support will provide the necessary political shield for leaders to write, adopt and enforce new codes that promote sustainability, green design, active living and livable communities.

2. Understand that many factors affect the built environment. New proposals should address all of the factors that can influence design standards, not just the obvious ones. For example, tenant expectations shouldn't be an afterthought.

3. Create a master plan that clearly communicates the development expectations. Standards that are clear, concise, and predictable are more likely to be accepted and successful. Standards must be highly graphical and easy to understand for both builders and regulators. Programs should be reviewed and evaluated yearly, and amended as appropriate.



A municipality does not need to change its entire book of codes overnight. In fact, it's probably smarter to make such changes incrementally. For example, when Miami-Dade County created its Parks and Open Space Master Plan, the vision stated, "To facilitate the creation of great streets, Miami-Dade County must move beyond vehicular performance-based street design and instead design streets that are defined by their role in the community. While streets should have a minimum level of accessibility to all modes of transportation, not all streets require the same details."

Such lofty goals require a comprehensive vision that supports updating codes. Having adopted a parks and open-space plan that is seamless across community borders, Miami-Dade is positioned to revise codes and regulations that will appeal to developers by allowing them to strengthen land uses and create broader, more marketable types of homes. Additionally, developers will be able to work within these new guidelines to meet the public's demands – including greater affordability, diversity, home "scaling" to boost energy efficiency, enhanced security, and increased property values.

Summit County, like many counties made up of small-town cities, must take the time during this latest market lull to "right the ship." While reviewing the County's land-development regulations, and building its Comprehensive Plan, County leaders recognize the need for downtowns and infill projects in the right location to draw people near and far to well made, lovable, memorable places that they want to return to.

As they do this, they will be creating walkable streets, balancing automobiles with pedestrians and alternative modes of transportation, and melding land-use decisions with transportation goals. In time, they will adopt new form-based codes with district design standards, block developments, typical streetscapes, and a vision plan to focus future development.

When the market recovers, Summit County will be prepared to receive development as part of a community vision resulting in a more sustainable, vibrant and livable city.

It is admirable that so many communities throughout Colorado want to promote walkable, livable communities. The next step is for governments, residents, developers and planners to work together to make this reality. It's time to throw out archaic codes and create new rules that foster smarter growth.

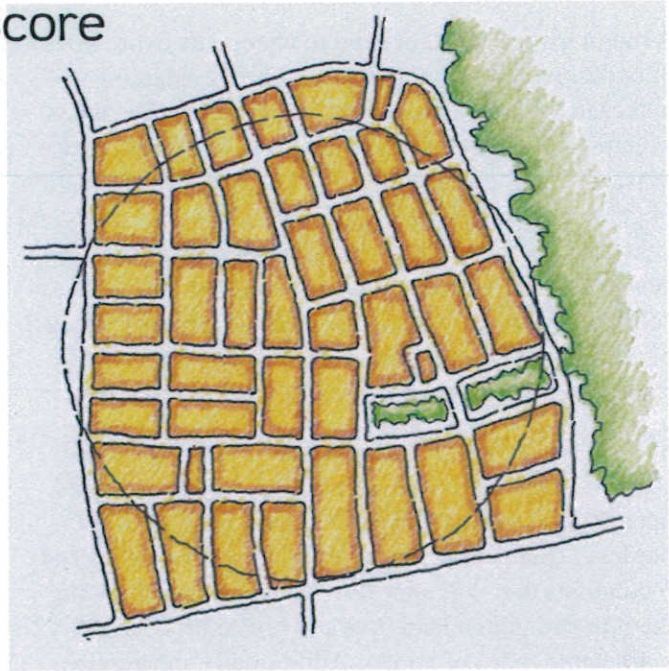
Lane widths:

"The underlying engineering hypothesis of lane width and roadway widenings is that road infrastructure improvements will reduce both fatalities and injuries. However, it is not found that this hypothesis (of lane widenings) can be supported. Results actually tend to suggest the counterintuitive hypothesis that these type of road "safety improvements" actually lead to statistically significant, though small, increases in total fatalities and injuries, all else being equal."

