

City of Las Cruces[®]

PEOPLE HELPING PEOPLE

Council Action and Executive Summary

Item # 10 Ordinance/Resolution# 09-301 Council District: N/A

For Meeting of June 15, 2009
(Adoption Date)

TITLE: A RESOLUTION ADOPTING COMPLETE STREETS GUIDING PRINCIPLES SO THAT TRANSPORTATION IMPROVEMENTS ARE PLANNED, FUNDED, DESIGNED, CONSTRUCTED, OPERATED, AND MAINTAINED TO INTEGRATE WALKING, BICYCLING, TRANSIT, AND MOTOR VEHICLE USE WHILE PROMOTING SAFE AND EFFICIENT OPERATIONS FOR ALL USERS.

PURPOSE(S) OF ACTION: To adopt guidance regarding the safe and convenient integration of all transportation modes and network users into a complete transportation system.

Name of Drafter: Andy Hume		Department: Community Development/MPO		Phone: 528-3047	
Department	Signature	Phone	Department	Signature	Phone
Community Development		528-3066	Budget		541-2281
Public Works		528-3333	Assistant City Manager		541-2271
Legal		541-2128	City Manager		541-2076

BACKGROUND / KEY ISSUES / CONTRIBUTING FACTORS: Complete Streets is a national movement toward building road networks that are safer, more livable, and welcoming to everyone. It is based on the principles that the public right-of-way should fully integrate all transportation modes – including walking, bicycling, public transit, motor vehicles, and freight – and all users regardless of age or ability.

In May 2008, the Las Cruces Metropolitan Planning Organization (MPO) adopted a Complete Streets Policy as an amendment to the 2005 Long Range Transportation Plan. As part of that amendment, the MPO Policy Committee encouraged their member agencies, including the City of Las Cruces, to adopt a similar resolution.

The City's current Comprehensive Plan has many goals and policies that are compatible with the Complete Streets Guiding Principles. This resolution serves to consolidate, summarize, and reemphasize these goals and policies. It will also provide staff with an additional tool to help guide the implementation of the Comprehensive Plan.

The Complete Streets Guiding Principles, attached as Exhibit A, is divided into three sections. The first is a Vision of how the City's public rights-of-way should be serving transportation users. The Principles section outlines wide-ranging objectives that serve the vision. The

Strategies section lists broad methods that support the objectives and lay the foundation for tracking the progress of applying the Complete Streets guidance.

The Complete Streets Guiding Principles have incorporated input from various City staff members, the City's Bicycle Friendly Community Task Force, and members of the public.

There is no direct cost for adopting the Complete Streets Guiding Principles. Financial impacts of this resolution will be evaluated through the planning, engineering and construction or reconstruction processes. The Strategies section provides flexibility that supports the City's Mission Statement: To provide responsive, cost effective and high quality services to the citizens of Las Cruces.

SUPPORT INFORMATION:

Fund Name / Account Number	Amount of Expenditure	Budget Amount
Not Applicable	\$0	Not Applicable

1. Resolution
2. Exhibit "A," Complete Streets Guiding Principles
3. Attachment "A" – Complete Streets articles and white sheets

OPTIONS / ALTERNATIVES:

1. Vote YES and approve the Resolution adopting the Complete Streets Guiding Principles.
2. Vote NO and disapprove the Resolution, thus not adopting the Complete Streets Guiding Principles.
3. Modify the Resolution and vote YES to approve the modified Resolution. This action will be based on the Council's discretion.
4. Table or Postpone action on the requested Resolution. Direction would be required of the Council to staff.

RESOLUTION NO. 09-301

A RESOLUTION ADOPTING COMPLETE STREETS GUIDING PRINCIPLES SO THAT TRANSPORTATION IMPROVEMENTS ARE PLANNED, FUNDED, DESIGNED, CONSTRUCTED, OPERATED, AND MAINTAINED TO INTEGRATE WALKING, BICYCLING, TRANSIT, AND MOTOR VEHICLE USE WHILE PROMOTING SAFE AND EFFICIENT OPERATIONS FOR ALL USERS.

WHEREAS, streets constitute a large and valuable portion of public space; and

WHEREAS, streets need to be safe, convenient, and connected corridors for all transportation modes and users, with particular emphasis on the most vulnerable users; and

WHEREAS, Complete Streets Guiding Principles encourage planning, designing, constructing, operating and maintaining transportation systems that promote safe and convenient travel for people of all ages and abilities - pedestrians, bicyclists, transit riders, and motor vehicle drivers; and

WHEREAS, streets should be designed to compliment and support the adjoining land uses, buildings, and community character, such that the resulting street environment is attractive and of appropriate scale; and

WHEREAS, streets that integrate and invite multiple transportation choices - including pedestrians, bicycles, public transit, and motor vehicles - contribute to the public life of a community, sustainable economic development, and efficient movement of people and goods; and

WHEREAS, encouraging non-motorized transportation improves public health, advances environmental stewardship, reduces fuel consumption, and maximizes the use of roadway infrastructure; and

WHEREAS, other jurisdictions and agencies nationwide have adopted Complete Streets policies or legislation, including the United States Department of Transportation, numerous State transportation agencies, Mesilla, San Francisco, Sacramento, San Diego, Boulder, Chicago, Seattle, Portland, and the Las Cruces Metropolitan Planning Organization; and

WHEREAS, Complete Streets principles are compatible with existing transportation policies of the City of Las Cruces Comprehensive Plan (1999); and

WHEREAS, the Las Cruces City Council has determined that it is in the best interest of the City for this resolution to be APPROVED.

NOW, THEREFORE, be it resolved by the City Council:

(I)

THAT the City of Las Cruces adopts the Complete Streets Guiding Principles, as shown in Exhibit "A," attached hereto and made part of this Resolution, and that said exhibit is hereby approved and adopted.

(II)

THAT City staff is hereby authorized to do all deeds necessary in the accomplishment of the herein above.

DONE and APPROVED this _____ day of _____, 2009.

APPROVED:

(SEAL)

Mayor

ATTEST:

City Clerk

VOTE:

Mayor Miyagishima: _____

Councillor Silva: _____

Councillor Connor: _____

Councillor Archuleta: _____

Councillor Small: _____

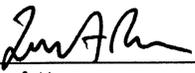
Councillor Jones: _____

Councillor Thomas: _____

Moved by: _____

Seconded by: _____

APPROVED AS TO FORM:



City Attorney

Complete Streets Guiding Principles

VISION:

Every public right-of-way shall be planned, designed, constructed, and maintained such that each Las Cruces will have transportation options to safely and conveniently travel to their destinations.

PRINCIPLES:

- Each phase in the life of a roadway, including planning, funding, designing, constructing, operating, and maintaining of new and modified streets, will be an opportunity to improve the integration of all transportation modes into the roadway.
- Sound engineering and planning judgment will produce context sensitive designs that will account for the unique circumstances of different users, streets, neighborhoods, and activity centers.
- The transportation network should be planned and constructed as a well-connected system that encourages multiple connections to destinations.
- Complete Streets may be achieved through single projects, incrementally through a series of smaller improvements, or through maintenance activities.
- Complete Streets principles may not apply to maintenance activities designed to keep assets in serviceable condition (e.g., mowing, sweeping, and spot repair, or interim measures on detour or haul routes).

STRATEGIES:

- Complete Streets Elements will be considered when developing, modifying and updating City plans, manuals, rules, regulations and programs, as appropriate.

- Design Standards should include performance measures for tracking the progress of implementing the Complete Streets Guiding Principles and detail the procedures for granting exceptions.
- American Association of State Highway and Transportation Officials (AASHTO)-compliant transportation facilities for all modes, including pedestrian, bicycle, public transit, and motor vehicle, should be provided on all roadways.
- Context sensitive streetscape plans that incorporate appropriate southwestern plants and landscaping materials should be developed whenever a street is newly constructed, reconstructed, or relocated.
- Identify all current and future funding sources available for achieving Complete Streets Guiding Principles.
- Utilize inter-departmental project coordination to promote the most responsible and efficient use of fiscal resources for activities that occur within the public right-of-way.
- Train pertinent City staff on the content of the Complete Streets Guiding Principles and best practices for implementing the policy.

ELEMENTS OF COMPLETE STREETS POLICIES

The Principle

Complete streets are designed and operated to enable safe access for all users.

Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street. Creating complete streets means changing the policies and practices of transportation agencies.

A complete streets policy ensures that the entire right of way is routinely designed and operated to enable safe access for all users. Transportation agencies must ensure that all road projects result in a complete street appropriate to local context and needs.

Elements of a Good Complete Streets Policy

A good complete streets policy:

- Includes a vision for how and why the community wants to complete its streets.
- Specifies that 'all users' includes pedestrians, bicyclists, and public transportation passengers of all ages and abilities, as well as trucks, buses, and automobiles.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all roads.
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Directs the use of the latest and best design standards while recognizing the need for flexibility in balancing user needs.
- Directs that complete streets solutions compliment the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy.

Implementation

An effective complete streets policy should prompt transportation agencies to:

- Restructure their procedures to accommodate all users on every project.
- Re-write their design manuals to encompass the safety of all users.
- Re-train planners and engineers in balancing the needs of diverse users.
- Create new data collection procedures to track how well the streets are serving all users.

FREQUENTLY ASKED QUESTIONS REGARDING COMPLETE STREETS

OVERVIEW

What are complete streets, and complete streets policies?

Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street.

Creating complete streets means transportation agencies must change their orientation toward building primarily for cars. **Instituting a complete streets policy ensures that transportation agencies routinely design and operate the entire right of way to enable safe access for all users.** Places with complete streets policies are making sure that their streets and roads work for drivers, transit users, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities.

