



City of Grand Blanc

Bicycle Transportation Master Plan

October, 2008

City Council Approved: November 12, 2008



Gould Engineering, Inc.

Civil | Surveying | Planning
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NOTE: The State of Michigan and the Federal Government are presently developing new signage, construction details, and lineage standards which will appear in future MMUTCD and AASHTO manuals. Please consult these manuals, as necessary, for future projects. This master plan is not a design manual and should not be considered such. Each project will require its own special design considerations.



Community History & Profile

The City of Grand Blanc is located in southeast Genesee County ten (10) miles south of Flint and 60 miles north of Detroit. The city occupies an area of approximately four (4) square miles. The 1980 census reported 6,848 residents, and the 1990 census reported 7,760 persons living in the City of Grand Blanc. The results of the 2000 census report the population at 8,242.

“Grand Blanc”, which literally means “Great White”, was originally settled by Chippewa Indians. French traders arrived before 1800 and gave the town its name. By 1823, pioneer families began setting up trading posts and settling on the abundant farmland which sold for \$1.25 an acre. The railroad added more work and growth to the small community in 1862. The Village of Grand Blanc was the first in the state to consolidate its schools in 1904. Grand Blanc adopted its city charter on March 4, 1930.

The city is currently served by an elected mayor, an appointed city manager, and six (6) elected council members.

Today, residents of Grand Blanc are fortunate to have many services and programs available to them. Parks and Recreation activities at four (4) city owned parks, senior citizen services, McFarlen Public Library programs, and community education courses are available to satisfy many diverse interests. The Heritage Museum preserves the history of the area. The school system is one of the best in the State of Michigan. Opportunities for shopping and dining are available in the city, as well as medical and dental facilities. Churches of all denominations are present throughout the area. Bus, train, and air transportation are easily accessible.

The name “Grand Blanc” is synonymous with “golf”! Located within the Grand Blanc community are many fine public and private golf courses. Warwick Hills Country Club, situated just south of the city limits, is host to the annual Buick Open Golf Tournament, which is the only PGA tour event held in the State of Michigan.

Grand Blanc, priding itself on its small town atmosphere and friendliness, is an excellent community in which to work, live, and play.

2000 Census Information Specific to the City of Grand Blanc

Total Population	8,242	% of Total Population		Median Age (years)	37.1
		Under 5 years	6.7	Total Households	3,542
Population by Race		5 to 9 years	6.8		
One Race	8,097	10 to 14 years	6.6	Total Housing Units	3,725
White	7,349	15 to 19 years	6.6		
Black or African/American	413	20 to 24 years	6.5		
American Indian or Alaska Native	22	25 to 34 years	13.5		
Asian	265	35 to 44 years	15.2		
Native Hawaiian/Other Pacific Islander	0	45 to 54 years	15.3		
Other Race	48	55 to 59 years	5.0		
Two or more races	145	60 to 64 years	3.4		
Hispanic or Latino (of any race)	138	65 to 74 years	7.0		
		75 to 84 years	5.2		
		85 years and over	2.1		

This information is compiled from the 2000 Census. To view the U.S. Census website, visit www.census.gov/



City of Grand Blanc Administration (2008)

Randy Byrne	City Manager
Bethany Smith	Clerk/Treasurer
Wendy Jean-Buhrer	Finance/Assistant City Manager
Diane Guzak	Personnel Director

City Council

Michael Matheny	Mayor
D. Keith Baldwin	Councilor
Connie Lesley	Councilor
Jim Bappert	Councilor
Steve Robinson	Councilor
Susan Soderstrom	Councilor
John Freel	Councilor

Planning Commission

Wally Morgan
 Michael Matheny
 Matt Wurtz
 John Freel
 Gary Henry
 Michael Wolfgram
 Toben King
 Bill Turk

Why Bicycle?

Today's society is demanding more recreational activities and destination points that can be reached by means other than a fuel vehicle. The desire to be healthy, be green, and save money is more important today than ever before. This desire for alternate forms of transportation and a healthier environment will become more of a demand over the next few years and well into the future.

Many large cities within the United States such as Chicago, Illinois; Washington, D.C.; Las Vegas, Nevada; Louisville, Kentucky; Seattle, Washington; and Boulder, Colorado, to name a few, have been proactive with this effort or are becoming more proactive with Smart Commute and Smart Development Activities by providing biking opportunities, healthy living environments, and generally "being green". The City of Grand Blanc recognizes that these attributes enhance one's quality of living and enhances the overall value of the community. Therefore, the City has been active in providing bicycle training to children in the schools; developing parks and recreation facilities; and bicycling, roller blading, and walking opportunities for their residents and those who wish to visit the Grand Blanc community.



This “City of Grand Blanc Bicycle Transportation Master Plan” is the first step in adopting a plan for community use and information. It will be used for implementing the steps necessary to achieve funding and construction for improvements to connect those living in the city to the local schools, parks, Heritage Museum, farmers market, downtown, City Hall, and other attributes of the community, as well as to other important county geographic areas.

The State of Michigan, its counties, and local communities are all planning for strategic growth, sustainability, environmental integrity, economic prosperity, and social equity. If Michigan and local communities are going to survive in the new economy, they will need to build places that attract and retain talented, educated workers, now referred to as the “Brain Trust” of future economic well-being. According to many planners and the Michigan Planning and Zoning Center at Michigan State University, “High quality, high amenity living environments are key to attracting knowledge workers (entertainment, cultural attractions, green space, pedestrian orientation, transit, bicycle paths, local schools, mixed use development, and other livable community elements) are key.” Today’s “Brain Trust” graduates are first looking for a quality place to live, then looking for a job in that place.

Additionally, as the cost of vehicle fossil fuel continues to rise in America, the bicycle will become more important as an alternate form of transportation. In America, it may never equal the level of use found in European countries, but the use level will increase as reported by recent research provided by TV, radio, and newspapers. Commuters around the country are dusting off their old two-wheelers, or buying new ones, to cope with the rising fuel prices.

“People are riding bicycles a lot more often, and it’s due to a mixture of things, but escalating gas prices is one of them,” said Bill Nespier of the League of American Bicyclists. Rebecca Anderson, Advocacy Director for Trek Bicycle Corporation said, “Millions of people have bicycles hanging in the garage and they’re getting them down and riding them. People are looking at the bicycle as more than just a toy.”

Project for Public Spaces (PPS) is a nonprofit organization dedicated to helping people create and sustain public places that build communities. The following comments are from a 2008 newsletter:

“Attractions & Destinations: *Having something to do gives people a reason to come to a place - and to return again and again...*”

“The Benefits of Community Building Through Transportation: *Growing reams of research show that communities within conveniently walkable streets and less dependence on autos for all their transportation needs see a host of other benefits.”*

“Bold Uses on Classic Streets: *The great cities of the world, both large and small, are known for their great streets - whether grand boulevards or narrow, winding streets. They function as an urban bloodstream, pumping life through the city and connecting the most important destinations.”*



“Reinventing Streets as Places: Streets account for as much as a third of the land in a city, and historically, they served as public spaces for social and economic exchanges.”

These are all important considerations for a community to consider when looking to provide sustainability and a greater quality of life for local residents, businesses, and visitors as we discuss our changing living environment and attitudes. Even AAA is redefining its focus from strictly a vehicle insurance provider to a focus which also includes pedestrians. According to President Robert L. Darbelnet, “AAA is re-branding itself the **American Amblers Association** to reflect its changing role in helping people enjoy the nation’s parks, playgrounds, public markets, and greenways. Its new logo is a stylized rendering of three pairs of legs, each forming an ‘A’. The re-branding of North America’s largest motoring organization comes in response to American’s declining automobile use and greater appreciation for hometown attractions”.

AAA is so committed that they are offering \$100,000.00 grants to cities who reduce existing parking facility numbers.

Objective

Smart Commuting and bicycling are beneficial to the local economy. These activities can create a more active, livable, and economically viable community. Businesses and communities should encourage the activities of walking, bicycling, and public transportation or any combination of the three. By cultivating a walking and bicycling culture, the City of Grand Blanc could experience business growth, increased real-estate values, and generally improve the quality of life for its residents.

Downtown Midland has undergone a transformation to encourage a more walkable and active community. The downtown has a multitude of attractions for residents and visitors, including shops, restaurants, and upper-level residential spaces. This downtown area attracts many bicyclists each year.





Physical Tidbits

In 2007, Physical inactivity was projected to cost Michigan 12.65 billion dollars!

(<http://www.michiganfitness.org/Publications/documents/CostofInactivity.pdf>)

Providing opportunities for employees to walk and bicycle during the workday can yield many benefits:

- \$3 to \$6 return for every dollar invested over a 2 to 5 year period
- 28% reduction in sick-leave absenteeism
- 26% in use of health care benefits
- 30% reduction in worker's compensation claims and disability management
- Reduced presenteeism losses (workers are on the job, but not fully functioning)

(American Journal of Health Promotion, 2003)

It is a fact that businesses and employers bear a sizable portion of the direct and indirect health care costs for employees in poor health. Poor exercise habits of employees can result between 10% and 21% greater employer health care expenditures. Employers experience higher payouts for:

- Short-term disability
- Absenteeism
- Worker's compensation
- Health care

(Chenoweth et al., 2002)

For each mile you drive, you produce 0.92 pounds of CO₂ emissions. That means if you drive 10,000 miles a year, you generate 9,160 pounds (or over 4 tons!) of CO₂ each year.

(http://www.crim.org/smartCommute/comm_challenge.htm)

The Surgeon General recommends that you get at least 30 minutes of moderate physical activity 5 days a week, but that most people do not meet this goal:

- 51% of U.S. residents are inactive
- 51% of Michigan residents are inactive
- 55% of Flint residents are inactive

Smart Commuting is a great way to ensure that you participate in regular physical activity!

(http://www.crim.org/smartCommute/SC_sponsorship.htm)

Process

Meetings and discussions were first held between Gould Engineering, Inc. and City senior staff and elected officials regarding the general desire and need to create a friendly community connected by alternate forms of transportation and the type of master plan to be developed. Next, Gould Engineering, Inc. developed a basic map containing all city streets, major parcels and developments, key features within the City (such as: City Hall, the



museum, schools, parks, private recreational features) and other important destination points within the City. Gould Engineering, Inc. reviewed other nearby important destination points outside the city limits and where connection points are currently planned or may be planned for connecting to existing and proposed shared use pathways.

Gould Engineering, Inc. and the City then generally reviewed the width, type and traffic volumes of existing streets, as well as the existing pathway types within the city. This provided a map and a basic preliminary plan for review. The next step involved physically driving throughout the city, reviewing street surface types and conditions. This allowed for review of how the residents were utilizing the streets for walking, bicycling, roller blading, and running. Gould Engineering, Inc. also looked at which streets have sidewalks and what kind of use capacity they had, as well as their surface condition and full accessibility to all users, e.g. those who are physically challenged and others.

The Bicycle Route Transportation Map (see Page 29) includes streets, green spaces, railroads, water boundaries, the central business district, and various other destination points. The proposed bicycle routing includes various levels of on-street signed routes and off-street pathways. These routes are indicated from low-level traffic volume streets (which are easily shared by both bicycles and motor vehicles) to on-road routes (which can be shared, but only by the most experienced bicycle riders) to areas considered undesirable for bicycling due to site distances, road conditions, traffic volumes, or speed limits.

The following abstract further explains the need and skills of various bicyclists [from the American Association of State Highway and Transportation Officials (AASHTO), Task Force on Geometric Design (1999), *Guide for the Development of Bicycle Facilities*; Federal Highway Administration, *Selecting Roadway Design Treatments to Accommodate Bicycles* (Publication No. FHWA-RD-92-073), (1994); and Michigan Department of Transportation CSS Manual]:

ABSTRACT - The Bicycle is a viable transportation mode. Since the early 1970s, bicycle use for commuting, as well as recreation, has been increasing and the federal, state and local agencies are responding to that need. The emphasis now being placed on bicycle transportation, and how to integrate it into the overall transportation system, requires an understanding of bicycles, bicyclists, and bicycle facilities which this guide addresses.

Planning for existing and potential bicycle use should be integrated into the overall transportation planning process during the initial phases of highway projects. It is an opportunity for a community to set the goals and objectives for biking as an alternative transportation mode.

*The first step is to define how much space is needed for the bicyclist dependent on their basic profile and the type of traffic in which they will be riding. The facility should be planned for the type of users anticipated. [Presently,] the general categories are **A**dvanced or experienced riders, **B**asic or less confident adult riders, and **C**hildren. The **A-B-C** types are helpful, but no one type of bicycle facility or highway design suits every bicyclist and no designated bicycle facility can overcome a lack of bicycle operator skill. Bicycle facilities*



should be planned for continuity and consistency for all users. The selection of a bicycle facility type is dependent on many factors: the ability of the users, corridor conditions, and facility cost.

In the planning phase, an inventory of the existing bicycling environment to determine suitability for bicycling, taking into consideration: obstructions and impediments to bicycle travel, bicycle traffic generators, access, and bicycle parking. This is a good time to involve the public in developing the foundation for improvement plans and the selection of an appropriate bicycle facility. [A plan to educate] bicyclist and motorist...are key ingredients to building a successful bicycle transportation system [and should be developed].

[Additionally,] safe, convenient, and well-designed facilities are essential to encourage bicycle use. These facilities should be satisfactory for all categories of bicyclist to include:

Young Children & Families - Sidewalks and bicycle paths are good for the learning and beginning cyclist.

Elderly - Many elderly cyclists wish to travel at slow speeds, and wish to be separated from moving traffic. Sidewalks and paths are preferred by many of the elderly.

Recreational Cyclists - This class of cyclist prefers to ride on the road and they have a destination, even if it's just for breakfast or lunch.

Commuters - The commuter cyclists are generally the most experienced of the cycling family. They wish to ride on the roads because they are faster and, generally, more direct. They may use paths if shorter in time or distance.

Following the identification of streets and existing and proposed pathways, another meeting was hosted by Gould Engineering, Inc. with the mayor and senior staff persons from the city. Following this meeting, some alterations were made to the proposed map related to connection points between destinations, locations of proposed pathways, and street being selected for bicycle routing.

The preliminary report outline and map were created, then staff from Gould Engineering, Inc. rode bicycles along all routes on various days and times to experience the selected routes.

Prior to adoption, the Bicycle Transportation Master Plan went through the Public Notice/Public Hearing process at the City of Grand Blanc for public comment and the Planning Commission's review. Upon recommendation for approval by the Planning Commission, the master plan went before the City Council for final approval and adoption.

Upon formal adoption of the City of Grand Blanc Bicycle Transportation Master Plan, the master plan will be submitted to the Genesee County Metropolitan Planning Commission for formal adoption into their countywide regional trail plan. It should be noted that the



county regional trail plan has proposed a “potential trail” along the Thread Creek within the City Limits. City of Grand Blanc officials voiced concerns with the environmental impacts caused by this potential trail location. Because of this, the City of Grand Blanc Bicycle Transportation Master Plan does not include a potential trail along the Thread River; rather, the City of Grand Blanc Bicycle Transportation Master Plan shows the county’s “potential trail” connecting to the existing shared use pathway in Rust Park. Connection from one end of the city to the other would then be provided through a combination of on-road connections and shared use pathways (please reference the map on Page 29). East of Vassar Road, the proposed county trail along the Thread River could connect to the proposed shared use pathway on the south side of Perry Road.

Existing Conditions

Because the City of Grand Blanc has been proactive with a yearly street reconstruction and maintenance program, most streets selected for bicycle trip routing have smooth and/or nearly new surfaces. All streets are constructed with either quality blacktop or concrete surfaces. The existing bicycle pathways have been constructed with blacktop or concrete materials, while the traditional sidewalks are concrete.

The ‘Photos’ section contained in this master plan illustrates the general surface quality and type of the existing pathways and roadways. The ‘Photos’ section also illustrates specific areas within the city which could benefit from additional shared use pathway construction, bicycle lane striping and/or signing, bicycle and stroller parking stations, pedestrian crossings, or improved shoulders. In addition to the areas identified, the City may want to consider providing after-hours and/or weekend vehicle parking (such as at the high school) for bicyclists driving their bicycles into to town to visit the Grand Blanc area.



Photos



North entrance to the City of Grand Blanc, looking south along the existing sidewalk from Heritage Park Shopping Complex.



Existing pathway leading south to Reid Road from Physicians Park.

Excellent access.

Looking north into Physicians Park from Grand Boulevard.

A great destination place.



Playscape and pathway in Physicians Park.

A great family recreation area.



Identifiable pedestrian crossing over Reid Road at Grand Boulevard.

Highly identifiable, but other forms of cross-work identifiers can also be considered.

Grand Boulevard looking south to destination points: Heritage Museum, City Hall, and City Police Station.

A great people place. This area and other various destination points could benefit from more bicycle station facilities.



Looking north through Physicians Park between parking lot and railroad.

Ideal place to construct multi-use pathway from Reid Road to the north, reaching a connection to Saginaw Street.



Looking north from Physicians Park along east side of railroad.

An elevated boardwalk returning to grade and a multi-use pathway could be constructed north to Saginaw Street.



Existing pathways within Rust Park, north of Indian Hill School.

A great destination and park with multi-use pathway systems. Possible future connection to the proposed Genesee County Metropolitan Planning Commission's Regional Trail Plan on the north end of Rust Park.

Existing Pathway leading to Rust Park from Indian Hill School.

Could replace with a wider pathway in future to provide regulation-size multi-use pathway system connection. The City of Grand Blanc would need to coordinate with the schools to determine whether the school would prefer thru traffic or local traffic only.





Existing pathways
within Rust Park.

*Excellent use of
present facility.*



Existing bicycle rack at
Indian Hill School.

*More bicycle
station facilities
could be located at
parks, schools, and
throughout the city
at various
destination points.*



Existing Gravel Service Drive
looking north from the
Riverbend East elevated
storage tank site along east
side of Gas Light Lane.

*Multi-use pathway could be placed in
this existing service drive running south
from Perry Road to water tower site, then
into Riverbend West area.*



North fence line looking east at Riverbend East elevated storage tank site.

Multi-use pathway could be placed along this fence line, then run south along existing fence line to existing gravel service drive.

Existing gravel service drive through the Riverbend East elevated storage tank site, leading to well No. 8 and No. 5.

As in other communities, this limited use service drive could be paved to provide dual use and be included as part of the shared use pathway system.



East fence line looking north at Riverbend East elevated storage tank site.

A new shared use pathway could be developed on either side of fence line to serve the local community, the schools, and the larger community.



South fence line looking west at Riverbend East elevated storage tank site.

Shared use pathway could be placed along this fence line.



Looking east across Grand Blanc Golf Course from end of Gas Light Lane toward Well No. 5, Water Plant, and Well No. 8.

*A shared use pathway could be placed across the golf course to service the entire community and schools. **During times of emergency, such pathways can be used by Police and other safety vehicles.***

Looking west on Jewett Trail.

Proposed shared use pathway is to be placed along south (left) side of Jewett Trail.