... Robert B. Noland, TRB 2001

Walking Scale, Mix and Walkability Score

Walking requires plenty of street or trail connections. High connectivity makes it convenient and easy to get from one place to the other. This pattern creates town or other centers with the highest possible mix of uses (civic, retail, service, work and residential) all in one place. To create high connectivity ratios, block perimeters should fall within 1200-1600 feet. Note from the illustrations at right that this does not force a gridiron pattern. When terrain, streams and other natural features are accounted for, any number of patterns will allow walking to be supported.



Walkability Score

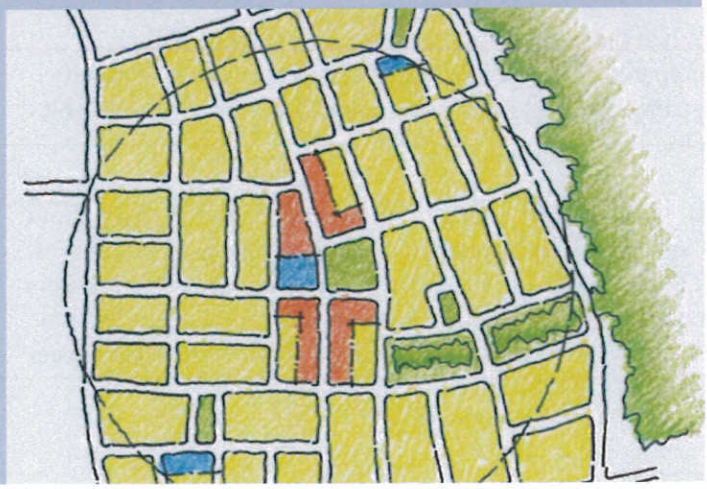
Aerial maps of town centers, such as Summit County (above), reveal compact, well laid out systems of streets, good block form and easy access to most destinations. In general, 80 percent of people find it convenient to walk for distances under a quarter-mile, or five minutes. Under favorable urban conditions, people will walk a half-mile, or ten minutes, and in even better urban conditions, one mile, or twenty minutes. Many Summit County residents live within an easy walk of the town center and major attractions.

Walkability can be improved with some modest changes. Principal roads can either become an asset, or further divide community. Bike lanes, tree lawns, medians, a few "road diets," other traffic calming measures such as mini-circles and a few gateway roundabouts will be of great benefit to area towns' livability, health, longevity, vitality and economic life.

www.walkscore.com *helps us assess the walkability index for any household; it can also be generalized for a town.*

Walkability varies widely throughout Summit County. In some areas the index is 78 out of 100 (Very Walkable), while in others it is only 20-30, and in many areas it is zero (see.www.walkscore.com); This score reflects mostly on the connectivity, block form and distribution of local uses and services.

The score does not currently measure gaps in sidewalks, broken links and other effects that reduce walking. Localized for each of these effects, the scores of various portions of Summit County are lower or much lower. Type in a specific street address for an actual score; each of these scores can be improved significantly. These scores do not take into consideration such factors as street width, with miles of ugly strip form shopping (urban form promotes walking) and high levels of walking discomfort due to speeding.



Reasons for Bike Lanes and Highway Shoulders

Prepared by Michael Ronkin, Former Bicycle and Pedestrian Program Manager & Member of the Preliminary Design Unit, Oregon Department of Transportation.

Before the 1971 Oregon "Bike Bill" was passed, and the terms "shoulder bikeways" or "bike lanes" were commonly used, the Oregon Highway Division advocated (1) building paved shoulders when constructing roads and (2) adding paved shoulders to existing roads. These were often referred to as "safety shoulders." There are good reasons for this term.