What does a complete street look like?

Since each complete street is unique, it is impossible to give a single description. But ingredients that may be found on a complete street include sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible transit stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area will look quite different from a complete street in a highly urban area. But both are designed to balance safety and convenience for everyone using the road.

Why do we need complete streets policies?

Americans want to walk and bicycle more. Recent opinion polls found that 52 percent of Americans want to bicycle more, and 55% would prefer to drive less and walk more.

Many streets where people bicycle or walk are incomplete. Our states, cities, counties and towns have built many miles of streets and roads that are safe and comfortable only for travel by motor vehicle. These roadways often lack sidewalks or crosswalks, have lanes too narrow to share with bicyclists, and make no room for transit riders and no accommodation for people with disabilities. A recent federal survey found that about one-quarter of walking trips take place on roads without sidewalks or shoulders, and bike lanes are available for only about 5 percent of bicycle trips. Another national survey of pedestrians and bicyclists found that the top complaints were the lack of sidewalks and bikeways - essentially, incomplete streets.

Few laws require states to build roads as complete transportation corridors. In 2000, the US Department of Transportation advised states receiving federal funds that "bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist." But by their own admission, fewer than half the states follow this federal guidance. Many highway improvements add automobile capacity and increase vehicle speeds, but do nothing to mitigate the negative impact this usually has on bicycling and walking.

Streets without safe places to walk and bicycle put people at risk. While nine percent of all trips are made by foot or bicycle, more than 13 percent of all traffic fatalities are bicyclists or pedestrians. More than 5,000 pedestrians and bicyclists die each year on U.S. roads. The most dangerous places to walk and bicycle are sprawling communities with streets built for driving only.

Roads without safe access for non-drivers become barriers. About one-third of Americans do not drive, so complete streets are essential for children and older Americans, as well as people who use wheelchairs, have vision impairments, or simply cannot afford a car.

Where are complete streets being built?

Many states and cities have adopted bike plans or pedestrian plans that designate some streets as corridors for improvements for bicycling and walking. But a few places have gone beyond this to ensure that every street project takes all road users into account.

Among the places with some form of complete streets policy are the states of Oregon, California, Illinois, South Carolina, and Florida. The City of Santa Barbara, California calls for "achieving equality of

convenience and choice" for pedestrians, bicyclists, transit users, and drivers. Columbia, Missouri adopted new street standards to encourage healthy bicycling and walking. And the regional body that allocates federal transportation dollars around Columbus, Ohio has determined that all projects must provide for people on foot and bicycle. See the ['existing policies'](#) chart for more information.

What are some of the benefits of complete streets?

Complete streets improve safety. They reduce crashes through safety improvements. A FHWA review of the effectiveness of a wide variety of measures to improve pedestrian safety found that the practice of simply painting crosswalks on high-speed roads designed for automobile travel does not reduce pedestrian crashes. But measures that design the street with pedestrians in mind -- sidewalks, raised medians, better bus stop placement, traffic-calming measures, and treatments for disabled travelers -- all improve pedestrian safety.

One study found that designing for pedestrian travel by installing raised medians and redesigning intersections and sidewalks reduced pedestrian risk by 28%. Complete streets also improve safety indirectly, by increasing the number of people bicycling and walking. A recently published international study found that as the number and portion of people bicycling and walking increases, deaths and injuries decline.

Complete streets encourage more walking and bicycling. Public health experts are encouraging walking and bicycling as a response to the obesity epidemic, and complete streets can help. One study found that 43 percent of people with safe places to walk within 10 minutes of home met recommended activity levels, while just 27% of those without safe places to walk were active enough. Residents are 65% more likely to walk in a neighborhood with sidewalks. A study in Toronto documented a 23% increase in bicycle traffic after the installation of a bicycle lane .

Complete streets can help ease transportation woes. Streets that provide travel choices can give people the option to avoid traffic jams, and increase the overall capacity of the transportation network. Several smaller cities have adopted complete streets policies as one strategy to increase the overall capacity of their transportation network and reduce congestion. An analysis by the Victoria Transportation Policy Institute found that non-motorized transportation options can replace some vehicle trips, and in urban areas where more people commute by foot or bicycle, people drive fewer miles overall. In Portland, Oregon, a complete streets approach has resulted in a 74 percent increase in bicycle commuting in the 1990s .

Complete streets help children. Streets that provide room for bicycling and walking help children get physical activity and gain independence. More children walk to school where there are sidewalks. And children who have and use safe walking and bicycling routes have a more positive view of their neighborhood. Safe Routes to School programs, gaining in popularity across the country, will benefit from complete streets policies that help turn all routes into safe routes.

Complete Streets are good for air quality. Air quality in our urban areas is poor and linked to increases in asthma and other illnesses. Yet if each resident of an American community of 100,000 replaced one car trip with one bike trip just once a month, it would cut carbon dioxide (CO2) emissions by 3,764 tons of per year in the community. Complete streets allow this to happen more easily.

Complete streets make fiscal sense. Integrating sidewalks, bike lanes, transit amenities, and safe crossings into the initial design of a project spares the expense of retrofits later. Jeff Morales, the Director of Caltrans when the state of California adopted its complete streets policy in 2001, said, "By fully considering the needs of all non-motorized travelers (pedestrians, bicyclists, and persons with disabilities) early in the life of a project, the costs associated with including facilities for these travelers are minimized."

Find more information on benefits, including printable fact sheets on the ['Benefits'](#) page.

How can I get a complete streets policy adopted in my community?

This website has many resources to help you; see the ['How to Get' to Complete Streets'](#) tab. The National Complete Streets Coalition offers interactive workshops led by national experts on policy development and policy implementation. [Download more information](#) about scheduling a workshop.

IMPLEMENTATION

The following responses are derived from an American Planning Association web seminar on complete streets, with answers provided by planning staff from Boulder, CO, Chris Conklin of VHB, and Barbara McCann of the National Complete Streets Coalition.

What is the best way to educate residents about the value of complete streets?

Show them pictures of existing local streets that are 'complete' side by side with photos of incomplete roads in areas where pedestrians and other users struggle. Explain that with a complete streets policy, all roads can be made nominally safe for pedestrians and other non-drivers (but also be clear that this is a flexible policy that won't mandate a single 'look' for every road). Use the [basic power-point](#) provided on the complete streets webpage and [fact sheets](#) with statistics on the benefits of complete streets. In our experience, most people understand the benefits intuitively through photographs.

How does private development contribute to complete streets?

In Boulder, the transportation master plan (TMP) includes facility plans for all modes. In addition, in areas anticipated for significant change/redevelopment the master plan has been refined further through "area plans" and the adoption of transportation network plans to provide a detailed plan for where new streets, bike, and facilities are required. Through redevelopment, applicants are required at a minimum to reserve the necessary right-of-way and to build their share of these facilities. The TMP can be found at [here](#).

What federal funds are available for complete streets?

The City of Boulder has secured federal funding for multimodal projects through the Municipal Planning Organization (MPO) competitive TIP process. This is done through funding categories for congested regional corridors, STP, CMAQ, and Enhancements. The city put significant effort into making sure that the MPO project eligibility standards and the scoring process were structured to support multimodal (complete street) investments. To date, the city has not sought federal earmarks through our Congressional delegation. Boulder has also received funding for bike/pedestrian improvements through the new federal Safe Routes to School program.

A large portion of transportation funding is targeted toward congestion relief for motorists. When a philosophy is taken that balanced multimodal capacity supersedes maximizing motor vehicle flow, does this create a constant shortage in funding to address congestion?

Complete streets is about balancing out a transportation system that has emphasized motor vehicle movement to the exclusion of other, existing users of the roadway. Those other users -- bicyclists, pedestrians, transit riders -- have been there all along, but their needs have been too often ignored and their safety imperiled. Complete streets policies and procedures recognize and correct this, but they do not in themselves require a certain percentage of spending on other modes. Designing streets for all users does not automatically mean spending large sums of money and including such features from the beginning can make any additional costs negligible.

On the issue of congestion, many communities are recognizing that automobile capacity expansion projects have a limited ability to reduce congestion (see Schrank, D. and Lomax, T. (2005) Urban Mobility Report). The Texas Transportation Institute (TTI) found that providing more travel options, including bicycling and walking facilities, are important elements in reducing congestion. Streets that provide travel choices can give people the option to avoid traffic jams and increase the overall capacity of the transportation network. Portland, Oregon and Boulder, Colorado have both been successful in addressing traffic congestion in this way.

How realistic is DOT policy when "excessive cost" gives local staff an excuse to ignore complete street principles?

If there is a cost exception in a complete streets policy, it must be carefully defined for the correct project scope. The policy must also include a clear procedure for justifying this and any other exception. This procedure should require high-level approval from a senior manager, so that simply 'ignoring' the complete streets principle is not an option.

Do you have any data that shows the economic impacts of complete streets compared to traditional road design (i.e., property value changes, etc.)?

Dan Burden tells the story of a complete street treatment in West Palm Beach Florida that resulted in a \$150,000 increase in home sale prices on the street in just one year. In Washington DC, they are so convinced that creating complete streets will improve economic performance that they have instituted the "Great Streets" program. More information on economic benefits is available in our [Economic Revitalization](#) fact sheet.

What percentage of a road would you suggest should be dedicated for vehicles? What percentage for other travel methods (pedestrian, bicycle, transit, etc.)?

The portion of road space dedicated to different users will vary according to the profile of the current and projected future users of the road; there is no hard and fast percentage. For example, a street at a city center which serves many pedestrians will need wider sidewalks and median islands; a major transit corridor should be designed with more features that help buses travel quickly and provide for the movement of those boarding and disembarking; a road through a corridor where strip shopping centers are being replaced by higher-density mixed use buildings would likely need an investment in features to better accommodate the projected increase in pedestrians. No single figure for lane width or budget expense can cover the variety of circumstances.