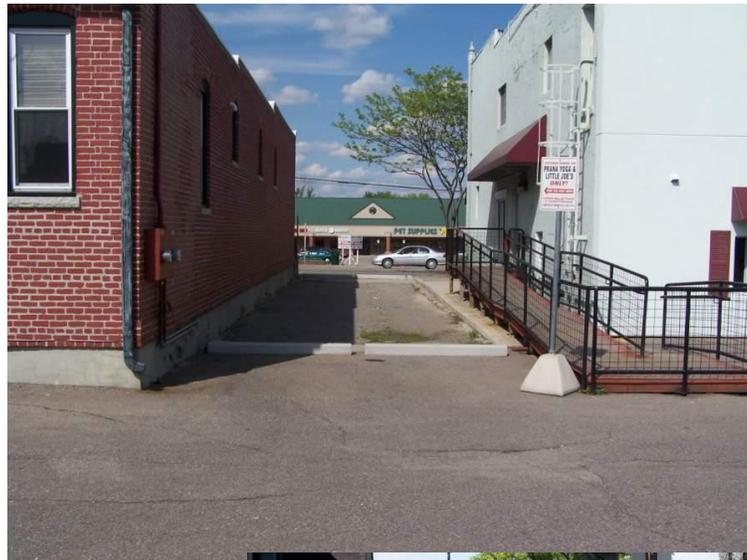


Looking north on Davis Street, opposite Sawyer Street.

Sufficient room to “Share the Road” exists here with identifying signage required. Bicycle lane striping would not be utilized here due to limited roadway width. When applicable, bicycle lane striping in conjunction with signing can provide a more defined area for bicyclists to ride.

Area between commercial buildings north of High Street looking east from parking lot toward Saginaw Road.

Bicyclists and Stroller Pushers need places to station and park while they visit town. Ideal areas like this exist throughout town. For further explanation, see Page 24.



Existing sidewalk along Saginaw Road, in front of Little Joes Restaurant.

Obstacles and limited space in this area might require a pathway design at the rear of the facilities fronting Saginaw Street.





Looking south from Grand Blanc Road east of the railroad tracks and west of commercial parking lot.

A shared use pathway could be developed through this open area, connecting Physicians Park & north Saginaw Road area with the proposed Jewett Trail pathway serving the schools through to Holly Road.

Looking northerly across Disneyland Park.

An elevated boardwalk could be developed over the wetland to Pleasant View Drive and then south to Old Bridge Road. This would create a north-south community connection without placing people along the heavy traffic volume on Saginaw Street.



Looking south from Disneyland Park toward Old Bridge Road.

This area could be utilized to connect Old Bridge Road to an elevated pathway across Disneyland Park, as proposed above.





Entrance to Grand Blanc Middle School, looking west along the south side of Perry Road toward Perry Place Apartments.

A shared use pathway along the south side of Perry Road would provide students and residents with a safer route from the Middle School to the downtown area. The City of Grand Blanc is presently in negotiations with the Perry Place Apartments regarding an easement for a pedestrian way through their property.

Looking east along existing Pathway on Perry Road in front of Grand Blanc Golf Club.

As shown, this pathway is utilized now for off-road safety.



Looking west along widened shoulder of Perry Road at Grand Blanc Golf Course cart path underpass.

Improved shoulder or a shared use pathway could be placed along this area for non-motorized users.



Near the Perry McFarlen Cemetery looking east along the Perry Road widened shoulder with schoolchildren coming home from school.

Shared use pathway placed along Perry Road would be an ideal non-motorized application and safety improvement.



Perry Road looking east opposite Terrace Drive. Standard sidewalk exists to the east and widened walkways exist to the west and south.

A crossing could be placed here as indicated below.



Looking north across Perry Road toward Terrace Drive.

Pedestrian crossing could be developed here on Perry Road.

A crossing could also be controlled at the signal light at Saginaw and Perry Roads, just to the west.



Perry Road pathway looking west toward Saginaw Road.

A combination of existing and proposed pathways would help provide pedestrians with access around the city.



Typical Kirkridge Street Subdivision.

Residential neighborhood streets with low traffic flows typically have sufficient width to accommodate motor vehicles and bicyclists. Such streets could benefit from "Bike Route" and/or "Share the Road" signage, but would not require bicycle lane striping.

Kirkridge Street Subdivision.

Typical local subdivision streets with very good width, limited traffic, and low speeds, conducive to "Share the Road" signage and routing.





Bus Stops

Bus stop locations as they relate to bikeable and walkable communities are very important to creating a community that supports Smart Commute efforts. As fuel prices rise, people move closer to towns and cities. Concerns for creating more positive effects on the environment have become more important to all generations, young and old. The linking of carpooling, bicycling, walking, and busing will become more vital to sustainable life styles.



The MTA has received funding to provide additional busses equipped with bicycle racks to encourage public transportation in conjunction with other alternate means of transportation.

Gould Engineering, Inc. completed a survey of posted “MTA” bus stop locations. We found within the City of Grand Blanc that posted stops exist along Holly Road south from Saginaw Road and northerly on Saginaw Road from Holly Road.

The signage along the City of Grand Blanc routes appears to be the older style, which have faded to the point that the stops may not be easily recognizable. Additionally, we believe some routing adjustments should be considered and additional stops placed. The area at the Holly Road, Bella Vista, and Saginaw Road triangle could be an area to consider for a bus stop, as well as the Pagels Drive area, thus servicing the Senior Center building. Another route and stop suggestion would be to bus through and provide identifiable stops at Kroger and Bella Vista Mall.

The current bus stops may not all meet ADA Physically Handicap Accessible Standards nor are shelters available to protect from inclement weather.

The MTA and the American Association of State Highway and Transportation Officials (AASHTO) have standards which relate to bus stops, approaches, curbing, and more. These type of standards should be taken into consideration for installing new bus stops and upgrading existing ones. Any bus stop improvements should be coordinated with MTA.



Design Considerations

Shared use Pathways

Today's AASHTO Guide for the Development of Bicycle Facilities (1999) standard shared use pathway cross-section is a ten (10) feet wide hard surface (typically black top) with a two (2) foot wide gravel, limestone, or mowed grass safety shoulder on each side, allowing for a total open and safe width of 14 feet. When bridge facilities are utilized, the safety width would be increased by two (2) feet on each side. This standard must be met in order for agencies or private funding organizations to provide funding for construction.

Should the city desire to utilize only local funding for a projected pathway, then the consideration for a reduced width and an alternate surface type could be made. However, the normal safety requirements along the pathway edges should not be reduced.

On-Road Bicycle Lanes, Pavement Markings, & Signage

According to the Guide for the Development of Bicycle Facilities, "All highways, except those where cyclists are prohibited, should be designed and constructed under the assumption that they will be used by cyclists. Therefore, bicycles should be considered in all phases of transportation planning, new roadway design, roadway reconstruction, and capacity improvements and transit projects."

The National Complete Streets Coalition defines a complete street as safe, comfortable, and convenient to travel by automobile, foot, bicycle, mobility aids, and/or public transit. It is a consideration from right-of-way line to right-of-way line for the benefit of all users. Additionally, their research indicates fifty percent (50%) of all urban trips in the United States are two (2) miles or shorter, but ninety percent (90%) of those trips are by car. Reducing the number of trips by car would also ease communities' transportation woes. Fewer cars would mean fewer traffic problems and a healthier environment.

Some streets in the city could be evaluated for "road diets" (reducing a road's lane width and total number of lanes to accommodate a bicycle lane). Road diet reviews consist of evaluating traffic counts, traffic type, existing lane widths, existing turning lanes, existing traffic flow directions, and existing traffic control devices. Road diets can be accomplished very inexpensively by re-striping to create a bicycle transportation lane(s) and adding signage. Generally, striping is reapplied to streets each year, so if planned proactively and timed with yearly re-striping efforts, the only cost would be to remove old stripe locations, and add some signage at approximately 500 feet intervals.

Some communities have transformed a road, which once was 4 or 5 lanes wide including a center turn lane, and removed and/or reduced lane widths to provide as much as a six (6) foot wide bicycle lane along each side of the roadway. Other communities have created one-way street flow and reduced lane widths to allow for a bicycle lane on one side of the traveled way in the direction of normal vehicle flow.



Many streets can be signed as “Bike Route” and/or “Share the Road” for bicycles without changing lane widths or striping. Many residential neighborhoods have roads which have low traffic flows and are sufficient in width to accommodate both bicyclists and motor vehicles. These types of roads could benefit from bicycle signage, but would not require bicycle lane striping.

Please reference the “Signing” and “Pavement Markings” sections in the Appendix for samples of available traffic control devices.

Bicycle Parking

Many locations throughout the city would serve as good locations for bicycle racks and/or parking stations. Some locations could simply provide bicycle racks to provide easy access for bicyclists to local restaurants and shops. Other locations could provide a broader range of facilities, such as stroller parking stations, benches, landscape boxes, and locker and chain rentals. Such facilities would encourage consumers to visit and spend time within the downtown area. The city may also want to consider adding such stations to the site plan approval process.

In order to involve the community, the city may want to hold a Bicycle Rack Design competition. Residents could submit their designs for a City of Grand Blanc standard bicycle rack and the winner’s design could help the city create a uniform bicycle rack standard for city- wide installation. Funding for the bicycle racks could come from local service organizations, city funding, and/or the DDA. For example, the DDA could host a local fundraiser to raise funds in conjunction with the city raising funds for the purchase and development of bicycle racks and other facilities.

Results

Through review it was determined the existing streets, existing pathways, and proposed pathways could yield bicycling routes to key destination points throughout the City of Grand Blanc. These destination points include the various schools, recreation facilities and parks, libraries, senior center, City Hall, Heritage Museum, farmers market, downtown, shopping centers, and other outlying communities’ points of interest.

Through meetings with the mayor, the city manager, and the police chief, some general priorities were considered.

- Obtain and install bicycle route signage in areas of the city that can easily accomplish some routing and completeness. Follow with additional street signage and routing as complete routes are further identified.
- Work with funding agencies, private property owners, and stakeholders to complete and/or improve shared use pathways within the city.



- Provide bicycle racks or parking areas at specific destinations in cooperation with the DDA, local businesses, and funding organizations.
- Working with the local Chamber of Commerce, the DDA, and other business groups, create bicycle transportation route and destination maps for use by residents and visitors. These could be available at businesses, government buildings, and the chamber of commerce office.

Funding & Implementation

The city has this year (2008), with Gould Engineering's assistance, applied for several Congestion Mitigation and Air Quality (CMAQ) grants. The areas applied for consideration of CMAQ funds are Grand Blanc Road for the year 2009, Jewett Trail for 2010, Commons Park for 2010, and Disneyland Park for 2011. The CMAQ grants for Grand Blanc Road and Jewett Trail have since received approval.

Other funding sources can be approached and utilized as well. Most require some amount of local match or contribution. Some of these additional funding sources include:

- The Bikes Belong Coalition
- The Genesee County Metropolitan Planning Commission (GCMPC)
- Ruth Mott Foundation (through the GCMPC)
- The Downtown Development Authority (DDA)
- The Community Development Block Grant (CDBG) program
- The Michigan Natural Resources Trust Fund
- The Land and Water Conservation Fund
- Michigan Department of Transportation (MDOT)
- Numerous private and public, state and national organizations

It is important to remember that different source funds may be combined in a project in order to achieve the desired end product.

The city may also want to consider adding proactive planning steps for proposed shared use pathways and facilities to the site plan approval process, specifically for projects which front major streets within the city.

The Grand Blanc Police Department has already begun bicycle safety education for local schools as part of the 'Safe Routes to School' program. The Police Department could additionally work with local businesses and the Grand Blanc Parks and Recreation Commission to expand this education to the entire community. The League of Michigan Bicyclists has a useful manual titled "What Every Michigan Bicyclist Must Know - A Guide For Bicyclists" this manual could be made available for residents and students. Not only would such information provide essential education for local residents, but would also help to promote the Bicycle Transportation Master Plan and a healthy and environmentally friendly lifestyle. This activity can then be listed as proactive community support for bicycling.



Resolution

Various bicycling groups (i.e. League of American Bicyclists, League of Michigan Bicyclists, Michigan Trails and Greenways Alliance, the Crim Fitness Foundation, and the Governor's Fitness Council) seek support yearly for such programs as National and State Bike Month, Week, and Day, Ride Your Bike to Work Day, Smart Commute, Safe Routes to School, and Connect Michigan. The City of Grand Blanc has been a strong supporter, providing resolution support yearly. The resolution for 2008 is attached here as a sample.

RESOLUTION IN SUPPORT OF NATIONAL BIKE TO WORK WEEK AND SMART COMMUTE WEEK

- WHEREAS**, in 2007, physical inactivity was projected to cost Michigan \$12.65 billion; and
- WHEREAS**, the Surgeon General recommends at least 30 minutes of moderate physical activity 5 days a week, but only about half of the population meets this goal; and
- WHEREAS**, employers bear a sizeable portion of the direct and indirect health care costs for employees in poor health, but can lower health care expenditures by encouraging employees to increase their overall fitness levels by Smart Commuting (e.g., walking and bicycling) throughout the workday; and
- WHEREAS**, walking, riding a bicycle, or using public transportation (i.e., smart commuting) can reduce air and water pollution to make a cleaner community, which is more livable for future generations; and
- WHEREAS**, communities that cultivate a walking and bicycling culture experience businesses growth, increased real-estate values, and improved overall quality of life.
- WHEREAS**, the League of American Bicyclists, the League of Michigan Bicyclists, The Michigan Trails and Greenways Alliance, the Governor's Council on Physical Fitness, Genesee County Metropolitan Planning Commission, and the independent cyclists throughout our state are promoting greater public awareness of bicycle operation and safety education in an effort to reduce accidents, injuries, and fatalities for all.

NOW, THEREFORE, be it resolved, that we the undersigned, attest to our endorsement of and proclaim May 12 through 16, 2008 as

SMART COMMUTE WEEK

in the City of Grand Blanc and encourage all citizens to recognize the importance of bicycle safety, physical fitness, and alternate forms of transportation and be more aware of cyclists on our streets and highways.

Michael N. Mathey
Signed by *Mayor*

Dorothy J. Smith
Signed by *Clerk*

VJL/jp 08-MISC-VJL-233



Resolution



203 E. Grand Blanc Rd.
Grand Blanc, MI 48439

City of Grand Blanc

www.cityofgrandblanc.com

810-694-1118
Fax 810-694-9517

MAYOR
Michael N. Matheny

CITY COUNCIL
D. Keith Baldwin
James E. Bappert
John A. Freel
Connie S. Lealey
Susan J. Soderstrom
Steven J. Robinson

CITY MANAGER
Randall D. Byrne

**CITY CLERK-
TREASURER**
Bethany J. Smith

**FINANCE DIRECTOR-
ASST. CITY MGR.**
Wendy L. Jean-Buhrer

CITY ASSESSOR
Marie Colles

CITY ATTORNEY
Walter P. Griffin

City of Grand Blanc
RESOLUTION 11-08-02

WHEREAS, the City of Grand Blanc recognizes that communities cultivating a walking and bicycling culture experience business growth, increased real-estate values, and improved overall quality of life;

WHEREAS, the City of Grand Blanc Planning Commission recommends approval of the proposed Bicycle Transportation Master Plan.

NOW THEREFORE BE IT RESOLVED; that the City of Grand Blanc City Council hereby approves the Bicycle Transportation Master Plan.

Motion by Lesley supported by Robinson to approve. Motion carried.

PRESENTED, APPROVED AND RECORDED THIS TWELFTH DAY OF NOVEMBER 2008.

Michael N. Matheny
Mayor Michael N. Matheny

I, Bethany J. Smith, City Clerk of the City of Grand Blanc, do hereby certify that the above captioned Resolution was adopted by the City Council at a regular meeting on the 12th day of November, 2008.

Bethany J. Smith
Clerk Bethany J. Smith

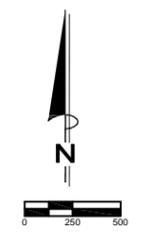
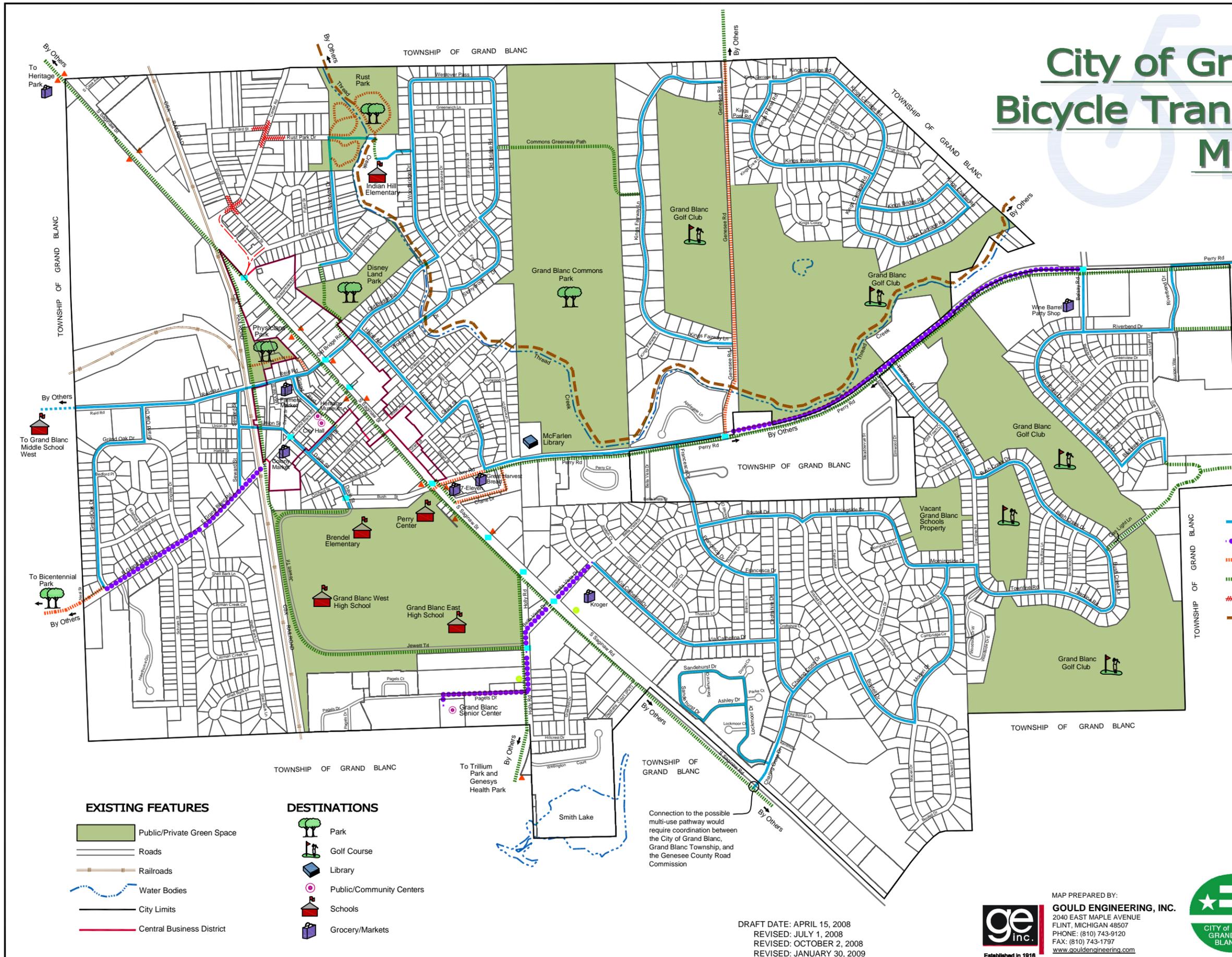




MAP
City of Grand Blanc
Bicycle Transportation
Master Plan



City of Grand Blanc Bicycle Transportation Master Plan



- BICYCLE ROUTES**
- Proposed On-Road Signed Bicycle Route
 - Possible On-Road Bicycle Connection
 - - - - - Existing Multi-use Pathway
 - - - - - Possible Multi-use Pathway
 - - - - - Unsafe On-Road Bicycle Route
 - - - - - Proposed River Pathway (from the Genesee County Regional Trail Plan 2007)
 - Existing Signalized Intersections
 - ▲ Approximate Locations of Existing MTA Bus Stops
 - Possible Locations for Future MTA Bus Stops

- EXISTING FEATURES**
- Public/Private Green Space
 - Roads
 - Railroads
 - ~ Water Bodies
 - City Limits
 - Central Business District
- DESTINATIONS**
- Park
 - Golf Course
 - Library
 - Public/Community Centers
 - Schools
 - Grocery/Markets

Connection to the possible multi-use pathway would require coordination between the City of Grand Blanc, Grand Blanc Township, and the Genesee County Road Commission

NOTE: Several of the proposed routes indicated on this plan are based on the Genesee County Regional Trail Plan 2007.