The following reasons are what AASHTO (American Association of State Highway Transportation Officials) has to say about the benefits of shoulders in three important areas: safety, capacity/operations and maintenance. Most of these benefits apply to both shoulders on rural highways and to marked, on-street bike lanes on urban roadways. See below for other benefits specific to urban areas.

Safety - Highways with paved shoulders have lower accident rates, since paved shoulders:

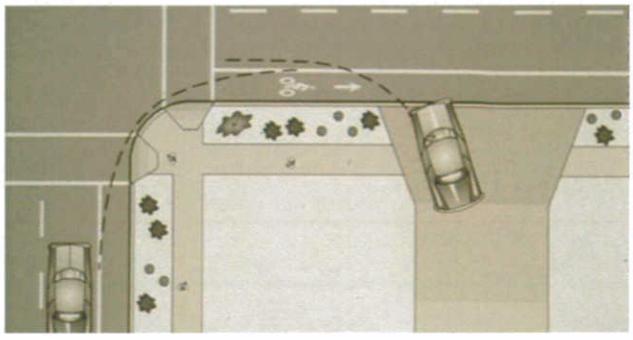
1. Provide space to make evasive maneuvers;
2. Accommodate driver error;
3. Add a recovery area to regain control of a vehicle, as well as lateral clearance to roadside objects such as guardrails, signs and poles (highways require a "clear zone," and paved shoulders give the best recoverable surface);
4. Provide space for disabled vehicles to stop or drive slowly;
5. Provide increased sight distance for through vehicles and for vehicles entering the roadway (rural: in cut sections or brushy areas; urban: in areas with many sight obstructions);
6. Contribute to driving ease and reduced driver strain;
7. Reduce passing conflicts between motor vehicles and bicyclists and pedestrians;
8. Make the crossing pedestrian more visible to motorists;
9. Provide for storm water discharge farther from the travel lanes, reducing hydroplaning, splash and spray to following vehicles, pedestrians and bicyclists, and
10. Provide safety to motorists when getting into and out of parking spaces.

Capacity and Operations - Highways with paved shoulders can carry more traffic, as paved shoulders:

1. Provide more intersection and safe stopping sight distance;
2. Allow for easier exiting from travel lanes to side streets and roads (also a safety benefit);
3. Provide greater effective turning radius for trucks;
4. Provide space for off-tracking of truck's rear wheels in curved sections;
5. Provide space for disabled vehicles;
6. Provide space for cars to pull over when responders need to get by;
6. Provide space for mail delivery;
7. Provide space for bus stops; and
8. Provide space for bicyclists to ride at their own pace.

Maintenance - Highways with paved shoulders are easier to maintain, as paved shoulders:

1. Provide structural support to the pavement;
2. Discharge water farther from the travel lanes, reducing the undermining of the base and subgrade;
3. Provide space for maintenance operations and snow storage;
4. Provide space for portable maintenance signs;
5. Facilitate painting of fog lines.



A Walkable & Bicycle Friendly Checklist for Summit County

The following document is a model of what Summit County could require of all new development in order to assess the walkability and bikeability of proposed projects.

Project:_____Date:_____
Location of Project: _____

Project Recommendations
When designing a new development, Summit County recommends that planners, architects, landscape architects, engineers and developers check proposed development projects carefully for their potential walkability and bikeability. Small details make a big difference and can lead to a healthier lifestyle.

Please check off items as you go through the list. Submit this list, along with your design plans.

INITIAL ANALYSIS

- ☐ Imagine a virtual walk of the project from various surrounding locations and from within the project. Imagine that you are walking to the project from the nearest bus stop, the nearest residential area, etc.
- ☐ Imagine a virtual bike ride to the project from various surrounding locations.
- ☐ Plot the potential walking and biking routes from the various surrounding locations.
- ☐ Identify potential barriers to walking and biking for the project and how they might be removed.
- ☐ Visit the location of the potential project and walk and bike in the vicinity of the project.

CONNECTIVITY – How well does the project connect to the surrounding community for walkers and bikers?