Creating safe and attractive bike/pedestrian environments is often challenged by proponents of the primacy of the emergency vehicle who believe that wider/straighter/sterile is always better. How have you been able to overcome this conflict? Have any issues arisen after completion?

Please see the poster "[Emergency Access](#)" (1.6mb PDF), created by Dan Burden, for a few suggestions.

Some people promote cyclist integration into motorist travel as a safer than segregation transportation lanes. What is your opinion about painted or striped cyclist lanes vs. non-painted or integrated cyclist travel? Are their studies on what design is safer and more functional?

Bicycle lanes serve an important purpose in giving space to cyclists, and in indicating to motorists that bicyclists will be present, particularly on higher-volume higher-speed roadways. Studies show they do improve cyclist safety and confidence. However, bike lanes are not necessary for bicycle travel. Lower volume, lower speed roadways don't need them, and experienced cyclists will share lanes with cars without hesitation. So it is not an either/or question, different facilities serve different purposes, as well as users with different levels of experience.

Where is the optimum placement for trees along roadways when you are working to include bicycles, sidewalks, and the utility rights-of-way?

The MassHighway guide suggests planting at the back of the sidewalk, where the greatest soil volume and water absorption capacity exists. Conflicts with utilities are often a concern that needs to be addressed with street tree placement.

Often, when a city resurfaces streets, traffic lanes are made wider to accommodate the car and the re-striping process happens automatically without review that considers adding bicycle lanes or striping wider outside lanes to accommodate cyclists. How can residents and planners collaborate with public works to address this issue?

First, a complete streets policy should include repavings in its procedures, including a direction to assess the corridor's use by pedestrians, bicyclists, and transit users and stripe accordingly. Second, all transportation improvement projects can be submitted and reviewed by citizen advisory committees. For example, the Bay Area MPO in California has recently required that the bicycle and pedestrian advisory committees get copies of every Project Initiation Document for review.

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Are there significant differences between the "Complete Streets" concept and the "context sensitive solutions to road design" concept developed by the Institute of Transportation Engineers?

Context Sensitive Solutions (CSS) initiatives have traditionally emphasized non-transportation changes to improve the integration of the highway into the community. Framing bike/pedestrian/bus/disabled access in this way constricts them as optional 'amenities' rather than as essential transportation modes; as one wag put it, "bicyclists and pedestrians are not context." CSS has also emphasized stakeholder involvement in special planning processes, rather than routine inclusion of all modes in everyday transportation planning. That may be changing, recent Context-Sensitive Solutions workshops have emphasized 'mainstreaming' the process, and there has been greater emphasis on including all road users. The movement for context sensitive solutions has been crucial in changing practices at transportation agencies and stands side by side with complete streets.

The National Complete Streets Coalition has suggested this short explanation for inclusion in the new ITE/CNU Context Sensitive Solutions guide:

"While Context-Sensitive Solutions involve stakeholders in considering a transportation facility in its entire social, environmental and aesthetic context, complete streets policies are a reminder that providing for safe travel by users of all modes is the primary function of the corridor. Under complete streets, basic facilities for bicyclists, pedestrians, transit users, and disabled travelers are necessities, rather than optional items. Their needs must be included regardless of their presence or lack thereof at stakeholder meetings. All modes and users are important on all thoroughfares."

Note also that the new Massachusetts guide addresses contest-sensitivity and multimodalism as separate but equally important issues.

Bus pull-outs make sense as they remove buses from general traffic and preserve throughput. In reality, these tend to strand buses, as they're put at the mercy of drivers yielding to them. We have a proposed BRT corridor calling for this, yet doesn't this design ultimately diminish bus headways and make transit less attractive? How do you "calm" the cars in congested urban centers while allowing buses to operate efficiently and without delay?

Boulder tends to install bus pull-outs on a fairly conservative basis for the very reasons you have identified. Many of the pull-outs that do exist in Boulder are located at the far side of signalized intersections which allows operators to easily pull out during the red signal phase. Also, because of the impact to transit operations, we usually try to only install them when necessary to maintain adequate auto traffic flow. Boulder has recently installed one bus pull-out along one of our future BRT corridors; however, it is attached to an acceleration lane to allow for easier merging. Where right-of-way permits we are working to provide continuous bus/bike/right-turn only lanes in order to better facilitate transit along congested corridors.

Complete Streets: We Can Get There from Here

THIS FEATURE EXPLAINS THE COMPLETE STREETS MOVEMENT AND EXPLORES WAYS TO MAKE URBAN THOROUGHFARES MORE PEDESTRIAN AND BICYCLE FRIENDLY AND RESPECTFUL OF THE SURROUNDING COMMUNITY WHILE NOT UNDULY COMPROMISING MOTOR VEHICLE TRAVEL. TECHNIQUES FOR DESIGNING AN ARTERIAL STREET THAT CAN CONTROL TRAFFIC SPEEDS AND PERMIT MORE COMFORTABLE AND SAFE PEDESTRIAN AND BICYCLE ACCESS ARE DESCRIBED.

A COMPLETE STREET IS A ROAD that is designed to be safe for drivers; bicyclists; transit vehicles and users; and pedestrians of all ages and abilities. The complete streets concept focuses not just on individual roads but on changing the decision-making and design process so that all users are routinely considered during the planning, designing, building and operating of all roadways. It is about policy and institutional change.

This may seem simple enough. Over the last 30 years, a lot of planning and engineering energy have gone into learning to create beautiful streets that work well for everyone. Standards from *A Policy on Geometric Design of Highways and Streets* have been changed to reflect a multimodal approach, but many roads continue to be built as if private motor vehicles and freight are the only users.¹ Too many urban arterials feature a well engineered place for cars to travel next to a homemade pedestrian facility—a “goat track” tramped in the grass—with a bus stop that is no more than a pole in the ground uncomfortably close to high-speed traffic.

This stems in large part from entrenched planning and design practices. Transportation projects typically begin with an automobile-oriented problem—increasing average daily traffic or deteriorating level of service (LOS). The performance of the right of way for bicyclists, pedestrians and transit riders or transit vehicles often is not measured. Roadway classification is similarly oriented toward auto mobility.

THE FUNCTIONAL CLASSIFICATION TRAP

Using the standard functional classification system, streets designated as arterials are, by definition, intended primarily to provide mobility, with emphasis placed on operating speed and traffic-carrying capacity (see Figure 1). This leads to other design requirements that stress

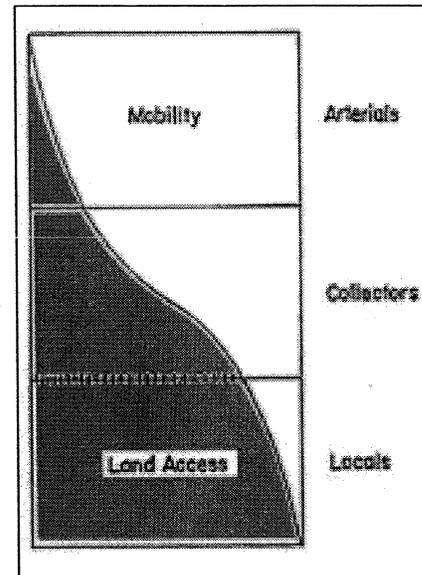


Figure 1. Proportion of service.

access management, wider lane widths, increased turning radii and minimum interference with traffic movements. This, in turn, often leads to urban roadways dividing neighborhoods, destroying local businesses in established communities and creating sterile, inhospitable streetscapes in developing suburbs.

CONTEXT-SENSITIVE SOLUTIONS (CSS)

As a reaction to this unhealthy trend, context-sensitive design concepts and techniques have developed. Within ITE, a new arterial street design paradigm for urban areas is being adopted in the Recommended Practice entitled *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*. The document is being developed in conjunction with the Congress for New Urbanism and the Federal Highway Administration.²

How do complete streets initiatives relate to CSS? CSS is a project-oriented and location-specific process and is aimed at making sure a road project fits into its context. Early projects tended to be large roadway improvements and featured extensive public meetings, stakeholder out-

Source: *A Policy on Geometric Design of Highways and Streets*, Washington, DC: American Association of State Highway and Transportation Officials, 2001, pp. 1-7.

BY JOHN LAPLANTE, P.E., PTOE AND BARBARA McCANN

reach and plenty of extra work. More recently, CSS practitioners have recognized that this process can be applied to every project and that early public involvement does not necessarily lead to expensive and time-consuming outreach efforts.

Complete streets focuses more on road users and is about making multimodal accommodation routine so that multimodal roads do not require extra funds or extra time to achieve. The intent is to change the everyday practice of transportation agencies so that every mode should be part of every stage of the design process in just about every road project—whether a minor traffic signal rehabilitation or a major road widening. The ultimate aim is to create a complete and safe transportation network for all modes. CSS and complete streets can be seen as complementary, not competitive movements.

NATIONAL COMPLETE STREETS COALITION

The National Complete Streets Coalition has been working for three years to promote policy and procedural changes at the federal, state and local levels. In addition to ITE, the coalition includes the American Public Transportation Association, the American Planning Association, AARP and many others.³

The coalition has succeeded in gaining national media attention and policy adoption across the country. More than 50 jurisdictions, from states to small towns, have adopted some type of complete streets policy, most over the last few years. In 2007, several cities adopted notable policies, including Salt Lake City, UT, USA, through a simple executive order; Seattle, WA, USA, through a comprehensive ordinance; and Charlotte, NC, USA, through adoption of its *Urban Street Design Guidelines*.