NOTE: 4 foot to 6 foot wide concrete sidewalks presently run along several of the city's streets.

DRAFT DATE: APRIL 15, 2008
 REVISED: JULY 1, 2008
 REVISED: OCTOBER 2, 2008
 REVISED: JANUARY 30, 2009



MAP PREPARED BY:
GOULD ENGINEERING, INC.
 2040 EAST MAPLE AVENUE
 FLINT, MICHIGAN 48507
 PHONE: (810) 743-9120
 FAX: (810) 743-1797
www.gouldengineering.com



CITY OF GRAND BLANC
 MICHAEL MATHENY, MAYOR
 203 EAST GRAND BLANC ROAD
 GRAND BLANC, MICHIGAN 48439
 PHONE: (810) 694-1118
 FAX: (810) 694-9517
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APPENDIX

- Non-motorized Resources
- Sample Construction Details
- Signing
- Signing - Locations
- Pavement Markings
- General Information by Others Related to Complete Streets and Safe Routes 2 School



Non-motorized Resources (additional sources also exist)

Bikes Belong Coalition - Grant Program

<http://www.bikesbelong.org/grants>

Transportation Improvement Program

Federal funds for construction projects awarded through the Genesee County Metropolitan Planning Commission.

Safe Routes to School “SR2S”

(See next pages)

Michigan Department of Transportation Bicycle and Pedestrian Program

www.michigan.gov/mdot-biking

Joshua DeBruyn, AICP, Bicycle and Pedestrian Coordinator
Bureau of Transportation Planning
(517) 335-2918

DeBruynJ@michigan.gov

Cindy Krupp

Bureau of Transportation Planning
(517) 335-2923

kruppc@michigan.gov

Transportation Enhancement Program

Federal funds for streetscape and non-motorized projects.

www.michigan.gov/tea

Safe Routes to School Program

Federal funds for construction and non-construction projects.

www.saferoutesmichigan.org

Promoting Active Communities

The Michigan Dept. of Community Health’s community self-assessment tool.

www.mihealthtools.org/communities

Transportation Summit

The purpose of the Transportation Summit was to identify key issues that need to be addressed in order to create a vision of Michigan’s transportation system that will support Michigan as a magnet for jobs, growth, people, and economic activity.

www.michigan.gov/transportationsummit

State of Michigan Cool Cities Website

Provides information on the Michigan Cool Cities Pilot Program.

www.coolcities.com



**American Association of State Highway Transportation Officials (AASHTO)
Guide for the Development of Bicycle Facilities, 3rd Edition, 1999**

The guide is designed to provide information on the development of facilities to enhance and encourage safe bicycle travel.

(800) 231-3475

<https://bookstore.transportation.org/home.aspx>

Guide for the Planning, Design, and Operation of Pedestrian Facilities, June 2004

The manual provides guidance on the planning, design, and operation of pedestrian facilities along streets and highways.

(800) 231-3475

<https://bookstore.transportation.org/home.aspx>

**U.S. Department of Transportation Federal Highway Administration
Pedestrian and Bicycle Safety Research Page**

The Pedestrian & Bicycle Research Safety Web site provides information on issues and research related to improving pedestrian and bicyclist safety.

<http://www.tfhrc.gov/safety/pedbike/pedbike.htm>

http://safety.fhwa.dot.gov/programs/ped_bike.htm

National Center for Bicycling and Walking

The NCBW mission is to create bicycle-friendly and walkable communities.

(202) 463-6622

<http://www.bikewalk.org>

Pedestrian and Bicycle Information Center

The PBIC is a clearinghouse for information about health and safety, engineering, advocacy, education, enforcement, and access and mobility.

(919) 962-2203

www.pedbikeinfo.org

Association of Pedestrian and Bicycle Professionals

The Association of Pedestrian and Bicycle Professionals promotes excellence in the emerging professional discipline of pedestrian and bicycle transportation.

www.apbp.org

League of Michigan Bicyclists

The LMB is a non-profit, tax-exempt statewide organization of more than 2,000 members working to improve conditions for bicycling in Michigan. LMB supports many programs and projects and cooperates with state and local agencies and other like-minded groups toward this goal.

(888) 642-4537

www.lmb.org

Michigan Trails and Greenways Alliance

The MTGA helps foster and assist local efforts in creating rail-trails.

(517) 485-6022

<http://michigantrails.org>

**Southeast Michigan Council of Governments**

"Land Use Tools and Techniques Book: A Handbook for Local Governments"

The Enhancing Transportation Chapter has a section on Creating Walkable and Bikeable Communities.

<http://www.semcoq.org/TranPlan/NonMotorized/index.htm>

Walkable Communities and Glatting Jackson

Walkable Communities was organized for the express purposes of helping whole communities become more walkable and pedestrian friendly, whether they are large cities or small towns, or parts of communities.

(866) 347-2734

www.walkable.org

United States Access Board: A Federal Agency Committed to Accessible Design

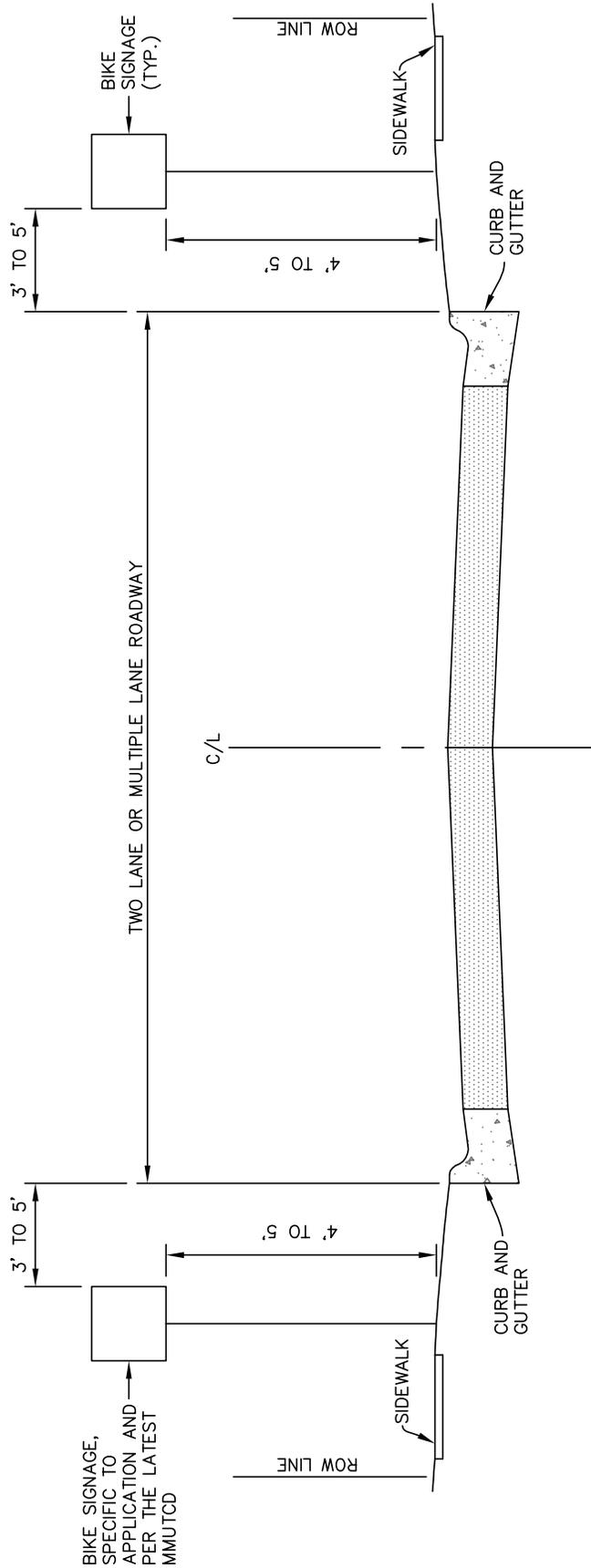
Sidewalks, street crossings, and other elements of the public rights-of-ways present unique challenges to accessibility for which specific guidance is considered essential. The Board is developing new guidelines for public rights-of-way that will address various issues, including access for blind pedestrians at street crossings, wheelchair access to on-street parking, and various constraints posed by space limitations, roadway design practices, slope, and terrain. The draft guidelines are being revised based on the input received from the public and will be available for public comment once published.

<http://www.access-board.gov/prowac/index.htm>

SAMPLE CONSTRUCTION DETAILS

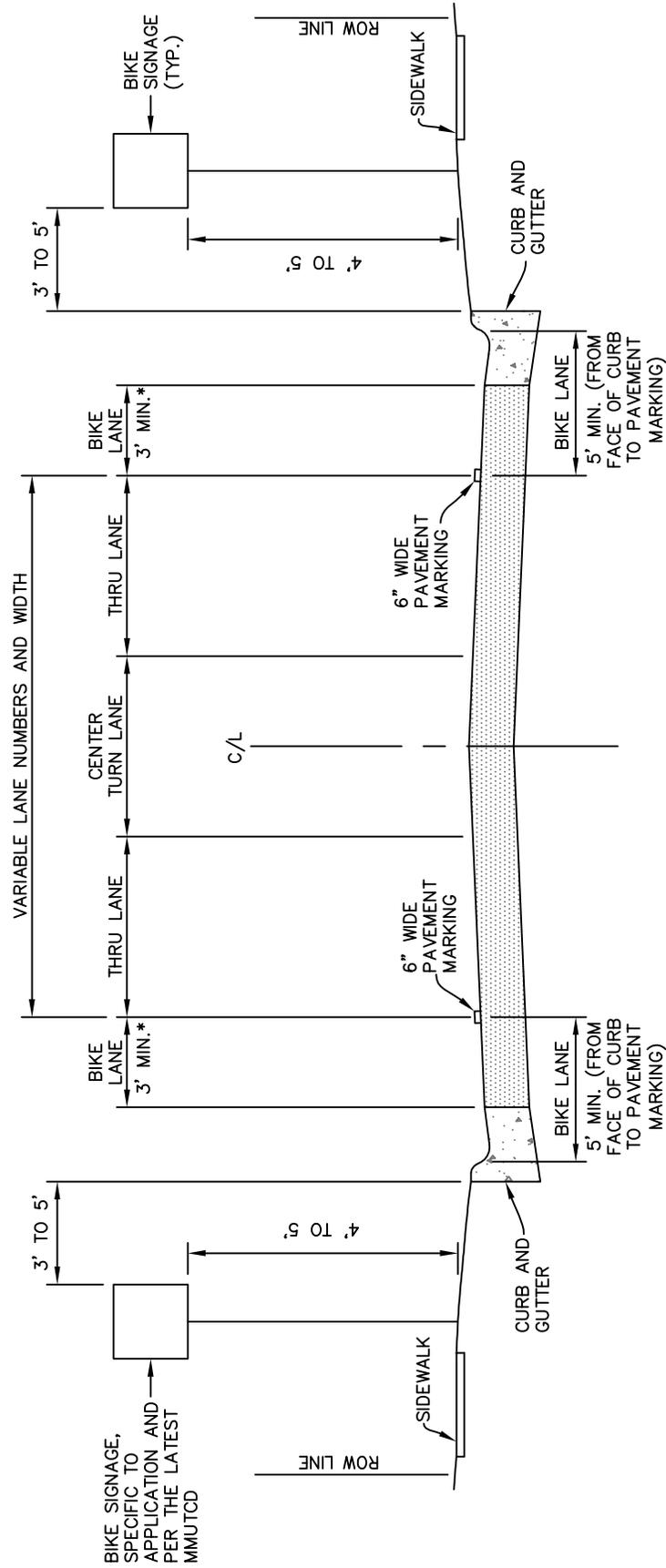


The following pages depict samples of construction details which could be used along bicycle routes and shared use pathways throughout the City of Grand Blanc.



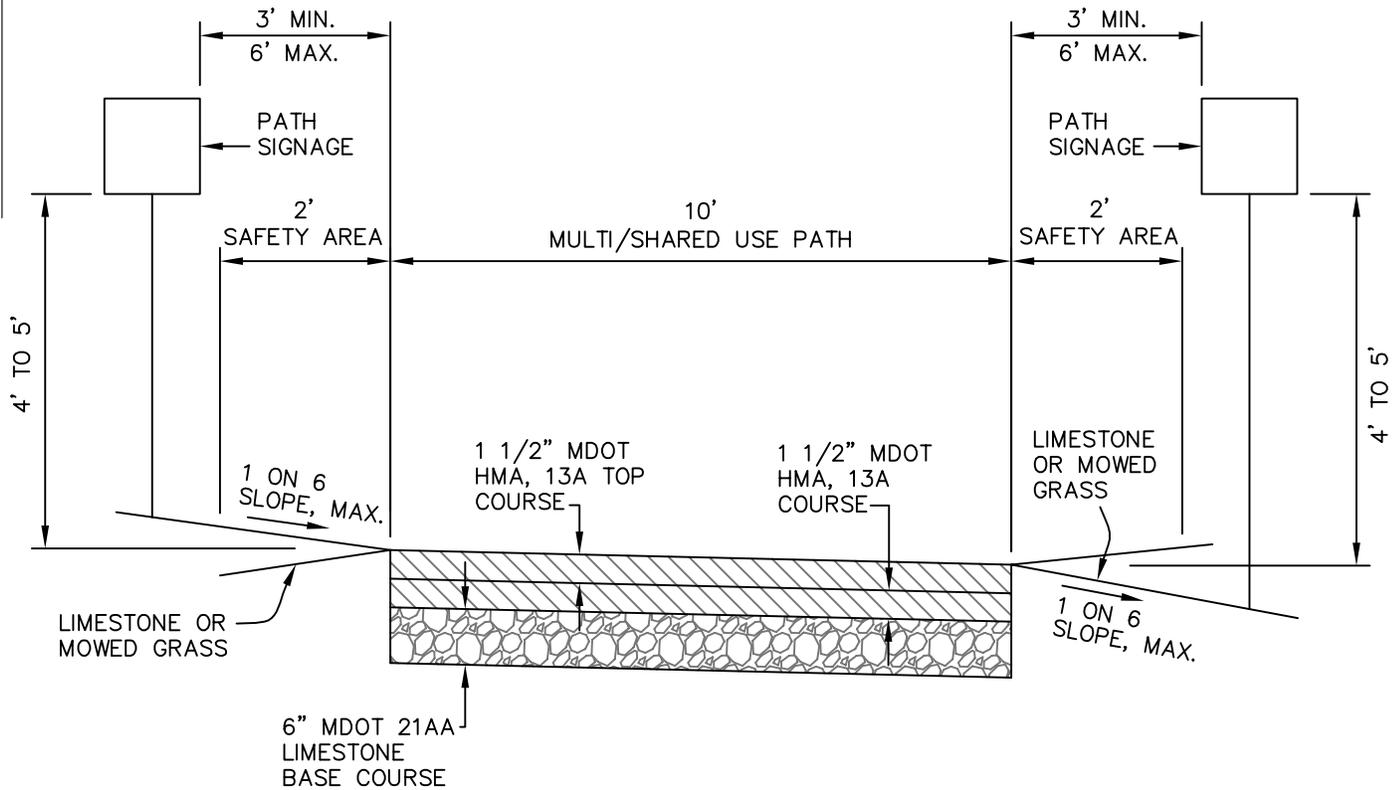
NOTE:
 DESIGNATED BIKE LANE IS NOT MARKED ON PAVEMENT.
 INFORMATIONAL SIGNS ARE SHOWN TO GIVE DIRECTION AND
 DISTANCE TO DESTINATION PLACES.