- ☐ Are direct, short and clearly adjacent routes to entrances provided?
- ☐ Does the building or project provide convenient access from neighboring uses?
- ☐ If feasible, is access provided on all sides?
- ☐ Does the project provide short cuts for bicyclists and walkers to adjacent uses?
- ☐ Does the project give priority to access to walkers and bicyclists? Does the project encourage you to walk or bike?
- ☐ Does the project connect to nearby walking/biking lanes or trails?

ENTRANCES

- ☐ Are entrances to the building(s) directly adjacent to the street?
- ☐ Are entrances convenient to transit?
- ☐ Is the building's primary entrance and address well marked so that walkers and bicyclists can readily locate the building and how to access it?
- ☐ Are the setbacks beneficial or detrimental to walkers? Note: Setbacks may be visually attractive but can discourage walking by adding greater distance to entrances, unless treated appropriately.

A Walkable & Bicycle Friendly Checklist for Summit County (Continued)

BICYCLE PARKING

- ☐ Does the project provide safe, secure short and long term parking for bicyclists in a conspicuous location?
- ☐ Is the bicycle parking conveniently located near the primary entrance of the business (within 100 ft)?
- ☐ Are the bike racks readily visible and a city approved design? Note: City approved designs are either an up side down "u" or a "hitch".

SIDEWALKS

- ☐ Are sidewalks sufficiently wide to accommodate the potential number of walkers? Note: 6' minimum clear width without obstructions for commercial uses.
- ☐ Are hard curbs provided?
- ☐ Is shade provided on the sidewalk through canopy trees, awnings or building design?
- ☐ Is there supplemental evening lighting?
- ☐ Are there buffers between walkers and traffic?
- ☐ Is there sufficient width for a bus stop and bus shelter provided, as may be necessary?

INDOORS

- ☐ Are wide central stairs provided or easily located to encourage walking rather than use of elevator(s)?
- ☐ Are showers and lockers provided for office and commercial uses?
- ☐ Can bicyclists bring their bikes indoors or place them in a secure indoor environment?

CROSSINGS

☐ Are safe, direct crossings provided for walkers? – This could include "bulbouts"at corners, median refuge islands, midblock crossings, signals for pedestrians, etc.

BARRIERS

- ☐ Are utility poles, traffic mast arms, and equipment boxes located outside the sidewalk area? Note: preferably in the planter strip between the sidewalk and the street, without obstructing line of sight for pedestrian and drivers.
- ☐ Is there a plan for removal of existing barriers in the sidewalks?
- ☐ Is there a plan for removal of existing barriers in the bike lanes?

Thank you for completing this project checklist! Please submit with your plans.

HEALTHY DEVELOPMENT CHECKLIST

Please provide written responses to each applicable question. For those questions which are not applicable, please indicate so on the form (N/A). Attach additional sheets if more space is necessary to respond fully to the questions. Submit completed form with your project/development application.