At the state level, a new law in Illinois requires the state department of transportation to accommodate bicycle and pedestrian travel on all its roads in urbanized areas. It is effective immediately for project planning and required in construction beginning in August 2008. Other places have been building complete streets for a while, including Oregon; Florida; Arlington, VA, USA; and Boulder, CO, USA.

A new complete streets policy adopted by a legislature or city council is likely to make any engineer nervous. If well written, the im-

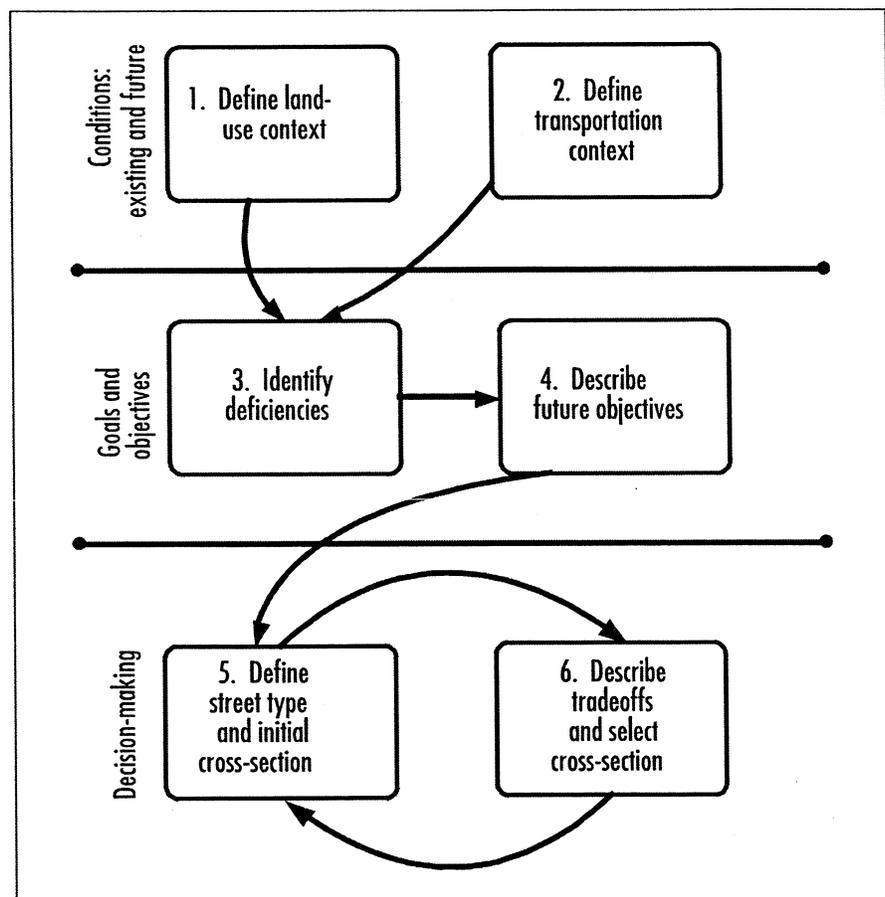


Figure 2. Charlotte, NC, USA, street design standards: A six-step process for considering and balancing the needs of all users.

pact should be gradual and reasonable. These policies are not prescriptive. Complete streets will look different in different places. They must be appropriate to their context and to the modes expected on that corridor.

A bustling street in an urban area may include features for buses, bicycles and pedestrians as well as private cars; in a more rural area with some walkers, a paved shoulder may suffice. Low-traffic streets need few treatments. Places with existing complete streets policies are successfully building a variety of roads that meet the varied needs of children, commuters and other users while creating an overall network that serves all modes.

IMPLEMENTATION CHALLENGES

In order for complete streets to be truly effective, the following implementation measures should be considered:

- Rewrite and/or refocus agency policies and procedures to serve all modes.
- Rewrite and/or adapt design guidelines.
- Train and develop staff skills in

serving all modes.

- Collect data on all users and modes for performance improvements.

The policy change should result in an institutionalization of the complete streets approach in all aspects of the transportation agency and beyond and often means a restructuring of everyday procedures, beginning with scoping. For example, in Charlotte, transportation planners are using a new six-step complete streets planning process that systematically evaluates the needs of all modes (see Figure 2).⁴ The National Complete Streets Coalition is offering a Local Implementation Assistance Program to help jurisdictions with this task.

An effective policy should lead to the re-writing of design manuals. The best example of this in the United States is Massachusetts. A complete streets policy statement became one of three guiding principles for the new award-winning design guide—context-sensitivity is another. The new manual has no chapters for bicycling, walking, transit,

or disabled users. Every mode is integrated into every chapter, with new tools to help engineers make decisions about balancing the modes.⁵

The third of the four implementation steps is the need for additional training for planners and engineers. Balancing the needs of all users is a challenge, and doing so with every project requires new tools and skills. For example, South Carolina has used its policy to launch a comprehensive training program.

Complete streets policies also should result in new ways to track the success of the road network in serving all users. Florida; Ft. Collins, CO; and other jurisdictions have adopted multimodal level of service standards to do that.

SPEED MATTERS

Complete streets is about more than simple allocation of street space. One of the major components of this new design paradigm is selecting a design speed that is appropriate to the actual street typology and location and that allows safe movement by all road users, including more vulnerable pedestrians and bicyclists. From a safety and community livability standpoint, speed does matter.

Everyone should be familiar with the chart that shows that a pedestrian hit by a car traveling at 20 miles per hour (mph) (32 kilometers per hour [km/hr.]) has an 85-percent survivability rate. That same collision with a car going twice as fast, 40 mph (65 km/hr.), will lower the survivability likelihood to 15 percent (see Figure 3).

Current practice is to use a design speed based on a somewhat arbitrary functional

classification and then post a speed limit based on the 85th-percentile of speeds engendered by this artificial street designation. This practice is based on the conventional wisdom that to maintain mobility to and through communities, some arterial streets or the entire regional economy will grind to a halt. Travel speed has always been equated as a necessary component of this mobility.

REDEFINING MOBILITY

Given that speeds much over 30 mph (50 km/hr.) in urban areas are incompatible with pedestrians (including transit passengers) and bicyclists, if not downright dangerous, is the only choice to sacrifice mobility for community livability? The answer to this question depends on how mobility is defined. One aspect of mobility is travel speed or, more accurately, total travel time.

For a 5-mile (8 km) trip along an arterial corridor with a 45 mph (70 km/hr.) travel speed, the added travel time for a reduced speed of 30 mph (50 km/hr.) would be 2.5 minutes. In the overall scheme of things, how important is this potential delay compared to the proven safety benefits and the city livability advantages that come with the slower traffic speeds?

Some will quote the standard benefit-cost travel-time delay litany that multiplies these 2.5 minutes times an average daily traffic of 30,000 vehicles times 365 days per year times \$20 per hour in time costs, equaling \$600,000 in lost wages to the economy. However, in reality, the loss is still under 3 minutes per individual for this one trip, for which he or she is probably not being paid and which is less than the time he or she will spend in line for morning coffee.

Take this scenario one step further, to the all-too-common suburban arterial traffic experience of driving 45 mph (70 km/hr.), stopping for up to 2 minutes at a traffic signal, accelerating back up to 45 mph (70 km/hr.), only to stop and wait again one-half-mile (0.8 km) down the road. This uncoordinated signal system wastes time and fuel, and the many stops increase crash rates. If these signals can be coordinated to permit two-way progression at a constant speed of 25 or 30 mph (40 or 50 km/hr.), the total travel time ends up being roughly the same.

The other part of the mobility equation is capacity, with the number of lanes acting as the primary surrogate measurement. It should be recognized by now that LOS D is a reasonable peak period LOS in an urban area, provided the above-mentioned signal progression can be maintained. However, some state departments of transportation or regional planning organizations still recommend LOS C (or even B) in an urban setting whenever possible.

Not only is this a waste of tax dollars constructing unneeded pavement, it also increases pedestrian crossing distances (and thus pedestrian crossing times, which impact negatively on signal timing for vehicular traffic) and encourages faster vehicular speeds during the other 22 hours of the day in each direction.

ARTERIAL TRAFFIC CALMING MEASURES

The remainder of this feature deals with specific design measures that may be used to retrofit urban arterials into complete streets. These roads present one of the biggest challenges to engineers in that they tend to be the most hostile to bicyclists, pedestrians and transit riders, but all of these modes are usually present in significant numbers.

Arterial traffic calming first must deal with controlling vehicular speeds. In addition to timing the traffic signals for a 25 or 30 mph (40 or 50 km/hr.) operating speed, other possible speed control measures include:

- Narrower travel lanes: Based on the results of a recent National Cooperative Highway Research Program study, 11-foot (3.3-meter [m]) or 10-foot (3.0-m) lanes in urban areas are just as safe as 12-foot (3.6-m) lanes for posted speeds of 45 mph (70 km/hr.) or less.⁶
- Road diets: A four-lane to three-lane road diet can work for average daily traffic volumes as high as 20,000. This makes the more prudent driver the "pace" car for that roadway and greatly improves left turning safety.
- Tightening corner curb radii: Selecting the appropriate design vehicle and using the minimum needed to provide the "effective" turning radius from the closest approach lane into

Source: Guide to Recommended Pedestrian Safety Planning, Washington, DC, USA, Federal Highway Administration, 1989.