ON ROAD SIGNED BIKE ROUTE WITHOUT DESIGNED BIKE LANE
NOT TO SCALE



*NOTE: ON A NON-CURBED ROAD, BIKE LANE PAVEMENT MARKINGS MUST BE A MINIMUM OF 4- FEET FROM THE EDGE OF THE ROAD

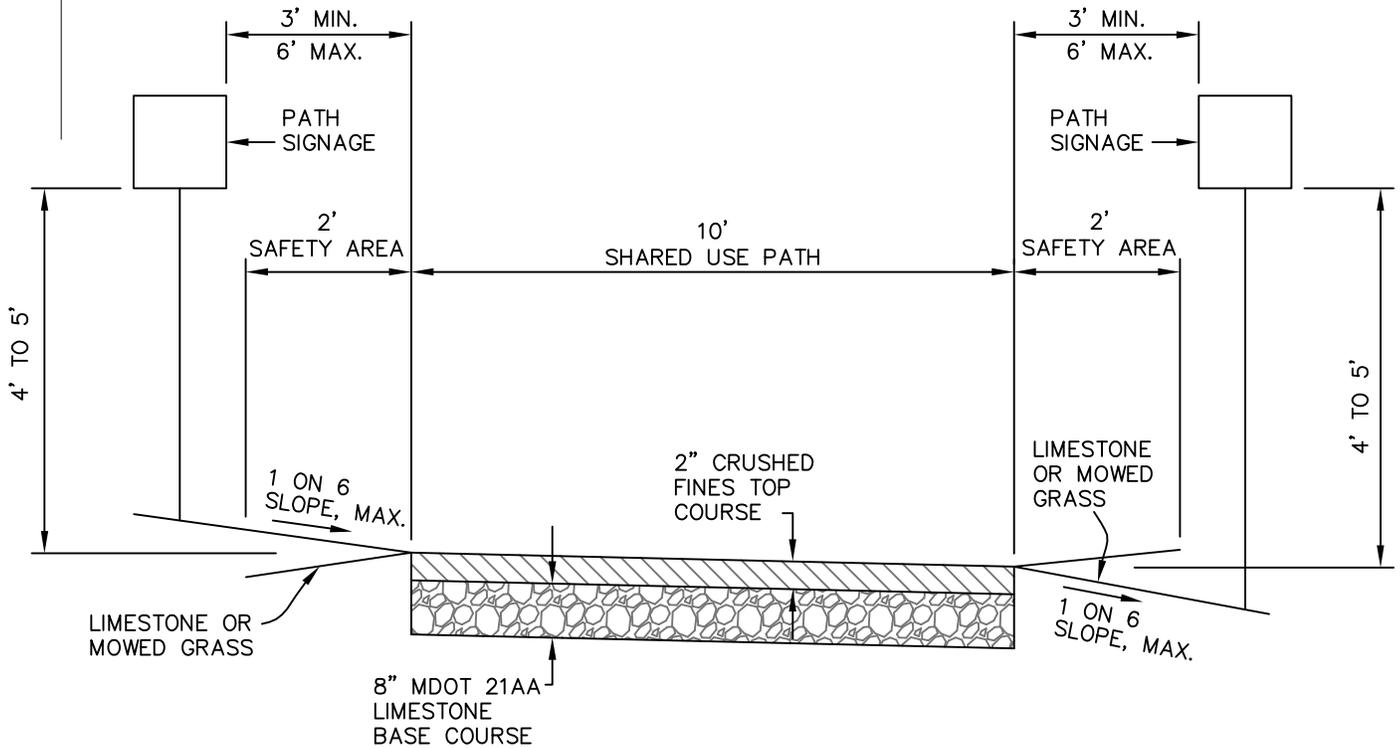
ON ROAD SIGNED BIKE ROUTE WITH DESIGNATED BIKE LANES
NOT TO SCALE



NOTE:

1.) PATH MAY BE CONSTRUCTED WITH EITHER A CROWNED CROSS SECTION OR A TRANSVERSE SLOPE CROSS SECTION (AS SHOWN ABOVE). DRAINAGE, GOOD ENGINEERING JUDGMENT, AND THE LATEST AASHTO STANDARDS SHOULD BE CONSIDERED AND APPLIED WHEN SELECTING A PATH CROSS SECTION

TWO-WAY SHARED USE PAVED PATH CROSS SECTION
NOT TO SCALE

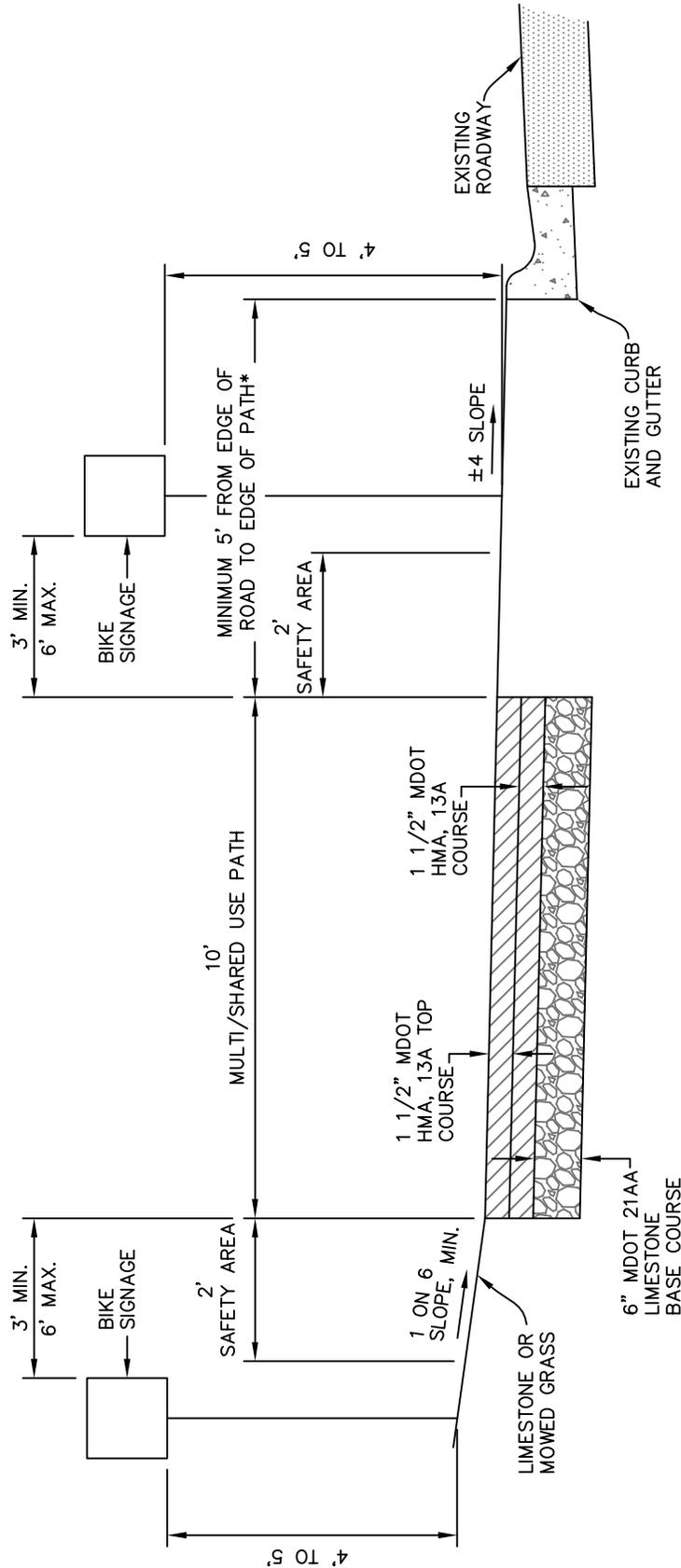


NOTES:

1.) THE TOP COURSE MATERIAL OF A NON-PAVED PATH CREATES LIMITATIONS TO THE TYPE OF USERS AVAILABLE TO UTILIZE THE PATH (I.E. SMALL-WHEELED RECREATION, SUCH AS ROLLERBLADES)

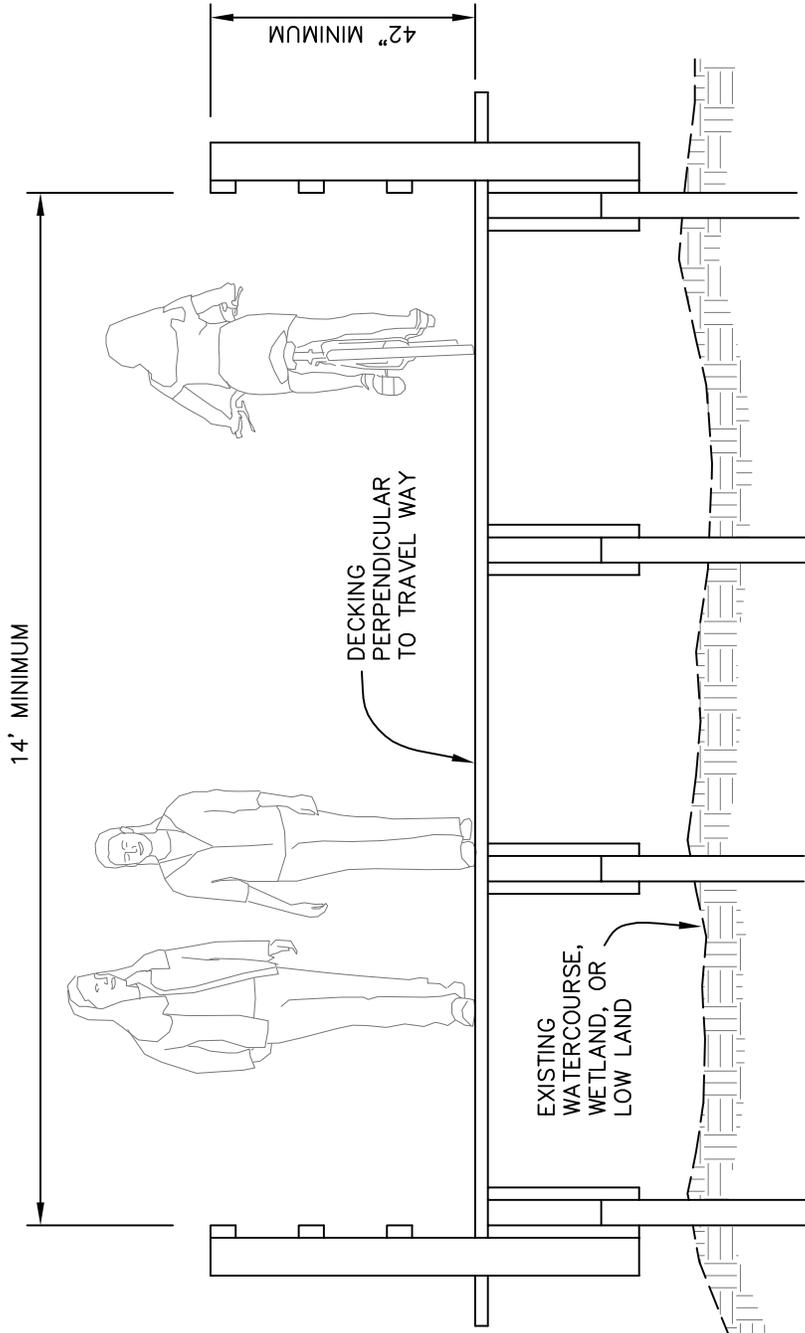
2.) PATH MAY BE CONSTRUCTED WITH EITHER A CROWNED CROSS SECTION OR A TRANSVERSE SLOPE CROSS SECTION (AS SHOWN ABOVE). DRAINAGE, GOOD ENGINEERING JUDGMENT, AND THE LATEST AASHTO STANDARDS SHOULD BE CONSIDERED AND APPLIED WHEN SELECTING A PATH CROSS SECTION

TWO-WAY SHARED USE NON-PAVED PATH CROSS SECTION
NOT TO SCALE



* IF DISTANCE FROM EDGE OF PATHWAY IS LESS THAN 5- FEET FROM THE EDGE OF ROAD, A MINIMUM 42" HIGH AASHTO-APPROVED BARRIER IS RECOMMENDED AND SHALL NOT OBSTRUCT MOTOR VEHICLE SIGHT DISTANCE.

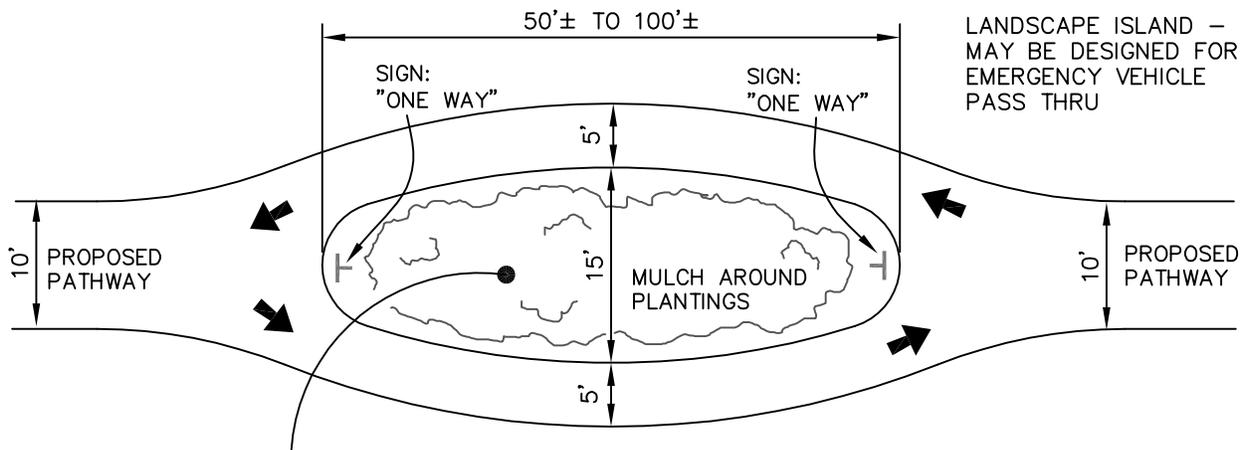
SHARED USE PATH ALONG AN EXISTING ROADWAY
CROSS SECTION
NOT TO SCALE



NOTE: OTHER OPTIONS ARE AVAILABLE FOR CROSSING LOW OR WET AREAS OR WATERCOURSES AND INCLUDE PRE-FABRICATED BRIDGES AND CULVERTS.

CROSS SECTION OF BRIDGE PATH OR ELEVATED TYPE CROSSING

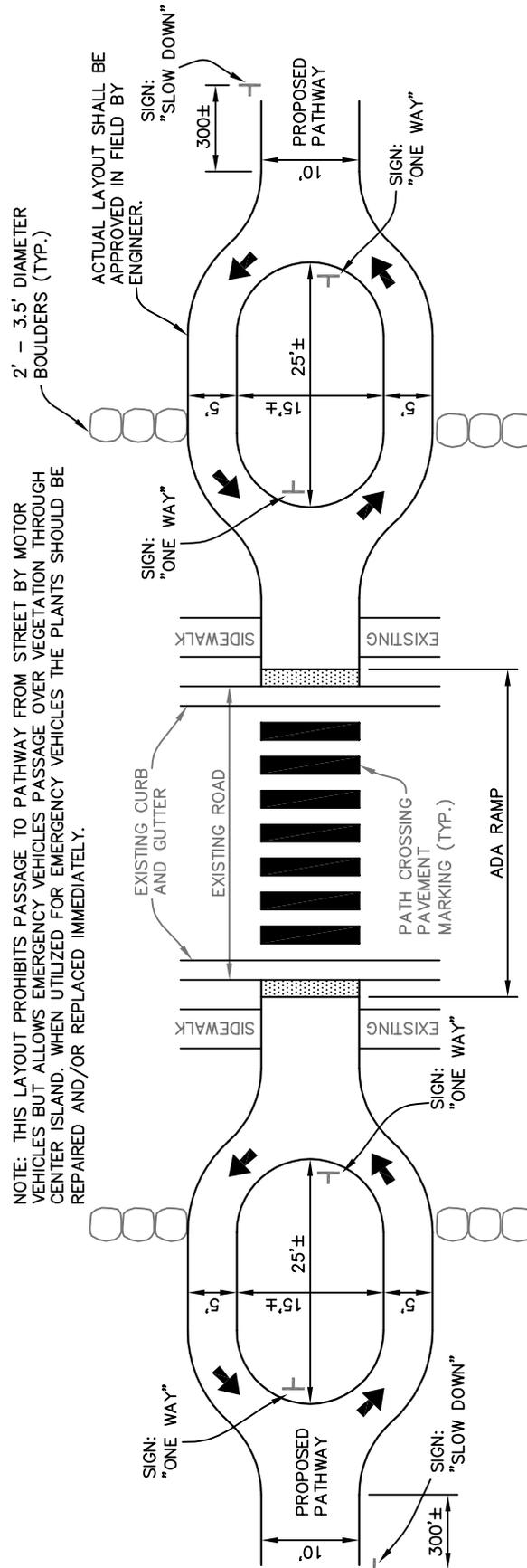
NOT TO SCALE



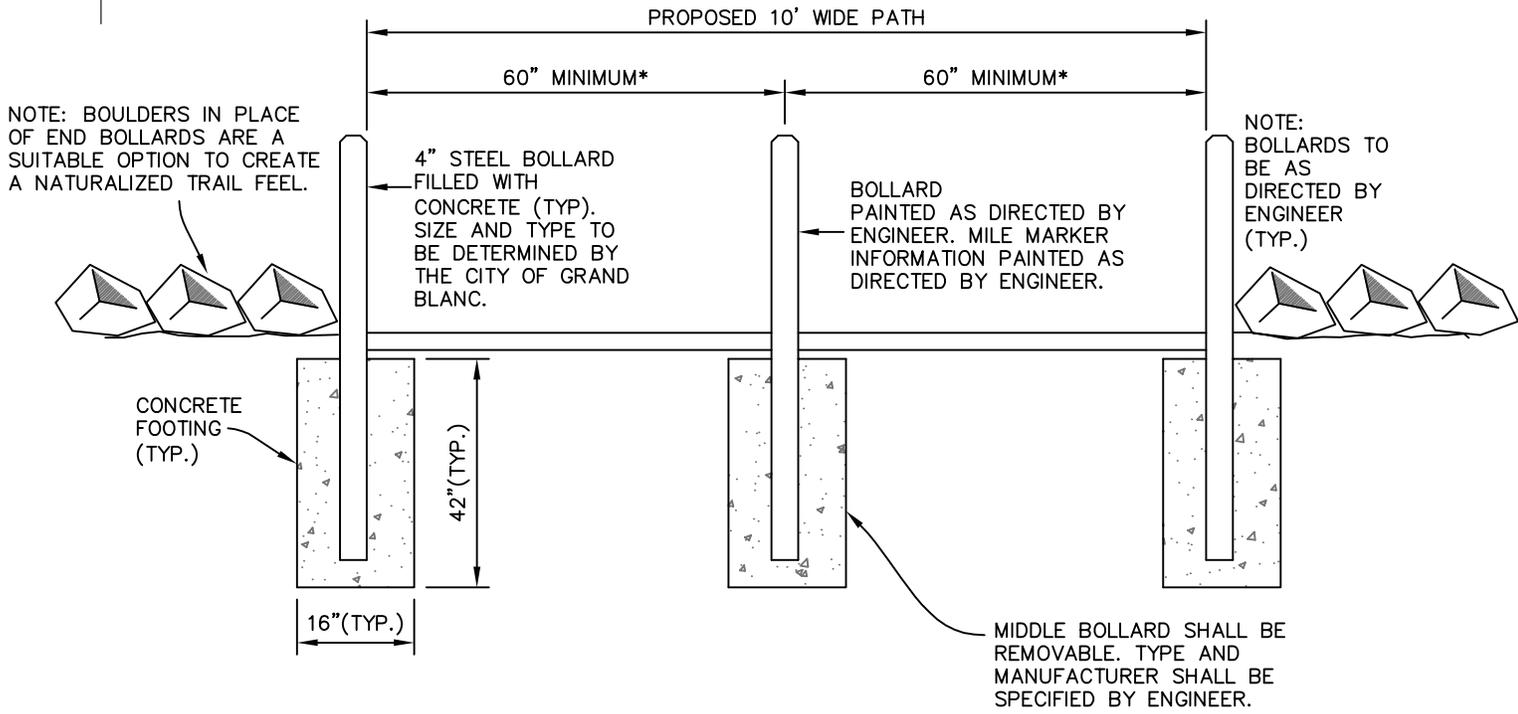
SUGGESTED PLANT PALETTE TO BE DETERMINED IN FINAL DESIGN. ACCEPTABLE TYPES INCLUDE SERVICE BERRY, JUNIPER, DAY LILY, DAFFODIL, BAYBERRY, SEDUM AND BLACK EYED SUSAN. WILD FLOWERS AND PERENNIAL GRASSES ARE ALSO SUITABLE.

AS AN OPTION, THIS LANDSCAPE ISLAND MAY BE PLACED NEAR ROAD CROSSINGS, TRAIL HEADS, OR OPEN AREAS FOR A VISUAL AMENITY, RESTING AREA, AND/OR MOTOR VEHICLE DETERANT. THE OVERALL LENGTH AND WIDTH SHALL BE SIZED TO SUSTAIN SUCH ACTIVITIES.