PROJECT NAME: _____

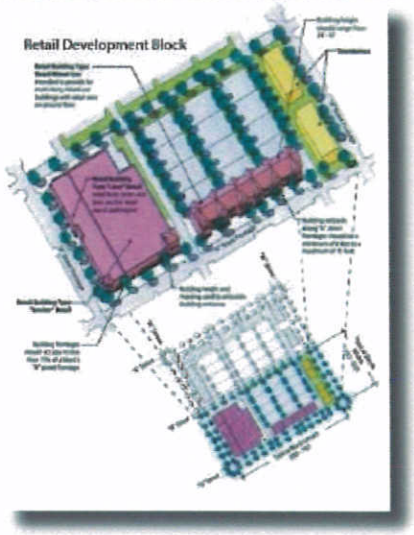
ADDRESS/LOCATION: _____

CASE #: _____

TYPE OF PROJECT: ☐Residential ☐ Mixed ☐Commercial ☐Office ☐Civic

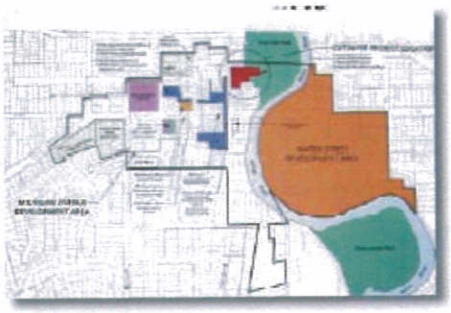
LAND USE

YES	NO	
☐	☐	Does the project/development promote interaction between neighbors? If YES please list: _____
☐	☐	Is the physical design of the project harmonious with the overall neighborhood?
☐	☐	Is this development adjacent to existing development and connecting to the development with pedestrian links and roadway connections?
☐	☐	Is there an adequate mix of land uses that provide a variety of housing choices?
☐	☐	Do these mixes provide for a great diversity in incomes, and especially provide for affordability?
☐	☐	Are there locations for non residential land uses that are integrated with the residential?
☐	☐	Is the land use configured around a walkable block size (¼ mile perimeter)?
☐	☐	Is there a range of density permitted in the neighborhood?
☐	☐	Are fronts of homes properly placed and have windows watching over schools, parks, streets, trails and other public places?
☐	☐	Is the architecture of buildings attractive and supportive of life on the street, park, school?
☐	☐	Are there provisions eliminating garages from "mooning" the street (i.e. required garage setbacks, lot frontage percentage)?
☐	☐	Are public buildings, parks and other common destinations properly placed to maximize the number of people that can walk to them?
☐	☐	Can the majority of people walk safely and comfortably in ten minutes (2500 feet), and without crossing dangerous intersections to an elementary school?
☐	☐	Can the majority of people walk safely and comfortably in twenty minutes (5000 feet), and without crossing dangerous intersections to a high school?
☐	☐	Is there too much emphasis on providing large amounts of off-street parking (relates to affordability, density)?

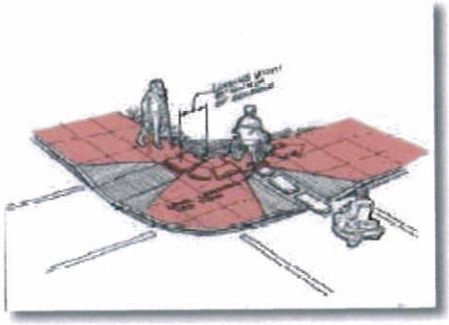


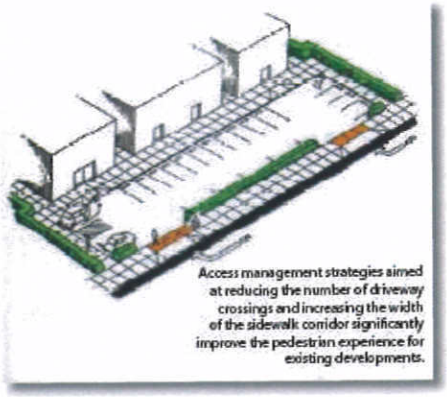
Version 2.1 (October, 2007)