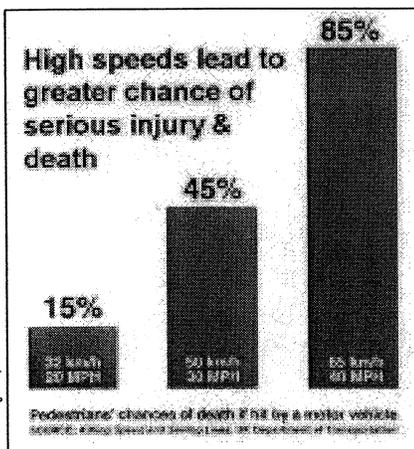


Figure 3. Vehicle speed versus injury and death.

any lane in the departure roadway will slow down turning vehicle speeds.

- Elimination of any free-flow right-turn lanes: This specifically includes freeway entry and exit ramp connections. Encouraging freeway speeds onto or off arterial streets is particularly dangerous for both pedestrians and bicyclists.
- Raised medians: Raised medians visually narrow the roadway and provide a median refuge for mid-block crossings.
- Median and parkway landscaping: Appropriate low-maintenance landscaping further visually narrows the roadway and provides a calming effect.
- Curb parking: Retaining curb parking provides for community access while creating a significant traffic calming effect.
- Curb bulb-outs: Where on-street parking exists, curb bulb-outs shorten pedestrian crossing distances, improve sight lines and help control parking.

PEDESTRIAN CROSSINGS

The other important element in creating a pedestrian-friendly arterial street is making pedestrian crossing locations safe, comfortable and more frequent. On any road where there is transit service, a pedestrian will cross wherever there is a transit stop, whether it is provided for or not. In a dense downtown case with signals spaced every 300 to 600 feet (90 to 180 m), crossing at a traffic signal is a reasonable expectation. However, along most urban and suburban arterials, these signals usually are spaced no closer than every one-quarter mile.

Requiring travel just 1,200 feet (360 m) or more out of the way to cross a street will add 5 minutes to the travel time of a pedestrian walking at the average 4.0 feet per second (1.2 m per second) walking speed. If a 5-minute detour for all automobile traffic were suggested, this would be the equivalent of adding a distance of 2.5 miles (4 km) for a car traveling at 30 mph (50 km/hr.). The outrage would be loud and instantaneous.

Many of the suggested pedestrian crossing improvements flow directly out of the traffic speed control measures noted above. They include:

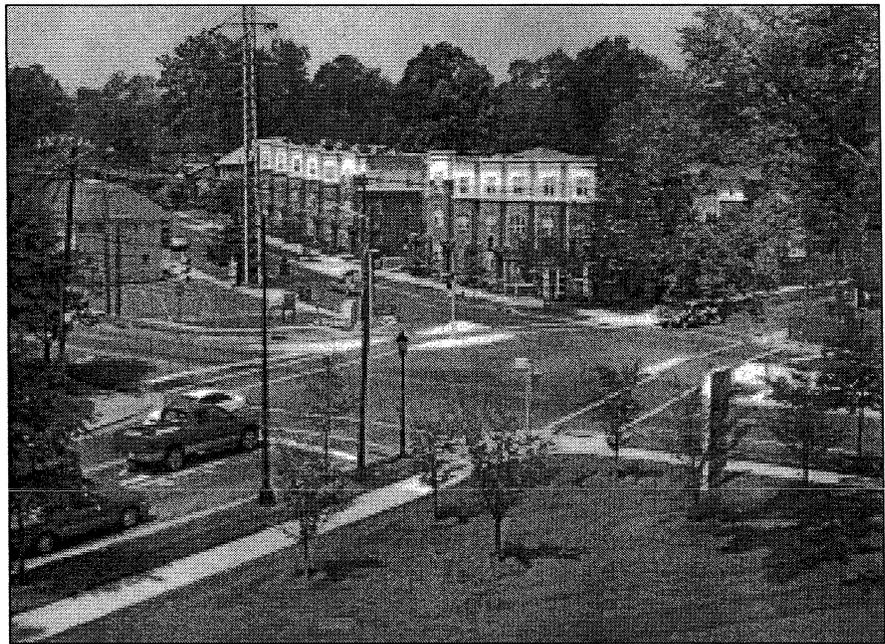


Figure 4. Redesigned intersection of Kenilworth and Romany in Charlotte, NC, USA.

- Narrower travel lanes: Shorten the pedestrian crossing distance and roadway exposure time.
- Road diets: Reduce the number of lanes to be crossed.
- Tighter corner curb radii: Shorten pedestrian crossing distances and provide space for perpendicular curb ramps.
- Adding corner “pork chop” islands where design vehicle turning radii do not permit a small corner radius: Also shorten pedestrian crossing distances.
- Raised medians: Provide pedestrian refuge and allow pedestrians to cross half the street at a time.
- Curb bulb-outs: Shorten pedestrian crossing distances, improve sight lines and provide space for curb ramps.
- Continental-style crosswalks and pedestrian crossing warning signs: Effective for lightly-traveled arterials posted for urban speed limits.
- Pedestrian-actuated crosswalk warning signs: For heavier traffic flows.
- Pedestrian-actuated HAWK-style signals: Will be in the new *Manual on Uniform Traffic Control Devices* (MUTCD).
- Full signalization: All pedestrian signals should now be timed using the new MUTCD pedestrian walking speed of 3.5 feet per second (1.05 m per second) to set the Flashing

Don't Walk pedestrian clearance time and 3.0 feet per second (0.9 m per second) to determine the total Walk/Flashing Don't Walk time.

- Countdown clocks: The new MUTCD will not only require countdown clocks at all new pedestrian signal installations, but there will be a 10-year compliance date for retrofitting all existing pedestrian signal locations, finally correcting the longstanding confusion surrounding the traditional but counter-intuitive Flashing Don't Walk.

TRAFFIC “TAMING”

In conclusion, instead of the concept of traffic calming used in discussing the design of residential streets, the term “traffic taming” should describe the concept of making arterial streets more pedestrian, bicycle and community friendly. This compilation of suggestions for retrofitting arterial streets into complete streets is not meant to be all-inclusive. Many more solutions are available once the task of designing arterial roadways for community livability while retaining a reasonable level of mobility along the most important travel corridors is taken seriously.

Complete streets is both evolutionary and revolutionary. A growing awareness of other transportation modes has led to a trend toward accommodating a wider

Source: Ben Miller, Charlotte Department of Transportation.

variety of users. Complete streets is simply the latest evolutionary step in this process. At the same time, stepping beyond how design typically is done today by greatly increasing travel options, flexibility and usability, a revolutionary new network of travel can be created for all modes.

Largely through the work of the transportation industry, the United States has succeeded brilliantly over the last century in building better roads for farmers, national security and economic growth. It is now time to achieve the same success in the challenge of completing U.S. streets for everyone. ■

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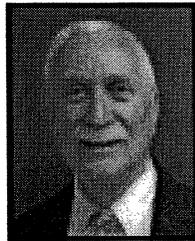
1. *A Policy on Geometric Design of Highways and Streets*. Washington, DC, USA: American Association of State Highway and Transportation Officials, 2001, pp, 1-7.
2. *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, A Draft Recommended Practice*. Washington, DC: ITE, 2006.
3. To see a complete list of coalition members,

visit www.completestreets.org/whoweare.html.

4. *Urban Street Design Guidelines*. Charlotte, NC, USA: Charlotte Department of Transportation, October 2007. Accessible via www.charmeck.org/departments/transportation/urban+street+design+guidelines.htm.

5. *Massachusetts Highway Department Project Development & Design Guide*. Accessible via www.vhb.com/mhdGuide/mhd_GuideBook.asp.

6. National Cooperative Highway Research Program Project 3-27: *Preliminary Report, Urban and Suburban Lane Widths*. Kansas City, MO, USA: Midwest Research Institute, 2007.



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Complete Streets are designed and operated so they work for all users—pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Communities that adopt complete streets policies are asking transportation planners and engineers to consistently design and alter the right-of-way with all users in mind. Contact the National Complete Streets Coalition (www.completestreets.org) to learn about the diverse groups working together to enact complete streets policies across the country!

An oft-raised concern about Complete Streets is the fear of additional costs when requiring accommodation for all modes of travel. However, jurisdictions implementing a complete streets policy within a balanced and fiscally sound budget find that it adds little to no expense to their transportation budgets. Complete streets are more cost effective than the alternative – streets made only for cars. In some cases, complete streets can even help jurisdictions save money. They are long-term investments in the overall health of communities who adopt policies.



Right: Payvan Chung

Help Prevent Costly Delays and Retrofits

Integrating the needs of all users – pedestrians, bicyclists, public transportation riders, motorists, older people, children, and people with disabilities – early in the life of a project minimizes costs associated with including facilities for these travelers. Complete streets policies ensure early multi-modal scoping, saving money by avoiding costly project delays. Without a policy, bicycle, pedestrian, and public transportation accommodations are often debated too late in the design process and are considered a disruption rather than necessary and beneficial project features. This creates expensive design revisions, time delays and erodes public support. Furthermore, the failure to accommodate these user groups can trigger an expensive retrofit project at later date. A bridge near Cary, Illinois was built in the early 1990s without any safe way to cross it via foot or bicycle. After several deaths and a successful wrongful-death lawsuit, Illinois DOT was forced to go back at a great expense (\$882,000) to retrofit the existing bridge with a side path.¹ It would have been far less expensive to construct the bridge correctly initially.

“When projects are scoped and programmed without consideration for complete streets, there could be extra cost over the original estimate in order to later address pedestrian, bike, and bus features.”