LANDSCAPE ISLAND DETAIL
(OPTIONAL)
NOT TO SCALE



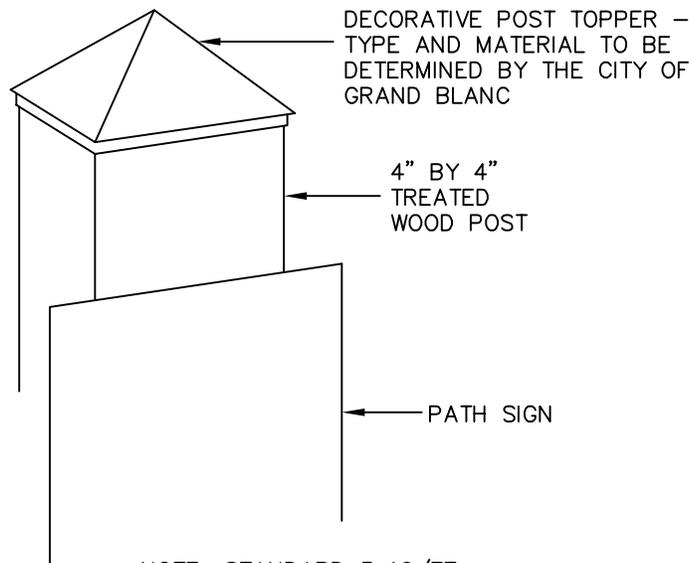
LANDSCAPE STREET APPROACH DETAIL
NOT TO SCALE



* CLEAR SPACING SHALL COMPLY WITH THE LATEST ADA REQUIREMENTS AND SHOULD TAKE INTO CONSIDERATION ACCESS FOR EMERGENCY VEHICLES

NOTE: MANY OPTIONS EXIST WHICH PROVIDE MOTOR VEHICLE BARRIERS TO PATHWAYS. SOME OF THESE OPTIONS INCLUDE BOLLARDS, GUARD ARMS, BOULDERS, AND LANDSCAPE PLANTER BOXES.

BOLLARD DETAIL
NOT TO SCALE



DECORATIVE POST TOPPER –
TYPE AND MATERIAL TO BE
DETERMINED BY THE CITY OF
GRAND BLANC

4" BY 4"
TREATED
WOOD POST

PATH SIGN

NOTE: STANDARD 3 16/FT
POST MAY BE USED AS
DIRECTED BY OWNER.

SIGN POST DETAIL
NOT TO SCALE

SIGNING



The following pages depict samples of signing which could be used along the bicycle routes throughout the City of Grand Blanc.

Signing for Bicycle Facilities

The following pages provide a small sampling of signs available for use by communities along trails, roadways, and shared use pathways to be utilized by bicyclists and others. These examples are not all-inclusive. Other standard MMUTCD signs are available, such as the "Slippery When Wet" warning sign, various curve warning signs, "Dip" and "Bump" warning signs, pedestrian crossing warning signs, intersection warning signs, and many others. In addition, many communities have developed signs which are tailored toward their specific riding conditions and destinations, both on roadways and trailways.



Picture from the Genesee County Regional Trail Plan 2007

Roadway signage shall comply with those standards set forth by the 2005 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), 2003 Federal Edition; the 1999 American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities; or any standard present or future which may be more stringent. Roadway signage shall be retroreflective and comply with the minimum "Roadway" sign size standards set forth by the latest MMUTCD manual. Road crossing signage along trails and shared use pathways shall be retroreflective as well to warn bicyclists of approaching roadway crossings.

Bicyclists who chose to ride on roads are to abide by the same laws and rules as motor vehicles; therefore, roadway signage is not "doubled" for bicyclists. For example, a roadway stop sign or yield sign would apply to both a motor vehicle and a bicyclist. There is no need to provide two (2) signs. Roadway signage to be installed may include some of the items shown on Page xix. These signs, installed in addition to typical roadway signs, remind motorists to "Share the Road" with bicyclists. They inform motorists and bicyclists where a bicycle lane is located, warn them where a trail or shared use pathway crosses a roadway, and other warnings to make them aware of one another and of the rules regulating the roadway.



Picture from the Genesee County Regional Trail Plan 2007



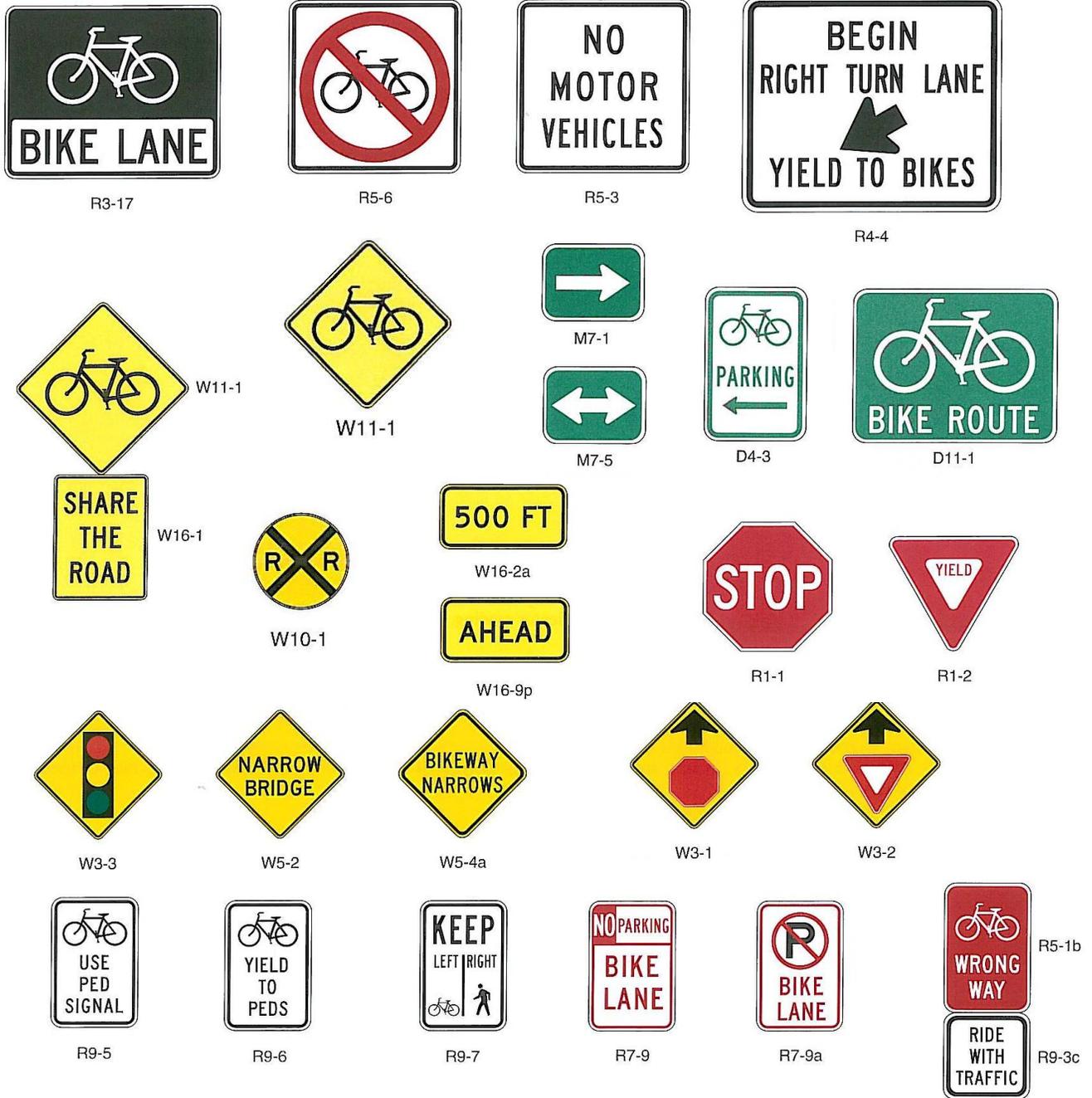
The City of Grand Blanc has expressed a desire to have signage which complies with the general look and intent of the trail signage proposed by the Genesee County Metropolitan Planning Commission's Genesee County Regional Trail Plan. Signage not located within or near a public right-of-way may be more stylized and wooden and include "City of Grand Blanc" ownership plaques, wooden posts, and decorative post toppers. Trail and shared use pathway signage will generally be smaller than roadway signage and should comply with the minimum "Shared Use Path" sign size standards set forth by the latest MMUTCD manual.



Picture from the Genesee County Regional Trail Plan 2007



This is a signage nightmare in a Michigan community. The community does provide painted and identified bicycle lanes along roadways, bicycling identification "share the road" signage, and shared use trails. Needless to say, a bicycle friendly community in need of better signage control for vehicles and bicyclist, both. The signage must be useable and friendly.



Sample Signing for Bicycle Facilities

Above are samples of signs available for use along trails, roadways, and pathways to be utilized by bicycles. These signs are taken from the 2005 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), 2003 Federal Edition.

Signs denoted by the "R" prefix indicate "Regulatory Signs," used to inform users of requirements imposed by regulations. Signs denoted by the "W" prefix indicate "Warning Signs," used to alert users to conditions or situations which may not be readily apparent or which may be of safety concern. Signs denoted by the "D" or "M" prefix indicate "Guide Signs", used to direct users to important destinations and to identify important attractions in a simple and direct manner.

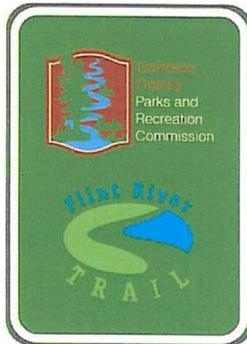


Local Trail Sign Personalization

Logos for trail or organization can be added above the route marker. This helps with branding the trail and gives recognition to ownership of the trail.

Trail names, logos and organizations should be separated from the route and destination signs, but on the same post.

Route Sign



Destination Signs



Sample of Route and Destination Signs From the Genesee County Regional Trail Plan 2007



Sample of Destination Sign for the City of Grand Blanc

Genesee County Regional Trail Plan

The Genesee County Metropolitan Planning Commission developed a Countywide trail plan in 2007, which incorporated a new trail wayfinding system designed to provide users with distance, direction, and destination information while unifying the signing throughout the County. The above sample Route and Destination Signs, as provided by the Genesee County Regional Trail Plan, afford local communities the opportunity to promote their local features and attractions. This signing system is modeled after the traffic control devices for bicycle facilities developed by the City of Chicago.

The City of Grand Blanc could provide simplicity and uniformity to users by fashioning the bicycle facility signs after those used by the Genesee County Regional Trail Plan.

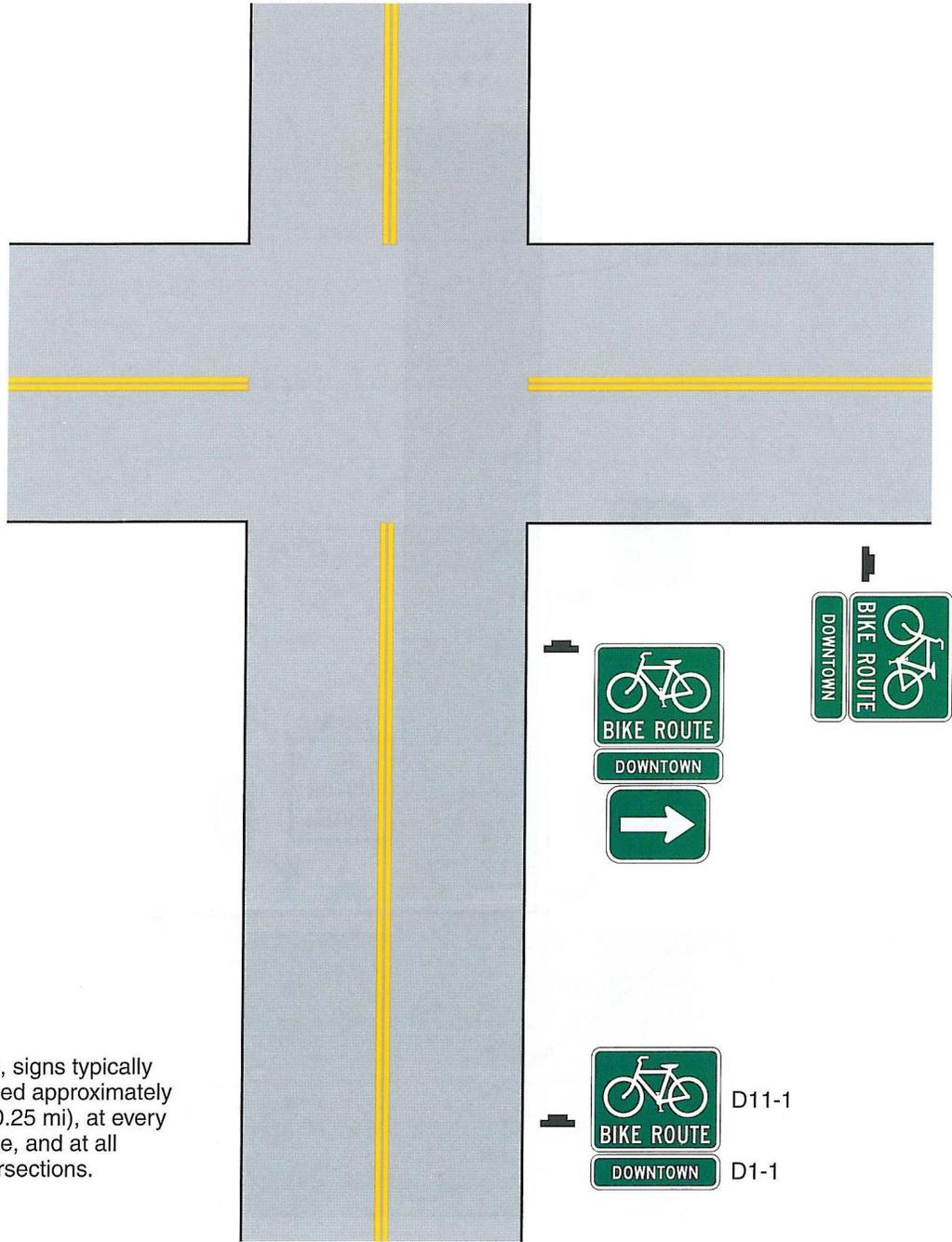
SIGNING - LOCATIONS



The following pages depict samples of sign location layouts which could be used along the bicycle routes throughout the City of Grand Blanc. These sign location layouts are from examples prepared by the 2005 Michigan Manual of Traffic Control Devices, 2003 Federal Edition and the City of Chicago (as promoted by the Genesee County Regional Trail Plan 2007).



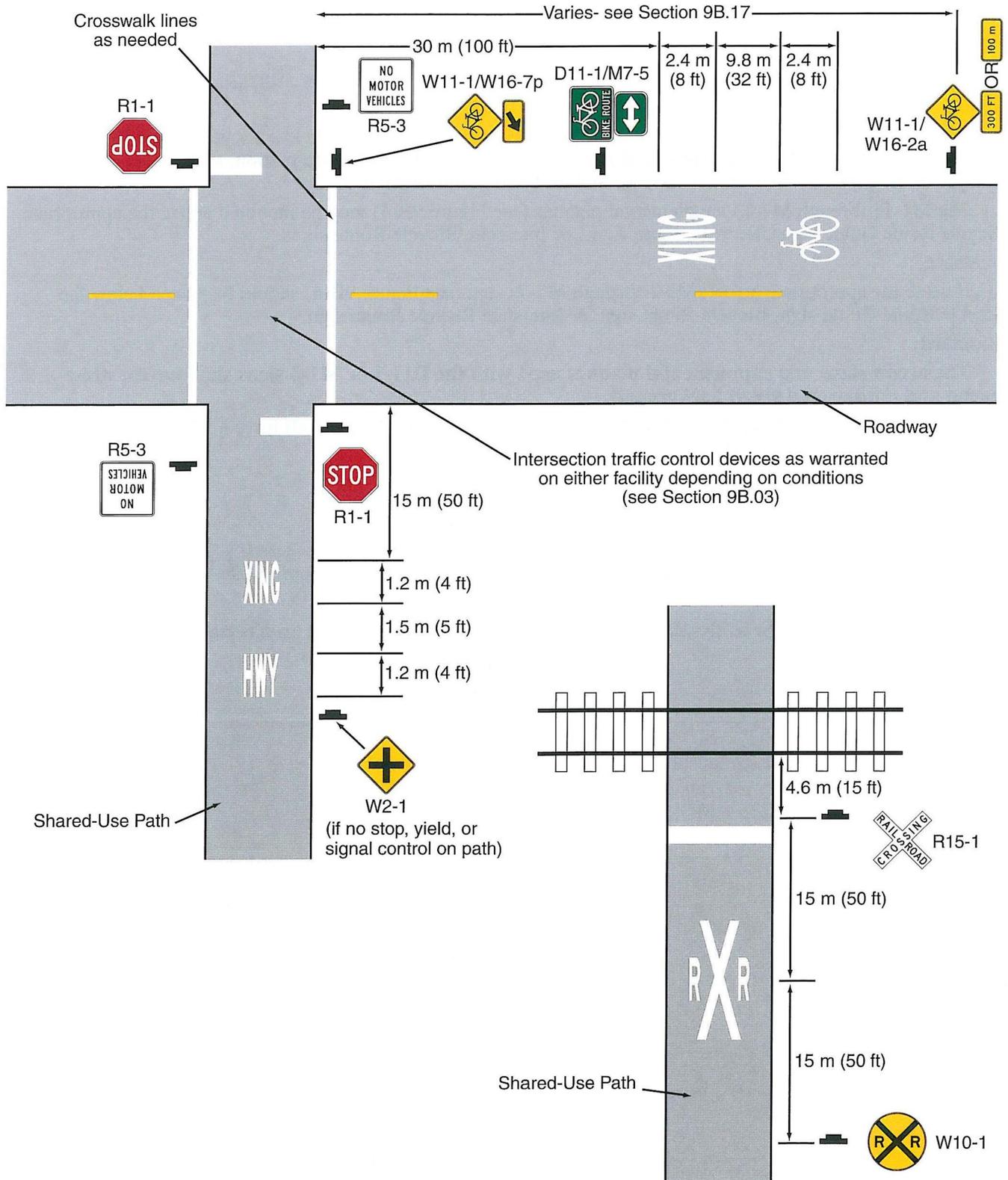
Figure 9B-6. Example of Signing for an On-Roadway Bicycle Route

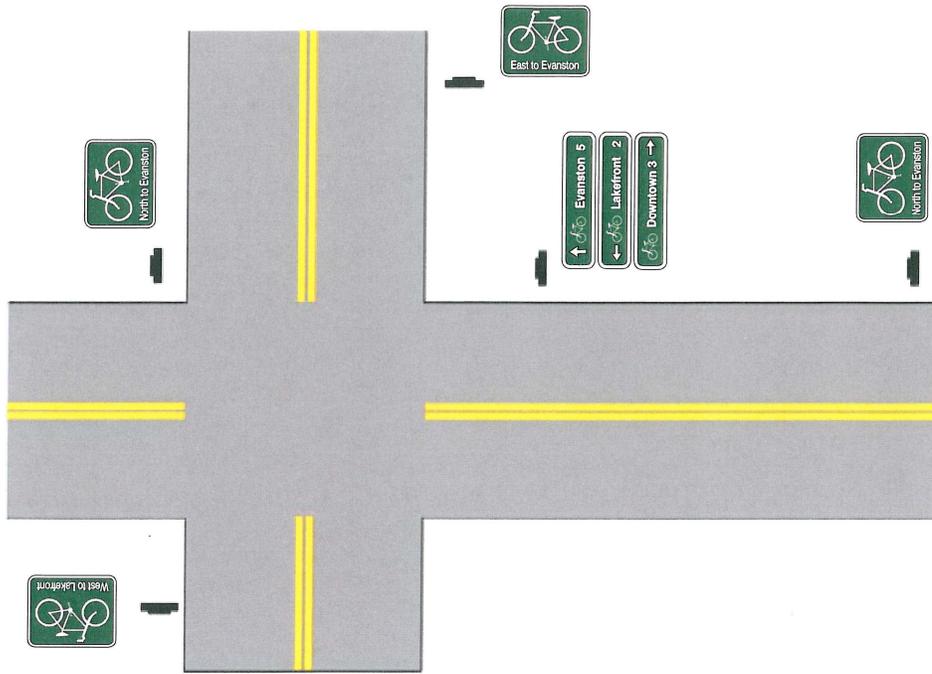


In urban areas, signs typically should be placed approximately every 400 m (0.25 mi), at every turn in the route, and at all signalized intersections.