TRANSPORTATION, STREETSCAPING, & STREET DESIGN



YES	NO	
☐	☐	Does the project/development achieve a connectivity index of 1.4? The index is calculated by dividing the number of street links (street sections between intersections, including cul-de-sacs) by the number of street nodes (intersections and cul-de-sacs). A grid street network would yield an index of 2.0.
☐	☐	Does the project/development provide mobility options for those who cannot drive?
☐	☐	Does the project/development have a well connected sidewalk system that lead to local destinations? If YES what is the proposed width of the sidewalks (5.0 foot minimum recommended)? _____
☐	☐	Are sidewalks detached from the curb allowing planter strips to take up driveway elevation changes?
☐	☐	Do all corners have ADA accessible ramps (2 ramps per corner preferred)?
☐	☐	Do planter strips offer canopy street trees (each 15-30 feet recommended)?
☐	☐	If median tree plantings are preferred, are plantings adequate for canopy development (each 15-30 feet recommended)?
☐	☐	Are there adequate provisions made for proper care and maintenance of canopy trees?
☐	☐	Do building practices eliminate privacy fences (above 4.0 feet) toward the public side of properties?
☐	☐	Are there specifications that public facing fencing be attractive and transparent above 4.0 feet?
☐	☐	Do curbs, swales, curb extensions, or other designs keep cars parked in correct locations (no rollover curbs)?
☐	☐	Does the project/development have, or connect to, a trail system for walking or biking?
☐	☐	Does the project/development contain elements that enhance the feeling of neighborhood security and safety?
☐	☐	Are local street lights provided?
☐	☐	Are houses oriented toward the street to provide "eyes on the street?"
☐	☐	Are buildings built to properly address the street? (i.e. front doors)
☐	☐	Is parking to the interior or back side of buildings?
☐	☐	Can a child walk safely, comfortably, and feel watched over enroute to school?
☐	☐	Are there sidewalks/pathways along the route to the school(s)?
		What is the walking distance to the area's schools? _____
☐	☐	Is the visibility at intersections good? Can drivers see short children, physically handicapped?
☐	☐	Does the route contain known dangerous intersections? If YES please list _____
☐	☐	Are there crossing guards at these intersections?
☐	☐	Will the project/development contain a significant elderly population?
☐	☐	Can the elderly walk to important destinations (i.e. banks, post office community centers, and library)? What is the walking distance to these destinations? _____





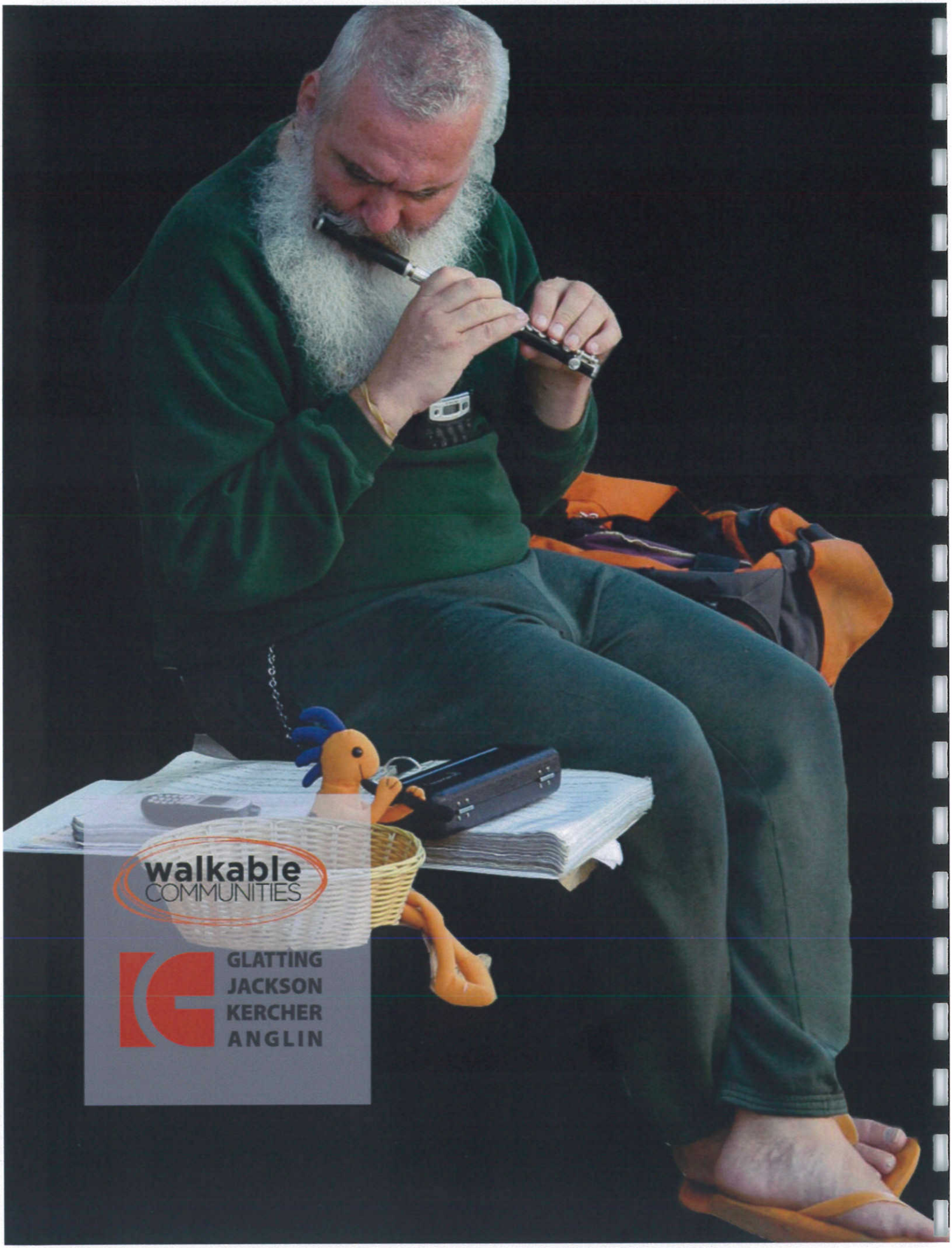
Access management strategies aimed at reducing the number of driveway crossings and increasing the width of the sidewalk corridor significantly improve the pedestrian experience for existing developments.