– Gregg Albright, Deputy Director of Planning and Modal Programs, Caltrans

Require Minimal to Zero Additional Funding

The careful planning encouraged by complete streets policies helps jurisdictions find many effective measures that can be accomplished at little or no extra cost. Some standard infrastructure projects, such as conversion from open to closed drainage, can be enhanced with complete streets facilities (i.e. sidewalks) for negligible additional cost. Changing pedestrian signal timing at intersections to a 3.5 ft/sec walking speed adds nothing to the cost of a signal, and adding countdown clocks can be done for as little as \$2000 per intersection. Adding curb bulbs where on-street parking occurs reduces the time for pedestrians to cross the street, allowing more time for automobile movement; this can be a relatively low cost way to improve both pedestrian and automobile access. Additional costs associated with the routine accommodation of bicycling, walking, and public transportation represent an immeasurably small percentage of the total budget. On a project-by-project basis, any additional money spent is actually a long-term investment in the financial and physical health of the community.



**Complete Streets Steering
Committee Organizations**

- AARP
- Alliance for Biking and Walking
- America Bikes
- America Walks
- American Council of the Blind
- American Planning Association
- American Public Transportation Association
- American Society of Landscape Architects
- Association of Pedestrian and Bicycle Professionals
- City of Boulder
- Institute of Transportation Engineers
- Kimley Horn and Associates, Inc.
- League of American Bicyclists
- McCann Consulting
- National Center for Bicycling and Walking
- Safe Routes to School National Partnership
- Smart Growth America

**National Complete
Streets Coalition**

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Save Money through Better Design

Communities who adopt complete streets policies commit to superior roadway planning and design in new and reconstruction projects. Executing these designs can be less expensive than projects carried out under old standards and policies. In a reconstruction project, the Brown County, WI Highway Department built a three-lane street with two bike lanes on the existing four-lane roadway, and replaced expensive traffic signals with roundabouts.² These changes saved the County \$347,515 – 16.5% below the original project estimate.³

Creating complete streets also reduces infrastructure costs by requiring far less pavement per user; this saves money at the onset of the project and reduces maintenance costs over the long-term. Compared to increasing road capacity for vehicles alone, investing in pedestrian and bicycle facilities cost far less; over the width of one traffic lane, walking and cycling can move five to ten times more people than driving.⁴ Neighborhood streets built in a grid to serve all users reduce the need for wide automobile lanes and complex intersections, and can lower infrastructure costs 35-40% compared to conventional suburban development.⁵

Complete streets policies help with long-term savings for public transportation as well. The Maryland Transit Administration found providing curb-to-curb transit service for a daily commuter with disabilities costs about \$38,500 a year. Investing in one-time basic improvements can enable that commuter and several more to access an existing fixed-route public transportation route; this singular cost is the equivalent of two months' worth of the curb-to-curb service for just one person. More extensive improvements, such as adding a lighted shelter and bench and replacing the sidewalk leading to the stop, have a one-time cost just 33% more than a year of curb-to-curb service for a single commuter.

Investment in the Community

Complete streets are a sound financial investment in our community that provides long-term savings. An existing transportation budget can incorporate complete streets projects without requiring additional funding, accomplished through re-prioritizing projects and allocating funds to projects that improve overall community mobility. In such a balanced and fiscally sound transportation system, complete streets facilities should not be treated as additional costs to a project.

Complete streets provide benefits to the community in many other ways, from public health to sustainability and from improved property values and economic revitalization to increased capacity and improved mobility for all. Americans expect a variety of choices, and a multi-modal system of complete streets provides alternatives to driving. Implementing complete streets allows for an efficient and optimal use of limited resources: time, fuel, land, public health, the environment, and money.⁶

"If a roadway is being reconstructed, rebuilding the roadway with 10-foot lanes and timing the traffic signals for 30mph will control speeds and can actually result in a reduction in costs by using a narrower overall roadway structure."

**- John LaPlante, PE, PTOE
Director of Traffic
Engineering for T.Y. Lin
International, former City
Traffic Engineer with the
City of Chicago**

"Boulder's complete streets approach has transformed how we look at our transportation system. The city leaders made a conscious decision to provide multimodal options, and have focused on our investments accordingly. We believe this is a sound financial approach to increasing mobility and supporting the quality of life enjoyed by those who live and work in Boulder."

- Martha Roskowski, Program Manager, GO Boulder

¹Chicago Metropolitan Agency for Planning
²2002-2006 Transportation Improvement Program for the Green Bay Urbanized Area.
³Construction cost estimates from the Brown County Highway Department (November 30, 2004)
⁴Ekoster, J., et al. "Cycling: The Way Ahead for Towns and Cities." 1999.
⁵Steuteville, Robert. "The Case for the Simple Grid." New Urban News, March 2009.

Complete Streets Lower Transportation Costs

The Benefits of
Complete Streets 10

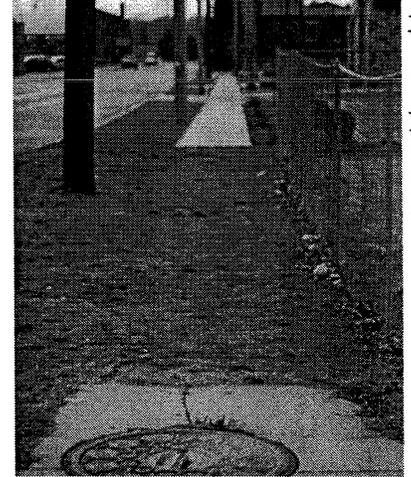


Complete Streets are designed and operated so they work for all users—pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Communities that adopt complete streets policies are asking transportation planners and engineers to consistently design and alter the right-of-way with all users in mind. Contact the National Complete Streets Coalition (www.completestreets.org) to learn about the diverse groups working together to enact complete streets policies across the country!

A recent poll by Coldwell Banker revealed a vast majority of the real estate agents - 78% - said their clients are interested in living in areas that help reduce their gasoline bill.¹ Furthermore, the majority of the surveyed agents agree that walkability and access to public transportation are appealing to clients. With increased transportation costs and time spent in gridlock, Americans are starting to realize that the benefits of living in places where they don't always have to drive add up.



When the built environment discourages the use alternate modes of transportation, Americans are forced to pay high premiums for transportation.



Right photo courtesy of Payton Chung
Left photo courtesy of Eric Richardson

Incomplete streets lead to higher costs

Transportation is the second largest expense for American households, costing more than food, clothing, and health care. Even before the recent run-up in gasoline prices, Americans spent an average of 18 cents of every dollar on transportation, with the poorest fifth of families spending more than double that figure. The vast majority of this money, nearly 98 percent, is for the purchase, operation, and maintenance of automobiles. Drivers spent \$186 billion on fuel last year, and without improvements to fuel economy, Americans will spend an estimated \$260 billion in 2020 on gasoline.²

This high cost is unavoidable for those who live in sprawling areas that lack sidewalks, bike lanes, and convenient public transit. Incomplete streets leave many commuters with no alternatives. Families living in auto-reliant environments, such as Houston, spend an even larger percentage of their household income on transportation, about 20 percent. In communities with more transportation options, costs are as low as 14 percent.³

Most families spend far more on transportation than on food, and transportation costs continue to rise. When gas prices rose to \$3.00 a gallon, the Brookings Institution estimated this would result in an increase in the average household's transportation spending of 14% per year.⁵ With higher energy costs, this means families are cutting back on weekend outings, restaurant meals, and long-distance travel.

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Complete Streets Lower Transportation Costs

The Benefits of
Complete Streets 10



Complete Streets Steering Committee Organizations

AARP
Alliance for Biking and Walking
America Bikes
America Walks
American Council of the Blind
American Planning Association
American Public
Transportation Association
American Society of
Landscape Architects
Association of Pedestrian and
Bicycle Professionals
City of Boulder
Institute of Transportation Engineers
Kimley Horn and Associates, Inc.
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McCann Consulting
National Center for Bicycling
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Safe Routes to School National
Partnership
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Complete streets give choices

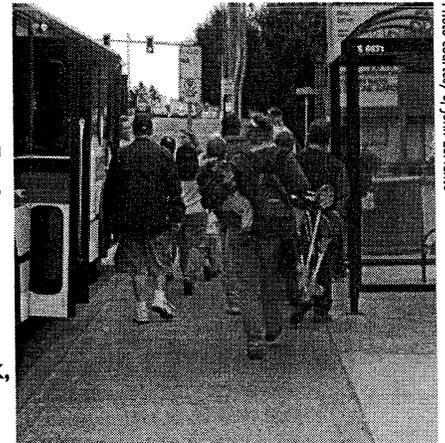
Transportation expenses can be reduced if local infrastructure encourages active transportation, which helps families replace car trips with bicycling, walking, or taking public transit. Transit use soared across the country as people sought alternatives to high gas prices and has sustained at high levels. Nevertheless, many users may be discouraged by long waits at inadequate bus stops or by dangerous street crossings.

Households that locate near public transportation drive an average of 16 fewer miles per day compared to a similar household without access to public transportation, which results in hundreds of dollars in savings each year. In fact, a two-person adult household that uses public transportation saves an average of \$6,251 annually compared to a household with two cars and no public transportation accessibility.⁶

When residents have the opportunity to walk, bike, or take transit, they have more control over their expenses. In Wisconsin, public transit riders save almost \$7 per trip over driving.

Because of these individual savings, additional money is invested in the economy, resulting in 11,671 new jobs, \$163.3 million in tax revenue, and \$1.1 billion in total output.⁷ Households in auto-dependent communities devote 20% more to transportation than communities with complete streets, which hinders potential economic growth.⁸

When roads are re-designed and maintained to attract pedestrians, the local economy improves and diversifies from increased buyers, which creates job growth and increased investment in the area, including surrounding property values. One study in Lake Worth, FL found that people were willing to pay \$20,000 more for homes in pedestrian-friendly communities.⁹ In the Chicago area, homes within a half-mile of a suburban rail station on average sell for \$36,000 more than houses located farther away.¹⁰ Complete streets create attractive streets, enticing people of all ages and to spend time in communities with active transportation choices.