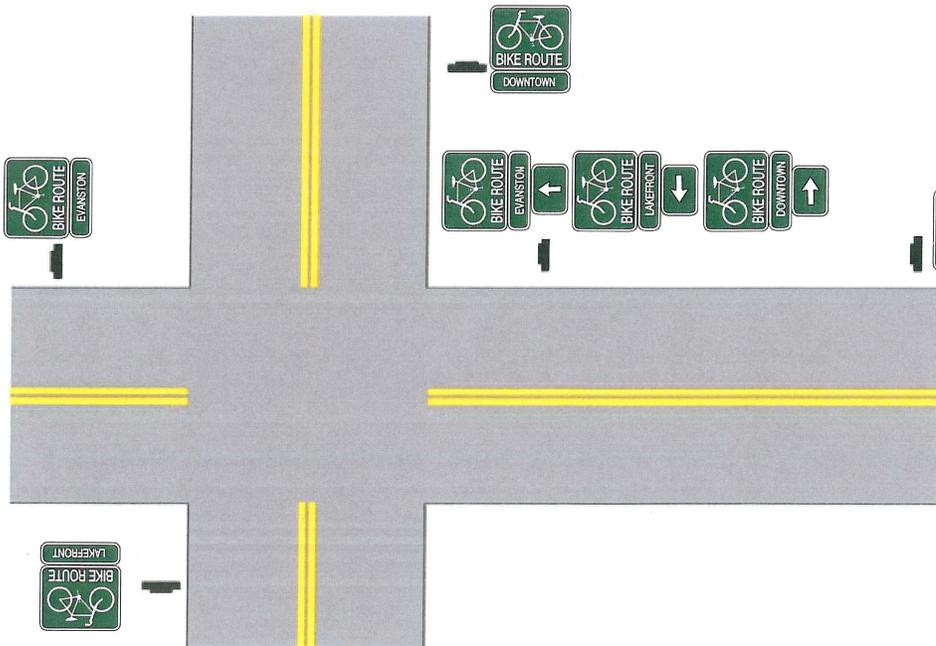
Figure 9B-7. Examples of Signing and Markings for Shared-Use Paths





B: Chicago's System

not to scale



A: Current MUTCD Sign System

not to scale

City of Chicago Signing vs. MUTCD

This example shows how the Chicago signing system utilizes less signs to indicate the same information as the MUTCD signing system, making wayfinding easier for users.

PAVEMENT MARKINGS



The following pages depict samples of pavement markings which could be used for the bicycle routes throughout the City of Grand Blanc. These pavement markings are from examples prepared by the 2005 Michigan Manual of Traffic Control Devices, 2003 Federal Edition.



Figure 9C-1. Example of Intersection Pavement Markings—Designated Bicycle Lane with Left-Turn Area, Heavy Turn Volumes, Parking, One-Way Traffic, or Divided Highway

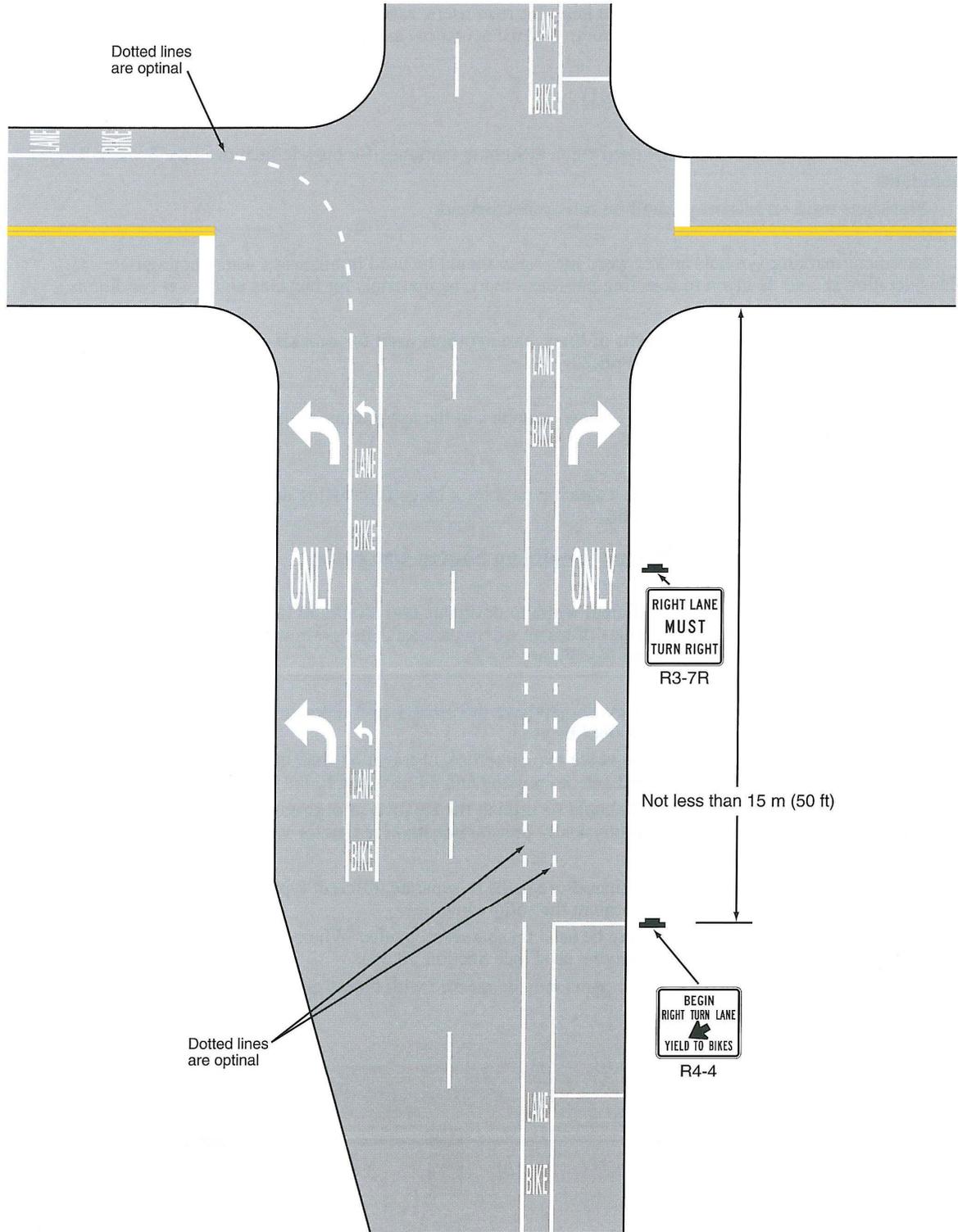




Figure 9C-2. Examples of Centerline Markings for Shared-Use Paths

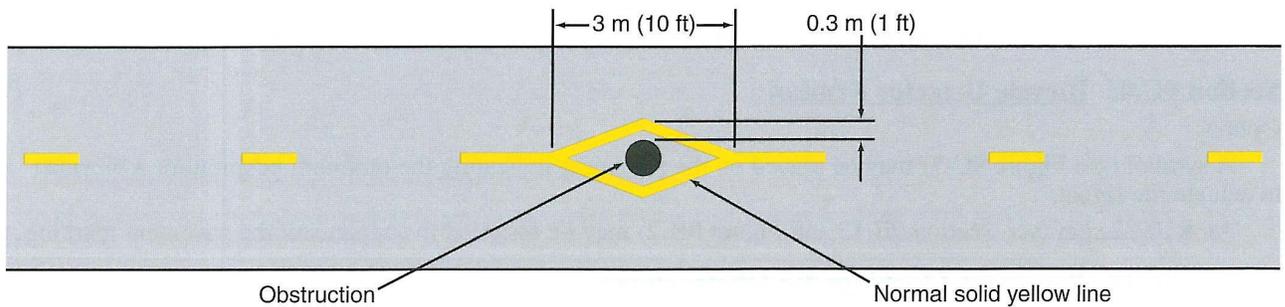
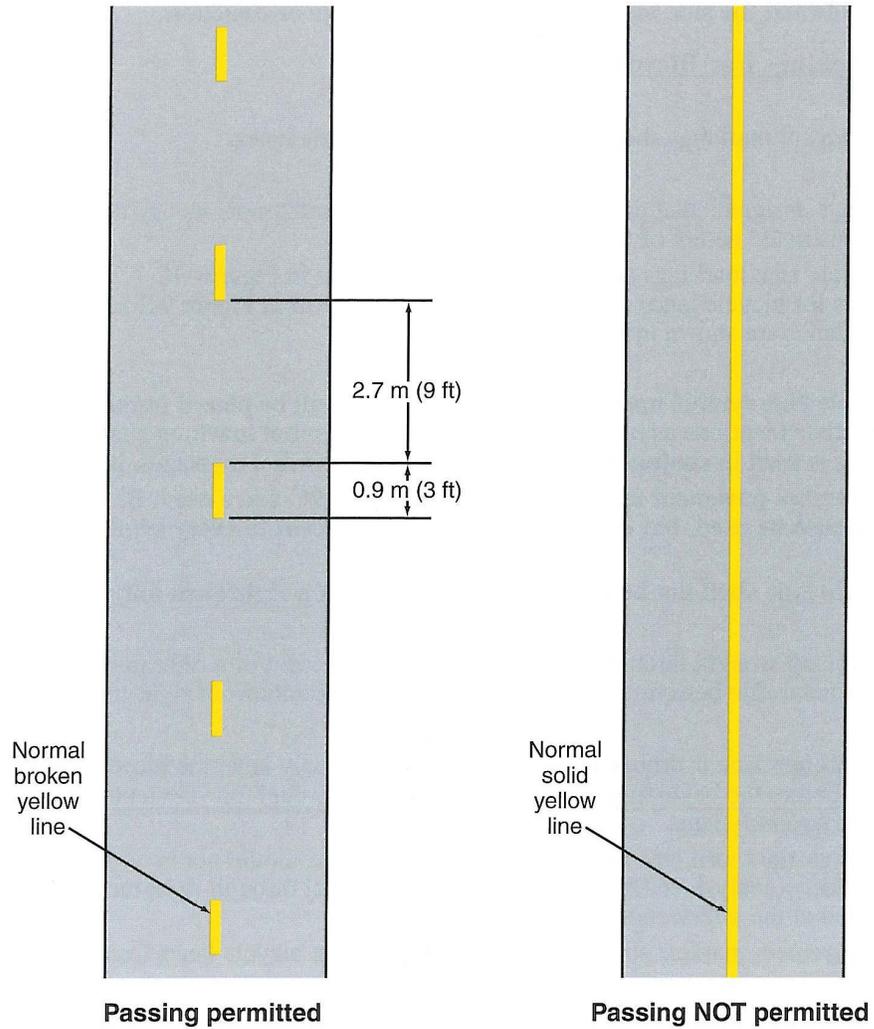




Figure 9C-3. Example of Bicycle Lane Treatment at a Right Turn Only Lane

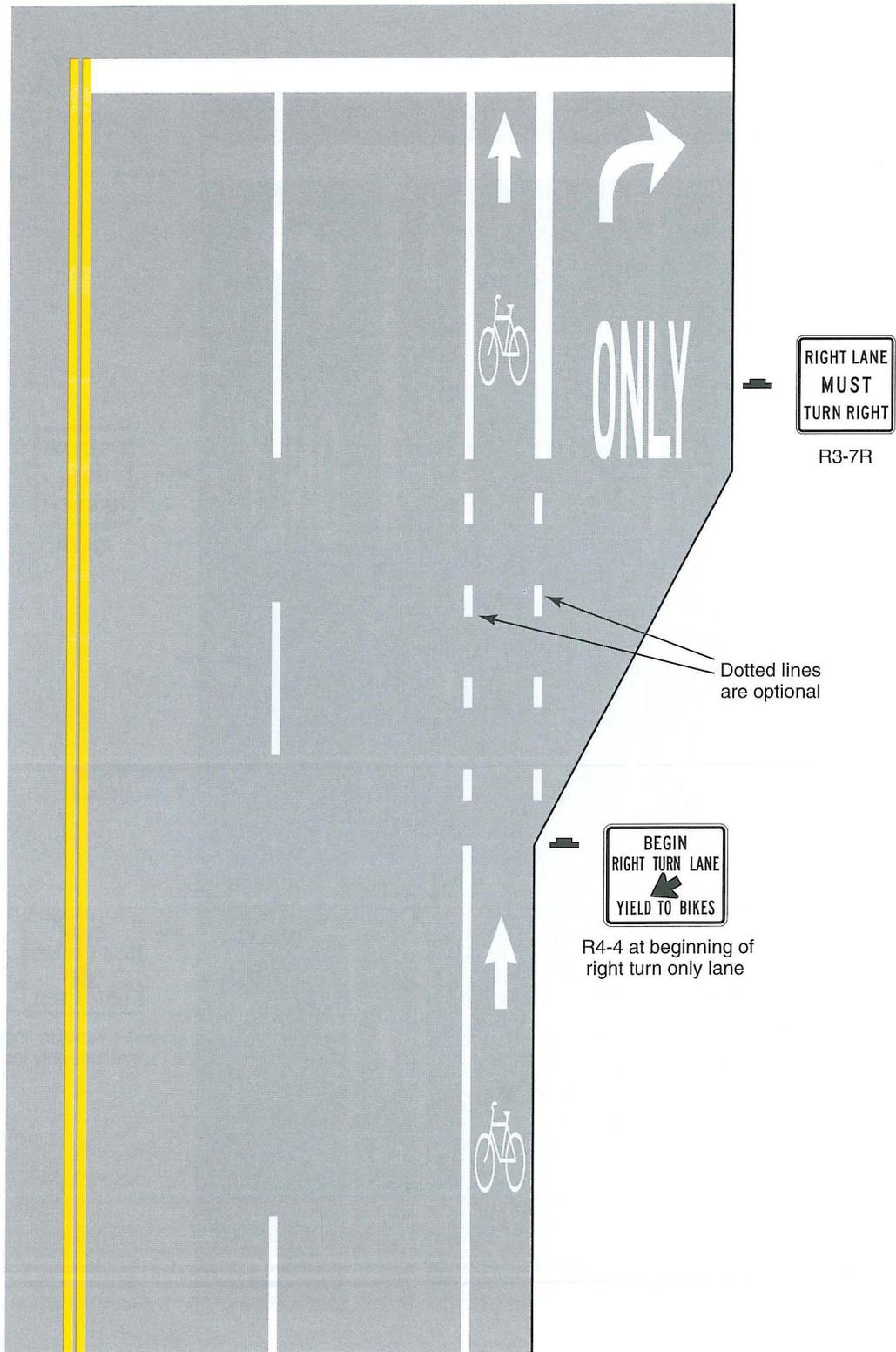




Figure 9C-4. Example of Bicycle Lane Treatment at Parking Lane into a Right Turn Only Lane