TRANSPORTATION, STREETSCAPING, & STREET DESIGN CONTINUED

YES	NO	
☐	☐	Are there sidewalks/pathways along the routes to these destinations?
☐	☐	Is the overall speed at or below 25 mph for all local streets?
☐	☐	Is the overall speed at or below 30 mph for all collector streets?
☐	☐	Does the project contain design elements to calm traffic such as curb extensions, mini-circles, parking chicanes, roundabouts, medians, raised street crossings, or similar features? If YES please list _____
☐	☐	Does the project/development present unsafe conditions or deter access and free mobility for the physically handicapped?
☐	☐	For projects/development on arterial streets, does the plan include pedestrian crossing signals and/or mid-block crossing islands?
☐	☐	Is public transportation available? If YES, where and how close is the nearest bus/train stop? _____ _____
☐	☐	Does the nearest bus/train stop have a shelter?
☐	☐	Does the nearest the bus/train stop have a bench and litter can?
☐	☐	Do curb extensions or other treatments prevent motorists from parking too close to corners?
☐	☐	If narrow streets are used, do streets provide a physical space (20 feet wide) every 200 feet for emergency response operations?
☐	☐	If alleys are used, is there high transparency (surveillance) in the alley?
☐	☐	If paseos (connectors or links) are used, is there high transparency (surveillance) to the paseo?
☐	☐	Do schools, parks, and other public destinations have adequate well located and secure bike parking?

PARKS & OPEN SPACE

YES	NO	
☐	☐	Can the majority of people walk safely and comfortably in five minutes (1500 feet) to a public gathering place, park, plaza, or community center?
☐	☐	Are there an adequate number of parks provided within walking distance (1/8 – ¼ mile) from every residence?
☐	☐	Are there sidewalks/pathways, ADA ramps along the route to the above services?
☐	☐	What is the walking distance to the area's amenities? _____
☐	☐	Is the size of parks and open space adequate for the amount of potential residents?
☐	☐	Are there a number of buildings/houses that watch over parks, trails, and open space?
☐	☐	Are these parks well used? If not yet built, are there a number of things to discover and do in these parks?
☐	☐	Do parks have appropriate on-street parking, or is there too much off-street parking?



walkable COMMUNITIES

GLATTING
JACKSON
KERCHER
ANGLIN