Complete streets allow people to choose how they travel, whether by bus, bike, afoot, or in a car.

Photo courtesy of John Loftham

¹ Interest in Urban Homeownership Survey, Coldwell Banker, June 2008.

² Friedman, David et al. "Drilling in Detroit: Tapping Automaker Ingenuity to Build Safe and Efficient Automobiles," Union of Concerned Scientists, June 2001, p. 15, Table 4.

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⁵ The Center for Transit-Oriented Development and the Center for Neighborhood Technology. *The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice*. Brookings Institution, January 2006.

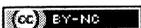
⁶ Lipman, 2006.

⁷ Bekka, Khalid. *Economic Benefits of Public Transportation*. Wisconsin Department of Transportation, November 2003.

⁸ McCann, Barbara. *Driven to Spend: Sprawl and Household Transportation Expenses*. STPP, March 200.

⁹ Pollock Shea, Cynthia. *Lake Worth: Reclaiming a Small Downtown*. Florida Sustainable Communities Network, October 1998.

¹⁰ *What Happens to a Capital Investment in Public Transportation?* American Public Transportation Association.



Complete Streets

Improve Safety for Everyone

The Benefits of
Complete Streets 9

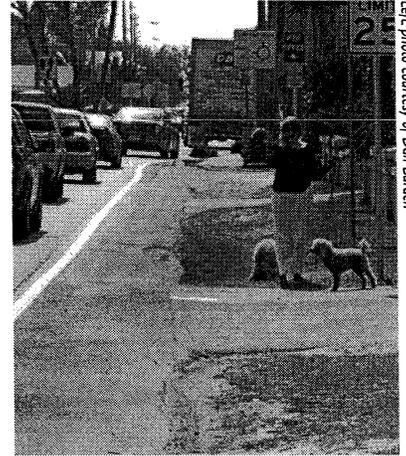


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Alysia Benson, 46, was killed while walking three-tenths of a mile from a church event to her home in an unincorporated part of the Houston metropolitan area in March 2005. The road has no sidewalk, shoulder, or lighting. Three days later, a 23 year-old man was struck and killed along another busy two-lane road in the area, also without sidewalks.



Incomplete streets can create a dangerous environment for people outside of cars.



Right photo courtesy of Dan Burden
Left photo courtesy of Dan Burden

Incomplete streets put people at risk

Streets without safe places to walk, cross, catch a bus, or bicycle put people at risk. Close to 5,000 pedestrians and bicyclists die each year on U.S. roads, and more than 70,000 are injured.¹ Pedestrian crashes are more than twice as likely to occur in places without sidewalks; streets with sidewalks on both sides have the fewest crashes.² While the absolute numbers of bicyclists and pedestrians killed has been in decline for the past few decades, experts attribute this in part to a decline in the total number of people bicycling and walking. The Surface Transportation Policy Project found that pedestrian safety declined during the 1990s based on exposure rate (more people were hit walking and bicycling in proportion to their numbers), and many metropolitan areas became significantly more dangerous for pedestrians.³

A recent study comparing the United States with Germany and the Netherlands, where complete streets are common, found that when compared per kilometer traveled, bicyclist and pedestrian death rates are two to six times higher in the United States. Complete streets therefore improve safety indirectly, by encouraging non-motorized travel and increasing the number of people bicycling and walking. According to an international study, as the number and portion of people bicycling and walking increases, deaths and injuries decline.⁴ This is known as the safety in numbers hypothesis: more people walking and biking reduce the risk per trip.

(over)

Complete Streets Improve Safety for Everyone

The Benefits of Complete Streets 9



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Complete streets help reduce crashes

Complete streets reduce crashes through comprehensive safety improvements. A Federal Highway Administration review of the effectiveness of a wide variety of measures to improve pedestrian safety found that simply painting crosswalks on wide high-speed roads does not reduce pedestrian crashes. But measures that design the street with pedestrians in mind – sidewalks, raised medians, better bus stop placement, traffic-calming measures, and treatments for disabled travelers – all improve pedestrian safety.⁵ Some features, such as medians, improve safety for all users: they enable pedestrians to cross busy roads in two stages, and reduce left-turning motorist crashes to zero, a type of crash that also endangers bicyclists.

One study found that designing for pedestrian travel by installing raised medians and redesigning intersections and sidewalks reduced pedestrian risk by 28 percent.⁶ Speed reduction has a dramatic impact on safety for all road users, reducing both the number and seriousness of crashes. Eighty percent of pedestrians struck by a car going 40 mph will die; at 30 mph the likelihood of death is 40 percent. At 20 mph, the fatality rate drops to just 5 percent.⁷ Roadway design and engineering approaches commonly found in complete streets create long-lasting speed reduction. Such methods include enlarging sidewalks, installing medians, and adding bike lanes. All road users – motorists, pedestrians, and bicyclists – benefit from slower speeds and better design.

Complete streets encourage safer bicycling behavior. Sidewalk bicycle riding, especially against the flow of adjacent traffic, is far more dangerous than riding in the road, due to unexpected conflicts at driveways and intersections. Bicyclists on arterial streets with bike lanes are more likely to ride on the street with traffic – rather than on the sidewalk against traffic – than those on streets without bike lanes.

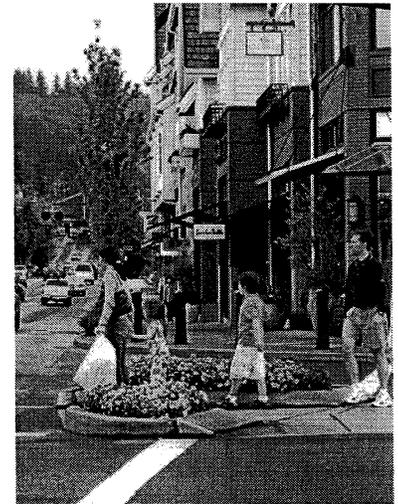


Photo courtesy of Dan Burden

Complete streets create a safe environment for all users.

¹ Michelle Ernst. *Mean Streets 2004: How Far Have We Come? Surface Transportation Policy Project* (2004).

² B.J. Campbell and others. *A Review of Pedestrian Safety Research in the United States and Abroad*. Federal Highway Administration Publication #FHWA-RD-03-042 (January 2004).

³ Michelle Ernst, *ibid.*

⁴ Jacobsen, P.L. "Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Biking." *Injury Prevention* 9 (2003): 205-209

⁵ B.J. Campbell and others, *ibid.*

⁶ M.R. King, J.A. Carnegie, and R. Ewing. "Pedestrian Safety Through a Raised Median and Redesigned Intersections." *Transportation Research Board* 1828 (2003): 56-66.

⁷ W.A. Leaf and D.F. Preusser. "Literature Review on Vehicle Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups." *US Department of Transportation, National Highway Traffic Safety Administration* (1999).

Complete Streets Spark Economic Revitalization

The Benefits of
Complete Streets 7



Complete Streets are designed and operated so they work for all users—pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Communities that adopt complete streets policies are asking transportation planners and engineers to consistently design and alter the right-of-way with all users in mind. Contact the National Complete Streets Coalition (www.completestreets.org) to learn about the diverse groups working together to enact complete streets policies across the country!

More than a decade ago, streets in downtown West Palm Beach were designed so drivers could quickly pass through without stopping. The properties downtown were 80% vacant, the city was \$10 million in debt, and street crime was common. In an effort to revitalize a barren downtown, the mayor looked first to transportation investments, such as pedestrian crossings, traffic calming measures, and streetscaping. Today, West Palm Beach boasts a booming, safe downtown with an 80 percent commercial occupancy rate. Commercial and residential property values along the improved corridors have soared.¹



Complete streets transformed West Palm Beach's downtown into a friendly destination during the day, and in the evening.

Photos courtesy of Downtown Development Authority, West Palm Beach

Incomplete streets restrict economic development

In today's landscape, retail and commercial development is often accessible only by automobile along roads that have become jammed even on weekends. Potential shoppers are left with no choice but to fill up the tank and drive. For many, that can mean staying home. This is particularly true for seniors; research shows that that "half of all non-drivers age 65 and over – 3.6 million Americans – stay home on a given day because they lack transportation."² The economy cannot reach its maximum potential when buyers are unable to reach retail destinations.

Lack of transportation options also affects the workforce. In a 2006 Airport Corridor Transportation Association report on employment centers outside Pittsburgh, 30% of employers responded that transportation was the number one barrier to hiring and retaining qualified workers.³ Although bus routes serve a portion of the center, more than 50% of employees responded that there was no bus stop convenient to home or work. Other employees noted that they didn't use public transportation because bus stops in the area had no sidewalks to safely reach their destination. The lack of a network of complete streets in and around this activity center makes it difficult to attract and retain employees.

Incomplete streets hinder economic growth and can result in lost business, lower productivity, and higher employee turnover.

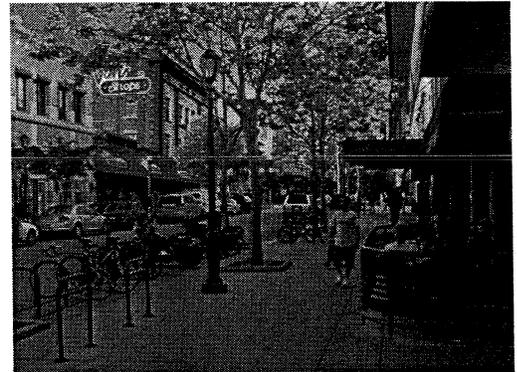
The Benefits of Complete Streets 7

Complete Streets Spark Economic Revitalization

Complete Streets create viable, liveable communities

Creating infrastructure for non-motorized transportation and lowering automobile speeds by changing road conditions can improve economic conditions for both business owners and residents. When Valencia Street in San Francisco's Mission District slimmed its traffic lanes to slow down cars and accommodate other users, merchants reported the street changes enhanced the area. Nearly 40 percent of merchants reported increased sales, and 60 percent reported more area residents shopping locally due to reduced travel time and convenience.