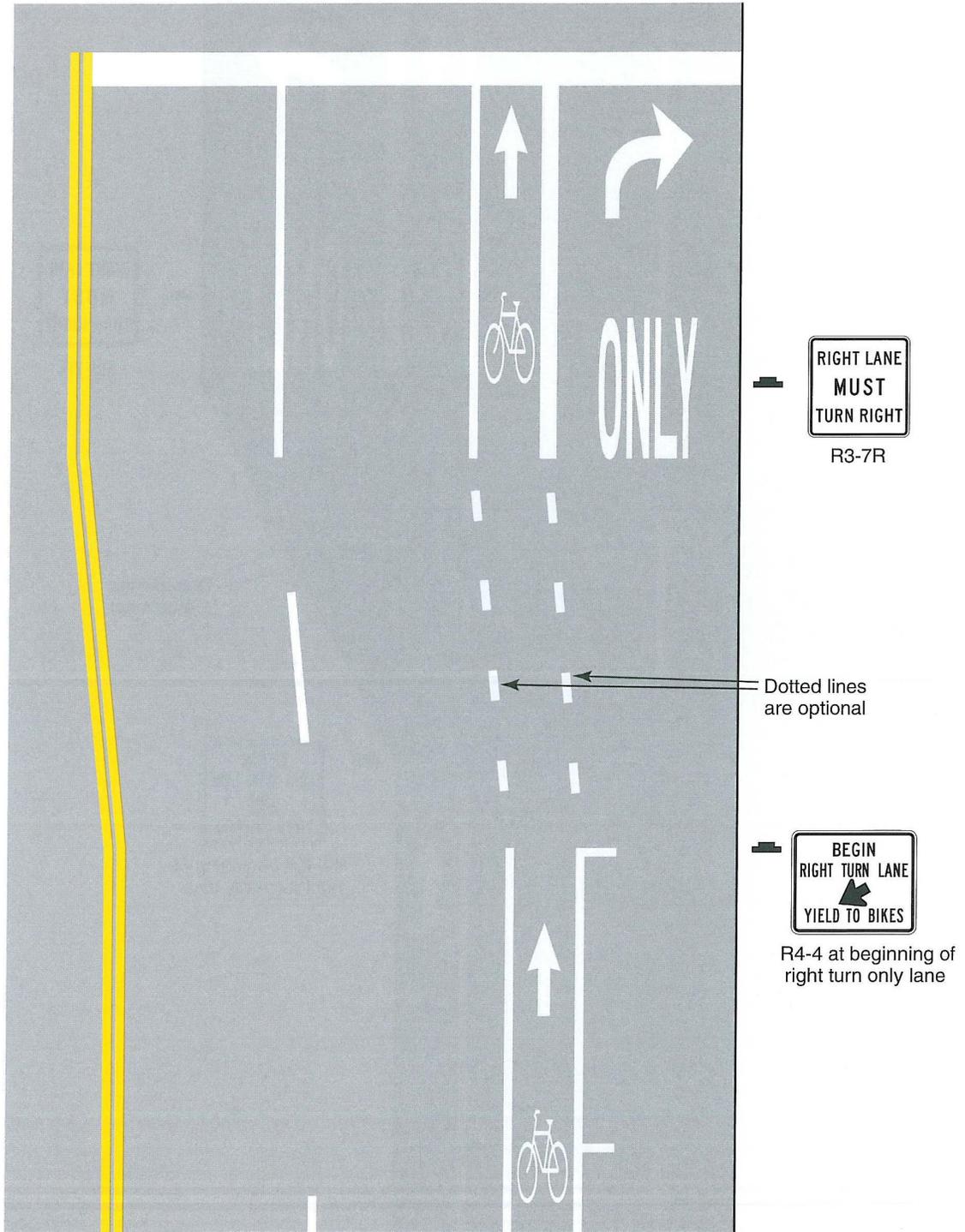




Figure 9C-5. Example of Pavement Markings for Bicycle Lanes on a Two-Way Street

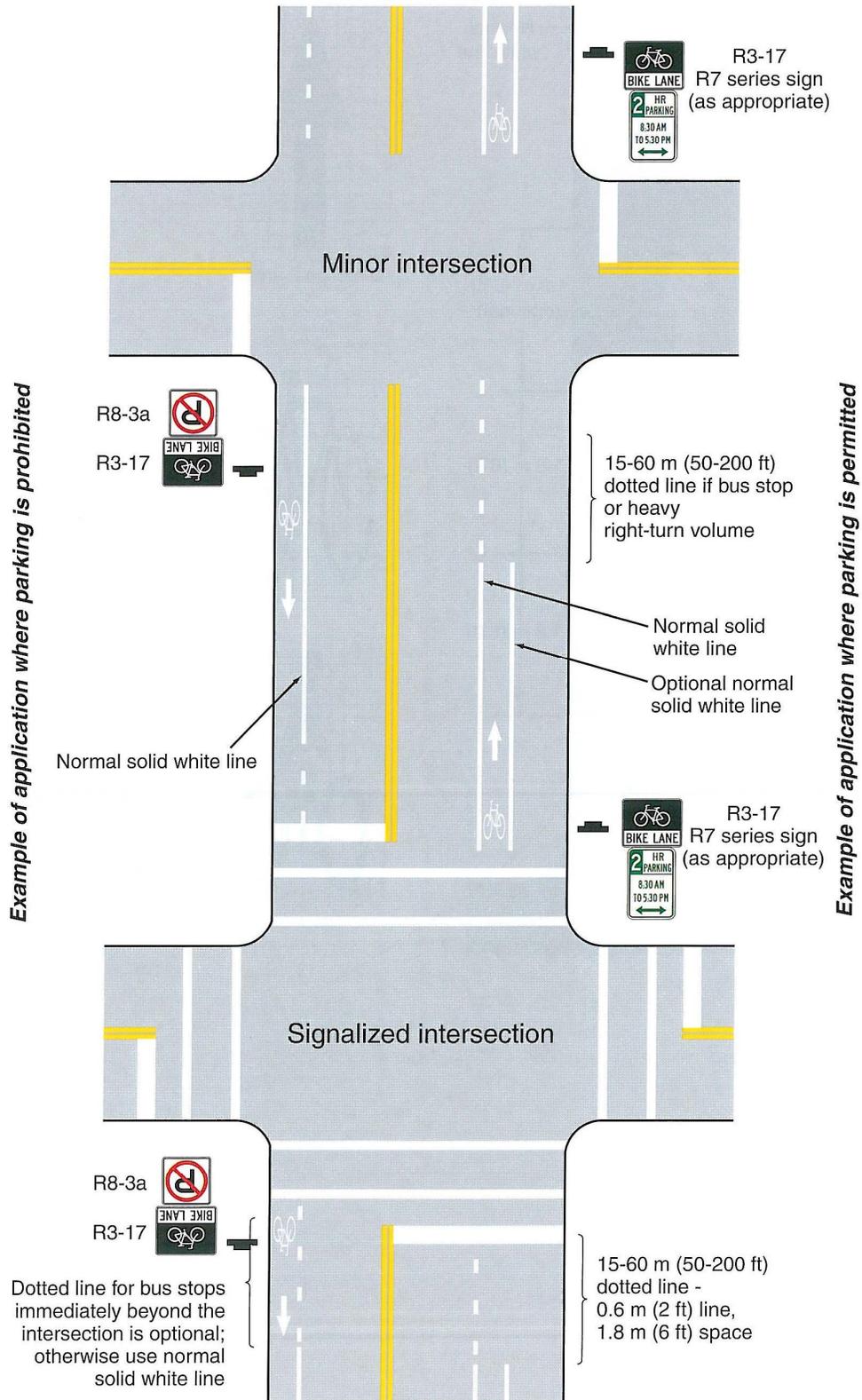
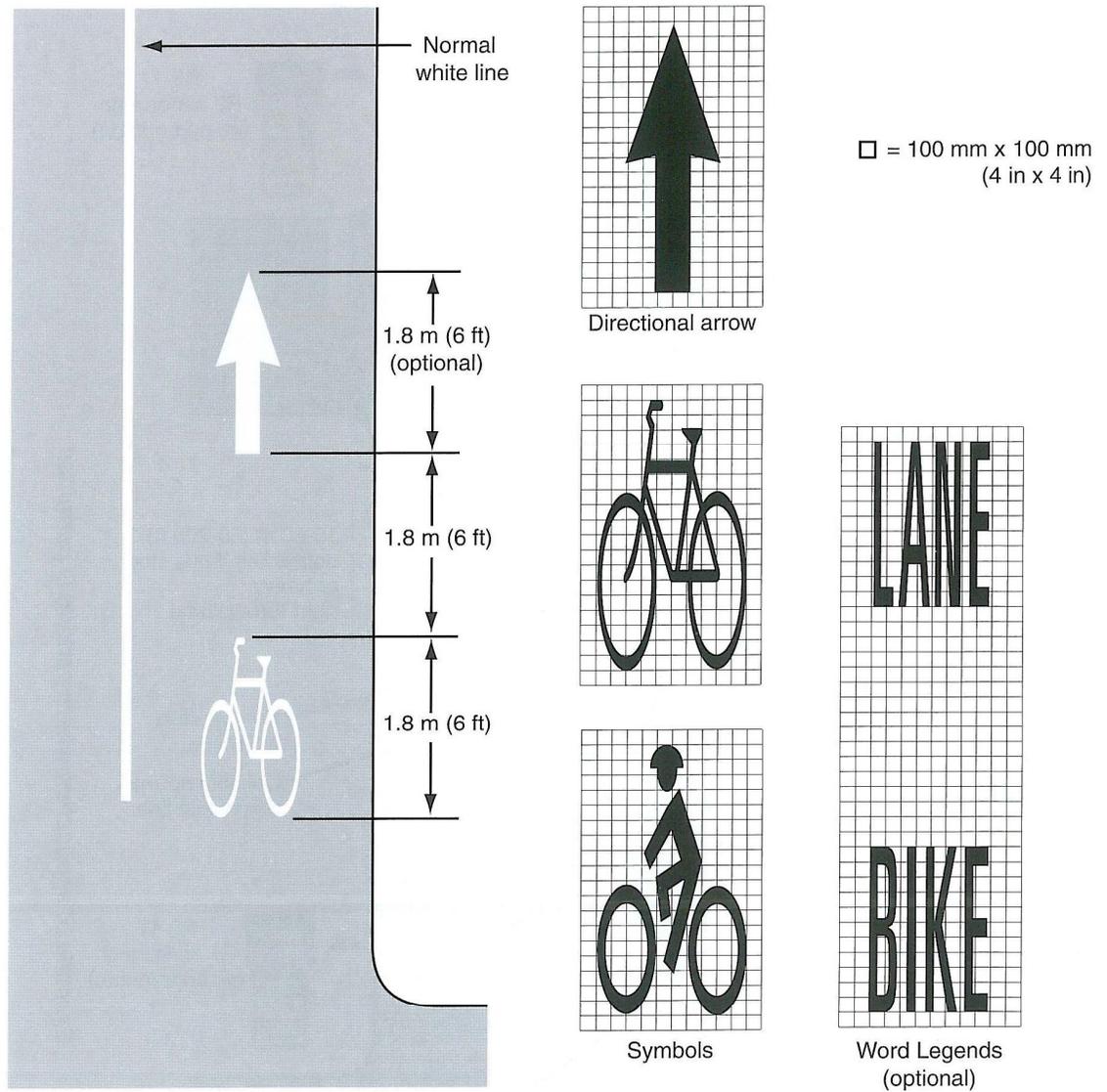




Figure 9C-6. Example of Optional Word and Symbol Pavement Markings for Bicycle Lanes





General Information by Others Related to Complete Streets and Safe Routes 2 School



Complete Streets Help Keep Kids Safe!



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!

Outside Philadelphia, two students who attend Uwchlan Hills Elementary School ride the bus only 90 yards to cross a busy street. In Auburn, Maine, students living just down the street from their brand new elementary school are also taking the bus. These schools are missing the necessary sidewalks and crosswalks that allow kids to walk to school safely – their streets are incomplete.



Right: photo courtesy of Michael Rankin
Left: photo courtesy of League of Illinois Bicyclists

These children clearly do not have a safe route to school. The incomplete streets pictured make their trip unappealing and unsafe.

Incomplete streets a barrier for children

When streets are designed only for cars, they become barriers for children, who cannot safely walk or bicycle along or across them. Unfortunately these safety fears are well founded – pedestrian injury is a leading cause of unintentional, injury-related death among children, age 5 to 14.¹

As a result, many children end up in the back seat of the car, missing out on opportunities for independence and physical activity. One recent survey found that, while 71% of adults walked or rode their bicycles to school as a child, a mere 17% of their own children currently do so.² While ‘stranger danger’ is often cited as a primary factor, a CDC survey found that traffic-related danger is a more common reason children did not walk to school.³ Limited physical activity is a factor in the obesity epidemic among children. The number of overweight or obese American children nearly tripled between 1980 and 2004.⁴

The lack of complete streets is perhaps best illustrated by hazard busing for schoolchildren. In Illinois, 15% of students who ride the bus to school do so because it is considered too dangerous to walk from home, less than 1.5 miles away.

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The Benefits of Complete Streets I



Complete Streets Steering Committee Organizations

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Association of Pedestrian and Bicycle Professionals
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Safe Routes to School National Partnership
Smart Growth America
Thunderhead Alliance

National Complete Streets Coalition

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Complete Streets Help Keep Kids Safe!



Right photo courtesy of Dan Burden
Left: www.pedbikeinages.org/Portland Office of Transportation

Complete streets provide children with a safe and pleasant environment to walk or bike.

Complete Streets give children safety, mobility

Complete streets provide children with opportunities to walk, bike and play in a safe environment. More children are likely to walk or bike to school when sidewalks or footpaths are present, when there are safe street crossings, and when school zones enforce a reduced vehicle speed.⁵ Streets that provide dedicated space for bicycling and walking help kids get physical activity and gain independence.

Safe Routes to School (SRTS) programs, which have become tremendously popular across the country, will benefit from complete streets policies that help turn all routes into safe routes. The California program, initiated through legislation in 2000, was an immediate success, with more kids walking to school, reduced traffic speeds near schools, and more drivers yielding to pedestrians.⁶ While federal funding is now available in all fifty states for Safe Routes to School programs, all of the program's funds will be able to provide limited help to just six percent of the schools in the United States. Complete streets policies can augment these programs to help all communities create safe routes as a routine part of roadway improvement, design and construction.

A community with a complete streets policy considers the needs of children every time a transportation investment decision is made. Roads near schools and in residential neighborhoods are designed and altered to allow children, the most vulnerable users of our streets, to travel safely.

¹ Surface Transportation Policy Project (2004) Mean Streets

² Appleyard, B. (2005) Livable Streets for Schoolchildren. NCBW Forum.

³ S Martin, S Carlson, Barriers to Children Walking to or From School—United States, 2004M MMWR. 2005; 54:949-952.

⁴ U.S. Centers for Disease Control & Prevention. (2004) Physical Activity and the Health of Young People.

⁵ Ewing, R. Will Schroeder, William Greene. School location and student travel: Analysis of factors affecting mode choice. Transportation Research Record: Journal of the Transportation Research Board, No. 1895, TRB, National Research Council, Washington, D.C., 2004, pp. 55–63.

⁶ Appleyard, B. (2005)

www.completestreets.org

Complete Streets

Improve Mobility for Disabled Americans



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 November 2006, a blind pedestrian was struck by a car while crossing the street on his way to a bus stop in Vancouver, Washington. Only visible pedestrian signals had been provided at the intersection. Because the pedestrian was not in the painted crosswalk, the driver was not found to be at fault.¹



Right: photo courtesy of Michael Rankin
Left: photo courtesy of the US Access Board

The bus stop pictured at left would strand a wheelchair user and force anyone to tramp through the grass or walk in the street. The intersection pictured at right has no pedestrian facilities at all – even though the crossing is a legal one.

Incomplete streets a barrier

Even when roadways are provided with space for pedestrians to walk, they may still not be usable for some. They often are difficult to navigate for people who use wheelchairs, can't see well, or for older people who move more slowly. Our streets should be safe and comfortable for everyone to use – particularly for people who cannot choose to drive.

Along incomplete streets, unpaved surfaces and disconnected, narrow, or deteriorated sidewalks discourage wheelchair travel – and the lack of a curb ramp can force a pedestrian into the street. Wide intersections with high-speed traffic can limit the mobility of older persons. WALK signals that only work for the sighted provide no cues to pedestrians who have vision loss. Bus stops that are only a place with a pole in the grass without sidewalks are inaccessible and an uncomfortable place to wait.

Incomplete streets are a constant source of frustration and danger for people with disabilities. A recent study found that blind pedestrians waited three times longer to cross the street, and made many more dangerous crossings than sighted pedestrians.² A significant portion of paratransit trips are necessary, not because people are too disabled to use public transit, but because the street network is so poorly designed that they cannot reach the bus stop or train station.

In Houston, sidewalks are not provided between home and the nearest bus stop for 3 out of 5 disabled and older residents; nearly three-quarters said streets near their homes also lack curb ramps and bus shelters. As a result, fewer than 10% of them use public transportation, even though 50 percent live within 2 blocks of a bus stop.³

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The Benefits of Complete Streets 2



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National Complete Streets Coalition

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Complete Streets Improve Mobility for Disabled Americans



Right: www.pedbikeinquest.com/Dan Burden
Left: www.pedbikeinquest.com/Dan Burden

The station pictured at left allows a rider using a wheelchair to wait for the bus in a safe, convenient environment. The crosswalk pictured at right provides visual and sensory clues, such as raised bumps, to guide people safely across the street.

Complete streets help create livable communities

Streets that are really complete provide all of us – not just a few – with a choice of mobility options. They allow everyone to get to work, school and other destinations with the same level of safety and convenience, whether or not they have mobility, vision, or cognitive disabilities. They also help people who are coping with temporary disabilities, and those pushing strollers, pulling wheeled luggage, or managing large packages.

Complete streets means attention to details at intersections (such as curb ramps and retimed signals to account for slower movement), along pedestrian routes (smooth sidewalks free of obstacles, with usable benches) and at transit stops (ample space to approach, wait, and board safely).

A community with a complete streets policy routinely considers all users when transportation investment decisions are made. Providing a variety of transportation options connect citizens to the community and reduce the need to provide more costly alternatives, such as paratransit or private transportation service. These policies help remove barriers, transforming streets to serve everyone.

¹ *The Columbian News, Clark County, Washington. November 19, 2006.*

² *Ashmead, D.H., Guth, D., Wall, R.S., Long, R.G., and Ponchillia, P.E. Street Crossing by Sighted and Blind Pedestrians at a Modern Roundabout. J. Transp. Engrg., 131 (11): 812-821 (November 2005)*

³ *Gilderbloom JI, Markham JP. Housing quality among the elderly: A decade of changes. Int J Aging Hum Dev 1998; 46(1). Also available at http://www.louisville.edu/org/sun/housing/cd_v2/Bookarticles/Ch1.htm [accessed Nov. 26, 2006].*



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Complete Streets

Improve Mobility for Older Americans

An 82-year old woman was fined more than \$100 for crossing the street against a DON'T WALK signal in the San Fernando Valley in California in April 2006. Though she started her journey during the WALK signal, she could not reach the opposite curb before the signal changed. One elderly neighbor resorts to calling a cab simply to cross the poorly designed street.¹



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

While the street pictured on the left does have crosswalks and signals the distance is intimidating to an older person and makes it hard for the senior to even see the walk signal. The street on the right provides a refuge median to make it much more inviting to slower pedestrians.

Incomplete streets a problem for older Americans

Even when roads have basic pedestrian facilities, they often do not consider the needs of the growing population of older Americans. The U.S. Census Bureau projects that by 2025, the portion of Americans over 65 will increase from 12% to nearly 20%, totaling 62 million Americans. As people age, many give up driving for safety's sake.

Unfortunately many roads do not provide safe alternatives to driving. Crossings are long, sidewalks are absent, and transit stops have no place to sit. A national poll found 47% of Americans over 50 said they could not cross main roads near their home safely.²³ Almost 40% said their neighborhoods do not have adequate sidewalks, while another 55% reported no bike lanes or paths, and 48% reported no comfortable place to wait for the bus.⁴ In 2005, older Americans made up 20% of all pedestrian fatalities. Older Americans need the public right-of-way to better serve them by providing safe places to walk, bicycle, or board the bus, and by designing streets to better accommodate older drivers.

Incomplete streets breed isolation. More than 50% of older Americans who do not drive stay home on a given day because they lack transportation options. Non-driving seniors make 65 percent fewer trips to visit family, friends or go to church; many report they don't like to ask for rides.⁵ Older Americans make just 8% of their trips on foot or bike – far less than in some European countries, where 50% of seniors' trips use these active modes.

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The Benefits of Complete Streets 3



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Complete Streets Improve Mobility for Older Americans



Complete streets make it much easier for seniors to stay active, particularly when they require assistance in the form of a cane, walker, or wheelchair.



Right: www.pedbikeinages.org/Dan Burden
Left: www.pedbikeinages.org/Dan Burden

Complete streets help create livable communities

Complete streets provide older persons with a variety of options for getting around, whether walking, taking public transit, or sharing rides with family and friends. One recent survey showed that 82% of older Americans surveyed consider public transportation to be a better alternative to driving, particularly at night.⁶ More than half (54%) of older adults who reported an inhospitable walking, bicycling and transit environment outside their homes said they would walk, bicycle, and take transit more if their streets were improved. A majority of older people support complete street policies.⁷ Research also shows that moderate exercise, such as walking and biking, contributes significantly to a healthy lifestyle.

A community with a complete streets policy considers the needs of older residents every time a transportation investment decision is made. Proven methods to create complete streets for aging pedestrians include retiming signals to account for slower walking speed, constructing median refuges or sidewalk bulb-outs to shorten crossing distances, and installing curb ramps, sidewalk seating and bus shelters with seating. Improved lighting, signage and pavement markings are among the measures that can benefit drivers of any age, but particularly older drivers.