Overall, two-thirds of respondents described the increased levels of pedestrian and bicycling activity and other street changes improved business and sales.⁴ A network of complete streets is more safe and appealing to residents and visitors, which is also good for retail and commercial development.



Complete streets in North Carolina attract more tourists: in 2004, NC DOT invested \$6.7 million in bicycling infrastructure which brings in \$60 million annually from visitors.

Street design that is inclusive of all modes of transportation, where appropriate, not only improves conditions for existing businesses, but also is a proven method for revitalizing an area and attracting new development. Washington, DC's Barracks Row was experiencing a steady decline of commercial activity due to uninviting sidewalks, lack of streetlights, and speeding traffic. After many design improvements, which included new patterned sidewalks, more efficient public parking, and new traffic signals, Barrack's Row attracted 44 new businesses and 200 new jobs.⁵ Economic activity on this three-quarter mile strip (measured by sales, employees, and number of pedestrians) has more than tripled since the inception of the project.

Complete streets also boost the economy by increasing property values, including residential properties, as generally homeowners are willing to pay more to live in walkable communities. In Chicago, homes within a half-mile of a suburban rail station on average sell for \$36,000 more than houses located further away.⁶ Similarly in Dallas, the new public transportation rail line helped spur retail sales in downtown Dallas, which experienced sales growth of 33 percent, while the sales in the rest of the city grew 3 percent.⁷

¹ Street Redesign for Revitalization, West Palm Beach, FL. Case Study No. 16. http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=16.

² Surface Transportation Policy Partnership. Aging Americans: Stranded Without Options. 2004. http://www.transact.org/library/reports_html/seniors/aging.pdf

³ Airport Corridor Transportation Association (ACTA). Study of Improved Shared Ride Transportation Services to the Robinson/North Fayette Employment Center. October 26, 2006. <http://www.acta-pgh.org>.

⁴ Drennen, Emily. Economic Effects of Traffic Calming on Urban Small Businesses. 2003. http://www.emilydrennen.org/TrafficCalming_full.pdf.

⁵ Barrack's Row Annual Report. 2006. <http://www.barracksrow.org/public/AnnualReports/BAR-001-AnnualRprt4.pdf>.

⁶ American Public Transportation Association. Public Transportation Means Business. http://www.apta.com/government_affairs/tea211/documents/brochure_transit_means_business.pdf.

⁷ APTA. Public Transportation Means Business.



Complete Streets Steering Committee Organizations

AARP
 Alliance for Biking and Walking
 America Bikes
 America Walks
 American Council of the Blind
 American Planning Association
 American Public Transportation Association
 American Society of Landscape Architects
 Association of Pedestrian and Bicycle Professionals
 City of Boulder
 Institute of Transportation Engineers
 Kimley Horn and Associates, Inc.
 League of American Bicyclists
 McCann Consulting
 National Center for Bicycling and Walking
 Safe Routes to School National Partnership
 Smart Growth America

National Complete Streets Coalition

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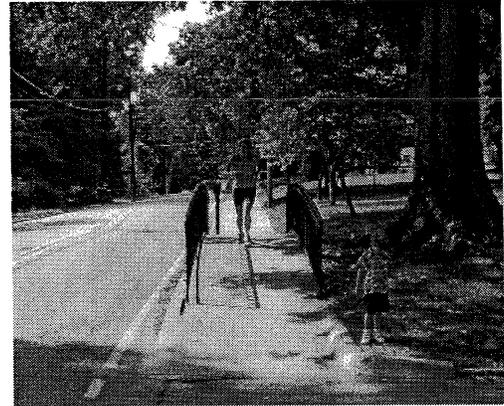
Complete Streets Promote Good Health!

The Benefits of
Complete Streets 4



Complete Streets are designed and operated so they work for all users— pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Communities that adopt complete streets policies are asking transportation planners and engineers to consistently design and alter the right-of-way with all users in mind. Contact the National Complete Streets Coalition (www.completestreets.org) to learn about the diverse groups working together to enact complete streets policies across the country!

In Moses Lake, Washington, the community has adopted a Healthy Communities Action Plan, in direct response to a 127% increase in the adult obesity rate there. New zoning rules require wider sidewalks and other features that improve accessibility for pedestrians and cyclists.¹



When streets provide adequate access to bicyclists and joggers, people are more likely to be physically active.

Incomplete streets restrict physical activity

When streets are designed only for cars, they deny people the opportunity to choose more active ways to get around, such as walking and biking. Even where sidewalks exist, large intersections and speeding traffic may make walking unpleasant or even unsafe - discouraging any non-motorized travel.

Obesity in America has reached epidemic proportions in recent years. The latest data show that 32% of adults are obese,² the number of overweight or obese American children nearly tripled between 1980 and 2004.³ Health experts agree that a big factor is inactivity – 55 percent of the U.S. adult population falls short of recommended activity guidelines, and approximately 25 percent report being completely inactive.⁴ Inactivity is a factor in many other diseases, including diabetes, heart disease, and stroke. Incomplete streets mean many people lack opportunities to be active as part of daily life.

Post World War II growth patterns and street designs tend to favor the automobile over walking and bicycling. The health impacts are clear -- one study found that, on a daily basis, each additional hour spent driving is associated with a 6% increase in the likelihood of obesity, while each additional kilometer walked is associated with a 5% reduction in this likelihood.⁵

Right: www.pedwalkinmoses.org/David Criss
Left: photo courtesy of Dan Burden

(over)

The Benefits of Complete Streets 4

Complete Streets Promote Good Health!



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AARP
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 Kimley Horn and Associates, Inc.
 League of American Bicyclists
 McCann Consulting
 National Center for Bicycling and Walking
 Safe Routes to School National Partnership
 Smart Growth America

National Complete Streets Coalition

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Right photo courtesy of Dan Burden

Providing a safe environment for children to go outside and play is essential to combat the epidemic of childhood obesity.

Complete streets make active living easy

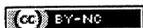
Complete streets provide opportunities for increased physical activity by incorporating features that promote regular walking, cycling and transit use into just about every street. A report prepared by the National Conference of State Legislators found that the most effective policy avenue for encouraging bicycling and walking is incorporating sidewalks and bike lanes into community design – essentially, creating complete streets.⁶ The continuous network of safe sidewalks and bikeways provided by a complete streets policy is important for encouraging active travel.

Public health researchers recommend building more sidewalks, improving transit service, and shifting highway funds to create bike lanes to encourage more physical activity.⁷ One study found that 43% of people with safe places to walk within 10 minutes of home met recommended activity levels; among those without safe places to walk just 27% met the recommendation.⁸ Residents are 65% more likely to walk in a neighborhood with sidewalks.⁹

Walkability has a direct and specific relation to the health of residents. A comprehensive study of walkability has found that people in walkable neighborhoods did about 35-45 more minutes of moderate intensity physical activity per week and were substantially less likely to be overweight or obese than similar people living in low-walkable neighborhoods.

Easy access to transit can also contribute to healthy physical activity. Nearly one third of transit users meet the Surgeon General's recommendations for minimum daily exercise through their daily travels.

A community with a complete streets policy ensures streets are designed and operated to make it easy for people to get physical activity as part of their daily routine, helping them stay trim, avoid heart disease, and receive the many other benefits of physical activity. DuPage County, Illinois adopted its complete streets policy as a health measure, calling it their "Healthy Streets Initiative" and the Tacoma-Pierce County Board of Health (WA) adopted a resolution urging all Pierce County municipalities adopt and implement Complete Streets policies to promote healthy living.



Footnotes listed on following page.

www.completestreets.org

Complete Streets Promote Good Health!



- ¹ U.S. Center for Disease Control and Prevention, 2006.
- ² U.S. CDC. (2006) *Physical Activity and Good Nutrition: Essential Elements to Prevent Chronic Disease and Obesity*.
- ³ U.S. CDC. (2004) *Physical Activity and the Health of Young People*.
- ⁴ U.S. Dept. of Health and Human Services (2000) *Healthy people 2010*. 2nd edition. Washington, DC: U.S. Government Printing Office.
- ⁵ Frank, L.D. et al (2004) *Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars*. *American Journal of Preventative Medicine* 27:2.
- ⁶ Teach Robbins, L., Morandi, L. *Promoting Walking and Biking: the Legislative Role*. NCSL, December 2002.
- ⁷ Brennan-Ramirez, L. et al. "Indicators of Activity-Friendly Communities: An Evidence-Based Consensus Process" 2006. *American Journal of Preventive Medicine*, Volume 31, Issue 6
- ⁸ Powell, K.E., Martin, L., & Chowdhury, P.P. (2003). *Places to walk: convenience and regular physical activity*. *American Journal of Public Health*, 93, 1519-1521.
- ⁹ Giles-Corti, B., & Donovan, R.J. (2002). *The relative influence of individual, social, and physical environment determinants of physical activity*. *Social Science & Medicine*, 54 1793-1812.
- ¹⁰ Sallis, James F, et al. *Neighborhood built environment and income: Examining multiple health outcomes*. *Social Science and Medicine* 68(2009): 1285-1293.
- ¹¹ Besser, L. M. and A. L. Dannenberg (2005). *Walking to public transit steps to help meet physical activity recommendations*. *American Journal Of Preventive Medicine* 29(4): 273-280.