¹ The Daily News, Los Angeles, April 10, 2006

² AARP, Fighting Gas Prices, Nearly A Third of Americans Age 50+ Hang Up Their Keys To Walk But Find Streets Inhospitable, Public Transportation Inaccessible.

³ National Highway Traffic Safety Administration, Traffic Safety Facts: Older Population. 2005.

⁴ AARP, *ibid.*

⁵ Surface Transportation Policy Project, Aging Americans: Stranded Without Options. April 2004.

⁶ American Public Transportation Association, Transit News. December 2005.

⁷ AARP, *ibid.*

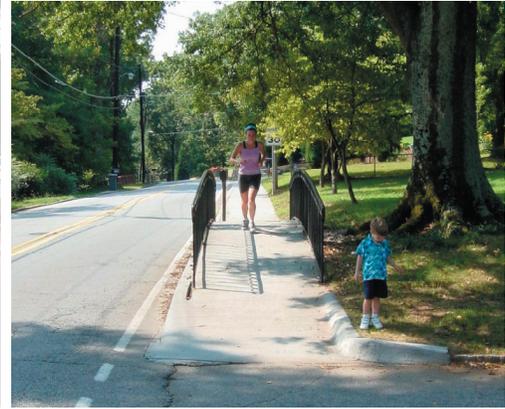
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Complete Streets Promote Good Health!

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



Right: www.pedbikeimages.org/David-Cries
Left: photo courtesy of Don Burden

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

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The Benefits of Complete Streets 4



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Complete Streets Promote Good Health!



Right photo courtesy of Dan Burden
Left 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.

A recent comprehensive assessment by public health researchers of actions to encourage more physical activity recommended building more sidewalks, improving transit service, and shifting highway funds to create bike lanes.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

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.¹⁰

A forthcoming international physical activity study of facilities in 11 countries has found that the amount of walking by individuals in a community is associated with the presence of transit stops near home, bicycle facilities, and sidewalks. The more of these facilities are present, the more likely residents are to walk, and the more likely they are to reach recommended daily physical activity levels.¹¹

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 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.

¹¹ *Multiple Environmental Factors Are Needed to Support Physical Activity: An 11-Country Study of Neighborhood Environments*. James F. Sallis, Heather Bowles, Barbara E. Ainsworth, Adrian Bauman, Fiona C. Bull, Cora Craig,, Michael Sjostrom forthcoming.



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Complete Streets Make for a Good Ride!

Just outside of Boston, new apartments were recently built across the street from the Dedham commuter rail station. However, residents are forced to scramble across a busy road and squeeze through a hole in a fence in order to access the station. The only alternatives are to take a shuttle bus on a three-mile detour or to drive to the station and pay to park.¹



Neither of the bus stops pictured above provide adequate access and shelter for transit users.

Incomplete streets a barrier for riders, good service

In too many cases, road design is out of sync with the needs of the people who are riding buses, trains, and trolleys. Poor design slows transit service and discourages people from using public transportation.

Even in communities served by public transportation, incomplete streets may discourage residents from fully using the service. Many users are unable to get to transit stops in a safe and convenient manner.

Nearly every transit trip begins as a walking trip – but the disconnect between transit and road planning means transit riders are often left to wait at bus stops marked by a lone post in the grass – no sidewalk, curb ramp or bench. Crossing the street to catch the bus may be hazardous. Even where sidewalks and safe roadway crossings exist, often the placement of driveways or other barriers force bus stops to be located some distance from the intersection, increasing walk times and encouraging unsafe jay walking. A study in Houston found that 3 out of 5 disabled and elderly citizens do not have sidewalks between their home and the nearest bus stop. Fewer than 10 percent of them use public transportation, even though 50 percent live within two blocks of a bus stop.² A lack of sidewalks or pedestrian paths linking the entire catchment area of a transit stop form a barrier to transit use by all members of the community – young and old, with or without disabilities.

Buses get stuck in traffic, and their progress is further slowed by the constant need to merge back into the flow of traffic after pulling over to pick up passengers. Stop-and-go bus service discourages use, increasing traffic congestion by those who choose to drive instead. While solutions exist that can help speed service, transit agencies often don't have much say in tweaking road design for bus use.

Right: www.pedbikeimages.com
Left: photo courtesy of United States Access Board

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The Benefits of Complete Streets 5



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Complete Streets Make for a Good Ride!



Right photo courtesy John LaPlante
Left photo courtesy of John LaPlante

The bus stops pictured above provide a safe, comfortable environment for transit users without impeding pedestrian traffic.

Complete streets make transit safe and convenient

Some communities have begun to prioritize creating streets that work well for public transit vehicles and their riders.

Streets that are well designed for transit can encourage more people to get out of their cars and onto the bus. Such streets provide accessible bus stops and assist buses in moving through traffic. Since 2000, rapid bus service in Los Angeles has used a priority signal system that allows buses to extend green lights or shorten red ones. Within the first year of operation, travel time decreased by 25% and ridership increased by more than 30%.³

Improving access to transit also reduces dependence on more costly alternatives, such as paratransit or private transportation services. The Maryland Transit Administration found that providing paratransit for a daily commuter costs about \$38,500 a year. Basic improvements to a transit stop costs \$7,000, the equivalent of just two months' worth of that service for a single rider. More extensive improvements, such as adding a lighted shelter and bench and replacing the sidewalk leading to the stop, costs about \$58,000 – just 33% more than providing a single year of paratransit service for one person.

Transit systems have also discovered that bicycling and transit go well together. Most transit agencies now provide bicycle parking at bus and rail stops, and more than 100 transit systems in the US now carry passengers' bicycles on buses and trains. This extends the range that customers can travel to reach transit – assuming the roads to the transit stop are bicycle-friendly.⁴

A community with a complete streets policy ensures safe and convenient access to public transit for all users. Complete streets policies help create the safe and comfortable bus stops and smooth predictable transit trips that help make transit an attractive option.

¹ Boston Globe, September 21, 2006

² Gilderbloom JI, Markham JP. Housing quality among the elderly: A decade of changes. *Int J Aging Hum Dev* 1998; 46(1). Also available at http://www.louisville.edu/org/sun/housing/cd_v2/Bookarticles/Ch1.htm

³ Los Angeles County Metropolitan Transportation Authority. *Metro Rapid Demonstration Program, Final Report*. March 2002.

⁴ Schneider, Robert. *Integration of Bicycles and Transit, TCRP Synthesis 62*



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Complete Streets Fight Climate Change!

In 1993, Portland, Oregon became the first U.S. city to adopt a plan to address global warming, intended to reduce emissions to 10% below 1990 levels by 2010. New transit investments and continued improvements to bicycling and walking infrastructure have thus far resulted in per capita CO₂ emissions reductions of 12.5 percent.¹ Ultimately, Portland's complete streets and associated land use policies yield carbon savings worth between \$28 and \$70 million annually.²



Right: photo courtesy Ben Miller
Left: photo courtesy of Steve Davis

Incomplete streets make it difficult for people to choose to walk, bicycle, or take transit.

Incomplete streets will hamper climate change strategies

The transportation sector is the fastest growing carbon dioxide source in the United States with emission rates rising 2% per year. Projections show that more efficient fuels and 'clean' vehicles won't be enough to offset the projected 59 percent increase in driving between now and 2030. Even with expected improvements in vehicle and fuel economy, carbon emissions from transportation would be 41 percent above today's levels by 2030 if driving is not curbed.³

The IPCC recommends modal shifts from driving to walking, bicycling, and transit as a key mitigation strategy.⁴ Yet the transportation infrastructure in the United States is not diverse enough to accommodate an increase in pedestrians, bicyclists, and transit users. Many trips are made by automobile because of incomplete streets that make it dangerous or unpleasant to walk, bicycle, or take transit. In fact, a national survey found that bike lanes were available for less than five percent of bicycle trips, and more than one-quarter of pedestrian trips were taking place on roads with neither sidewalks nor shoulders.⁵ Other surveys have found that a lack of sidewalks and safe places to bike are a primary reason people give when asked why they don't walk or bicycle more.⁶ For example, a recent survey of Florida residents found only 25 percent felt it was safe to walk along or to cross the closest U.S. or State road.⁷

Streets need to be completed to include places for people to walk, bicycle, and safely reach transit stops.

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The Benefits of Complete Streets 6



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Complete Streets Fight Climate Change!



Right photo courtesy of Ben Miller
Left photo courtesy of Dan Burden

Complete streets provide an enticing atmosphere for people to get out of their cars.

The climate cooling potential of complete streets

Complete Streets are essential in order to make it possible for Americans to drive less and use our streets to get around more easily on foot, bike, and public transit. The potential to shift trips to lower-carbon modes is undeniable: The 2001 National Household Transportation Survey finds that 50% of all trips in metropolitan areas are three miles or less and 28% of all metropolitan trips are one mile or less – distances easily traversed by foot or bicycle. Yet 65 percent of trips under one mile are now made by automobile⁹, in part because of incomplete streets that make it dangerous or unpleasant to walk, bicycle, or take transit. Complete streets would help convert many of these short automobile trips to multi-modal travel. Other studies have calculated that 5-10% of urban automobile trips can reasonably be shifted to non-motorized transport.¹⁰

Places that are giving people options are seeing a reduction in their emissions. Boulder, Colorado is working to create a complete street network, with over 350 miles of dedicated bike facilities, paved shoulders and a comprehensive transit network. Between 1990 and 2003, fewer people in the city drove alone, more people bicycled, and transit trips grew by a staggering 500 percent. The reduction in car trips has cut annual CO₂ emissions by half a million pounds.¹¹

Complete streets policies are an important means to help reduce heat-trapping pollution and should be an element of every jurisdiction's climate change toolbox.

¹ City of Portland, Office of Sustainable Development. *Local Action Plan on Global Warming, 2005 Progress Report.*

² Cortright, Joe. "Portland's Green Dividend." *CEOs for Cities.* July 2007.

³ Ewing, Reid, *Growing Cooler: The Evidence on Urban Development and Climate Change* Urban Land Institute/Smart Growth America 2007.

⁴ Working Group III contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report, *Climate Change 2007: Mitigation of Climate Change Summary for Policymakers.*

⁵ BTS survey

⁶ Wilbur Smith Associates Bellevue, Washington. *Public Attitude Survey of Bicycle and Pedestrian Planning* May 2007.

⁷ Center for Urban Transportation Research (2005) *Statewide Survey on Bicycle and Pedestrian Facilities.* Report prepared for Florida Department of Transportation.

⁸ Davis & Hale. *Public Transportation's Contribution to U.S. Greenhouse Gas Reduction.* SAIC. September 2007.

⁹ 2001 NHTS Poll.

¹⁰ Litman, Todd *TDM Encyclopedia* (ADONIS, 1999; Mackett, 2000; Socialdata Australia, 2000; Cairns et al, 2004).

¹¹ All data from 'Modal Shift in the Boulder Valley 1990 – 2003', May 2004 for the 'City of Boulder' by the 'National Research Center Inc.'



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Complete Streets Spark Economic Revitalization

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 revitalizing 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 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 Steering Committee Organizations

AARP
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
Thunderhead Alliance

National Complete Streets Coalition

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(202) 207-3355
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Complete Streets Spark Economic Revitalization



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 tourists.

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.

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

Footnotes listed on following page

www.completestreets.org

Right photo courtesy of Dan Burden
Left: www.pedbikeinages.org/Portland Office of Transportation



Complete Streets Spark Economic Revitalization

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/tea21/documents/brochure_transit_means_business.pdf.

⁷ APTA. *Public Transportation Means Business*.



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!

Complete Streets And High Gas Prices

Nearly half of all trips in metropolitan areas are three miles or less and 28 percent are one mile or less – distances easily covered by foot or bicycle. Yet 65 percent of trips under one mile are made by automobile,¹ in large part because incomplete streets make it dangerous or unpleasant to walk, bicycle, or take transit.



Both of the road environments above were built to accommodate motorists and provide unsafe conditions for bicyclists and pedestrians.

Right photo courtesy of Dan Burden/www.pedbikeimages.org
Left photo courtesy of Texas Transportation Institute 2004

Incomplete streets cost families money and encourage oil consumption

Transportation is the second largest expense for American households, costing more than food, clothing, and health care. Even prior to 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. Much of this household transportation expense is pumped directly into the gas tank. The United States uses 20 billion barrels of oil per day² and over 40% of American oil consumption goes to passenger cars.³

This high cost is unavoidable for those who live in sprawling areas that lack sidewalks, bike lanes, or convenient public transit. Surveys have found that a lack of sidewalks and safe places to bike are a primary reason people give when asked why they don't walk or bicycle more.⁴ A recent survey of Florida residents found only 25 percent felt it was safe to walk along or to cross the closest U.S. or State road.⁵ Transit use is soaring across the country as people seek alternatives to high gas prices. But too many of these new users may be discouraged by long waits at inadequate bus stops or by dangerous street crossings. Incomplete streets leave many commuters with no choice, and rising gas prices are hurting the most in places where people have no alternative to driving.

Much of the transportation infrastructure in the United States is not ready to accommodate an increase in people walking, bicycling, or catching the bus. A majority of short trips continue to be made by automobile because incomplete streets make it dangerous or unpleasant to walk, bicycle, or access transit. A national survey found that bike lanes were available for less than five percent of bicycle trips, and more than one-quarter of pedestrian trips were taking place on roads with neither sidewalks nor shoulders.⁶

(over)



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- 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
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and Walking
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Complete Streets And High Gas Prices



The bus stops pictured above provide a safe, comfortable environment for transit users without impeding pedestrian traffic.

Photos courtesy of Dan Burden/www.pedbikeimages.org

Complete streets are essential to spending less on gasoline

The potential to shift trips to less oil-dependent modes and to save money by doing so is undeniable: Nearly fifty percent of all trips in metropolitan areas are three miles or less and 28 percent are one mile or less – distances easily covered by foot or bicycle.⁷ According to multiple analyses, if each day Americans substituted driving with walking or cycling for the distance recommended for daily exercise, the United States could reduce oil consumption by between 35 and 38 percent.⁸

Walking and bicycling of course require no gasoline and transit's use of fuel is much more efficient than that of automobiles. Simply increasing bicycling from 1% to 1.5% of all trips in the U.S. would save 462 million gallons of gasoline each year.⁹ Using transit has already helped the United States save 1.5 billion gallons of fuel each year since the early 1990s, which is nearly 36 million barrels of oil.¹⁰ That translates into family savings. 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.¹¹

Places that are giving people options are reducing oil dependency. In California, which has a complete streets policy, public transit use saved more than 486 million gallons of oil in 2006, which is similar to taking more than 800,000 cars off the road.¹² If every Californian substituted walking for driving just two miles, four days a week, Californians would save an additional 144 million gallons of gasoline in a year.¹³

Boulder, Colorado is working to create a complete street network, with over 350 miles of dedicated bike facilities, sidewalks, paved shoulders and a comprehensive transit network. Between 1990 and 2003, fewer people in the city drove alone, more people bicycled, and transit trips grew by a staggering 500 percent. Less oil is being consumed, and the reduction in car trips has cut annual CO₂ emissions by half a million pounds.¹⁴

Walking, biking, and taking transit save money and reduce our dependence on oil.

Footnotes are available on www.completestreets.org.

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- [HANDBOOK](#)
- [WALK TO SCHOOL DAY](#)
- [POLICY](#)
- [FUNDING](#)
- [CONTACT](#)
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Welcome to Michigan's Safe Routes to School website! This site will keep you up-to-date on the latest news and information regarding Michigan's Safe Routes to School program.

THINGS TO DO ON THIS SITE

- ▶ [Read the latest SR2S news stories <new!>](#)
- ▶ [Register your school for the SR2S program](#)
- ▶ [Enroll in SR2S training](#)
- ▶ [Download the SR2S Handbook](#)
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SR2S Action Plans Project: a new partnership between SR2S and Blue Cross Blue Shield of Michigan
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SR2S Annual Meeting presentations now available
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Safe Routes to School funding award recipients named
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Over 370 schools have registered for Michigan's SR2S program
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What is Safe Routes to School?



Safe Routes to School (SR2S) is an international movement—and now a federal program—to make it safe, convenient and fun for children to bicycle and walk to school. When routes are safe, walking or biking to and from school is an easy way to get the regular physical activity children need for good health. Safe Routes to School initiatives also help ease traffic jams and air pollution, unite neighborhoods and contribute to students' readiness to learn in school. [LEARN MORE](#)

navigating this site

Michigan's Safe Routes to School website contains the following pages:

[About SR2S](#) contains general information regarding Safe Routes to School. This includes a description of the program's mission and goals and an overview of Michigan's 2-year Safe Routes to School pilot project.

[News](#) contains the latest news and information regarding Michigan's Safe Routes to School program, including the current and all back issues of the Safe Routes to School newsletter.

[Frequently Asked Questions \(FAQs\)](#) contains answers to commonly asked questions about Safe Routes to School policies and procedures.

[Handbook](#) contains information on Michigan's *Safe Routes to School Handbook*, a step-by-step guide to starting and maintaining a Safe Routes to School program.

[Walk to School Day](#) contains information on Walk to School Day, a one-day event that promotes walking and biking to school. Walk to School Day is held annually on the first Wednesday in October.

[Policy](#) contains information on state and federal legislation that affects Safe Routes to School programs.

[Funding](#) contains information on funding opportunities available to Safe Routes to School programs, including the federal Safe Routes to School grant program.

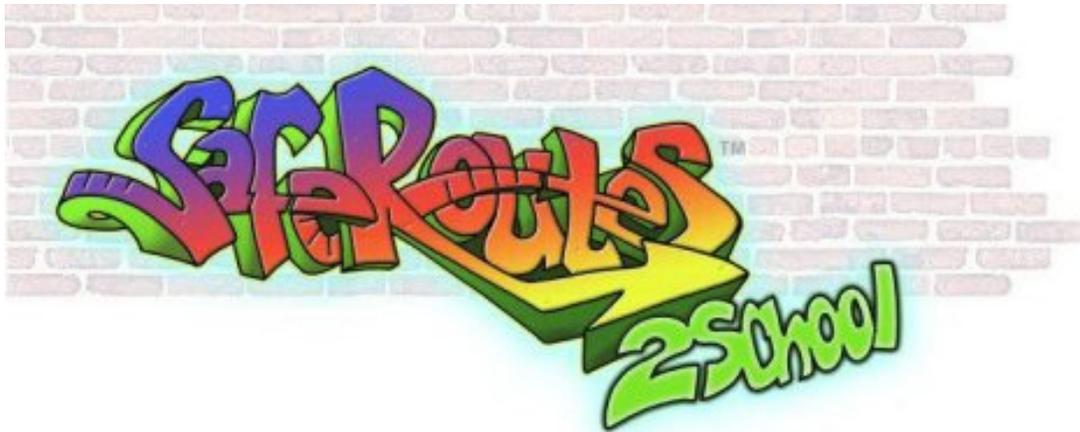
[Contact](#) contains phone and fax numbers and postal and e-mail addresses to the Safe Routes to School office.

[Links](#) contains links to Safe Routes to School-related sites and to other sites promoting active living.

[GRANTEE REPORTING MATERIALS](#)

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