

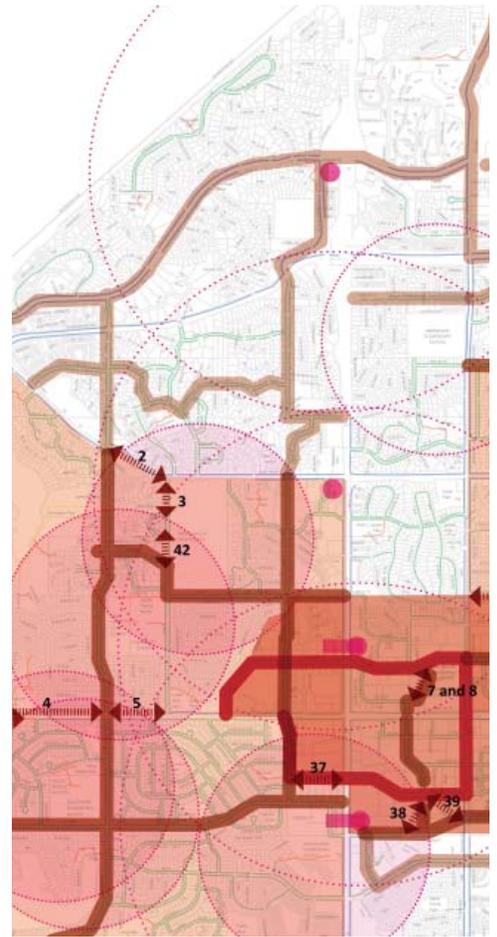
Bike Walk Apple Valley

A trail and sidewalk plan for Apple Valley, Minnesota

September 2010



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Prepared for:
The City of Apple Valley

Prepared by:
LHB, Inc.
Howard R. Green Company
Cornejo Consulting





Apple Valley is evolving, and a significant part of that evolution is an orientation to walking and bicycling. Advocacy groups have been working on this initiative for some time, and the city's 2030 Comprehensive Plan directs attention to goals that support an enhanced trail and sidewalk network.



BikeWalk Apple Valley was made possible through funding from the Statewide Health Improvement Program (SHIP) of the Minnesota Department of Health. For more information, visit:

www.health.state.mn.us/healthreform/ship

Acknowledgements

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This study examines of segments of trail and sidewalk that are missing from the community's trail and sidewalk network. The recommendations recognize these gaps, but strive to accommodate broader goals that might be achieved as a complete network of trails and sidewalks is implemented—including the creation of vibrant public spaces and diverse experiences.

Executive Summary



While sidewalks and trails exist in many parts of the Apple Valley community, there are gaps. This plan assesses those gaps, and frames possible enhancements and improvements that lead to a more complete network for walking and bicycling in the community.

Walking and Bicycling in Apple Valley

The City of Apple Valley is committed to sustainability, active living, and creating alternatives to traditional movement in the community. In its 2030 Comprehensive Plan, the City of Apple Valley lays out a series of keys to its vision of the future, suggesting that the community is, among other things, sustainable, livable, safe, healthy and active, and accessible. Each of these “keys” offers insights about how a network of trails and sidewalks can evolve to support the goals of the community. This study considers the patterns of non-motorized movement in the community, building upon directions of Apple Valley’s 2030 Comprehensive Plan and initiatives focused on principles of active living.

Other factors figure prominently in the need to consider Apple Valley’s trail and sidewalk network. Bus rapid transit in the Cedar Avenue corridor offers a significant addition to transit in Apple Valley and suggests a real opportunity for enhancing links to BRT. A growing interest in resident health and well-being through walking and bicycling is supported by Active Living Dakota County, which is organized to help communities understand how they can remove barriers to non-motorized movement.

While this plan lays a foundation for improving the trail and sidewalk network in Apple Valley, it also suggests that those improvements may serve to enhance the sense of community in Apple Valley. This plan for trails and sidewalks addresses the issues involved in walking and bicycling in Apple Valley so that a more complete transportation system is created, adding multi-modal choices for users and making alternative modes of transportation more possible, convenient, and safe.

The City of Apple Valley was awarded a \$25,000 grant from the Dakota County Department of Health to conduct this trail and sidewalk study in

connection with Active Living Dakota County. The City of Apple Valley is a partner in Active Living Dakota County which has received funding from Blue Cross and Blue Shield of Minnesota and the State of Minnesota's State Health Improvement Program (SHIP).

Apple Valley has more than 60 miles of paved trails and nearly 125 miles of sidewalks. Its downtown, and a key connection to BRT, is located at the intersection of two major arterials, County Road 42 and Cedar Avenue; downtown is served by a Ring Route, a corridor that distributes vehicles around a busy intersection, as well as providing wide sidewalks and features that lend a sense of identity to the downtown district. While Apple Valley's street system is well-developed and complete in all developed areas of the community, the trail and sidewalk system is not. This study considers those areas where the trail and sidewalk system reveals gaps, and characterizes each gap in terms of its role in the system.

Overall Goal and Guiding Principles

The goal of this study is the definition of a path to completing Apple Valley's trail and sidewalk network. It goes further, defining a series of principles supporting walking and bicycling in the community that allow residents and community leaders more insights about the ways in which the trail and sidewalk network can serve the community. It also looks for ways to enhance the overall quality of life in Apple Valley, and identifies options for non-motorized transportation. Overall, this plan looks quite broadly at a trail and sidewalk network, striving to find ways that, with time, create patterns of walking and bicycling that are integral to the patterns of the community—and even a point of identity for Apple Valley.

The principles guiding this plan are:

- **Enhance opportunities for Apple Valley residents and workers to live more active lives** by reducing barriers to walking and bicycling, and by introducing features that encourage use of trails and sidewalks.
- **Enhance the safety, convenience, and attractiveness of walking and biking for children**, especially as they travel to and from schools and parks and recreation facilities.
- **Integrate walking and bicycling more directly into the patterns of land use** in Apple Valley by designing sites and buildings that facilitate connections between neighborhoods, parks, business areas, regional destinations and walking and bicycling facilities.
- **Improve multi-modal access for the Downtown** to enhance its economic development potential.
- **Allow Apple Valley to evolve as a suburban and suburban-intensified, walkable place** that retains the character of both

environments to create a diverse, sustainable, and interesting community.

- **Encourage connectivity across modes** in Apple Valley through systems that promote walking and bicycling, and offer convenient and comfortable alternatives to movement by automobiles.
- **Enhance trails and sidewalks** in the community with elements that aid in navigation, build a greater sense of community, and establish a sense of place in Apple Valley corridors, neighborhoods, districts, and common spaces.
- **Commit to levels of maintenance** required to support a safe, convenient, and comprehensive system of non-motorized transportation in Apple Valley.
- **Establish a closer match between capital funding to construct trails and sidewalks and maintenance/repair/replacement funds** to sustain a long-term implementation of a “Complete Streets” policy.

Trail and Sidewalk Plan Work Scope

Through interviews, meetings, and workshops, City staff and the consultant team worked in collaboration with a task force comprised of representatives of the Planning Commission, Parks and Recreation Advisory Committee, Traffic Safety Advisory Committee, and other stakeholder groups to garner support, review and analyze data, and provide guidance on directions and priorities for policies on connectivity and filling of gaps in the city’s trail and sidewalk system. Specifically, the study process included the following objectives:

- Analyze opportunities to enhance pedestrian and bicycle facilities along the Cedar Avenue corridor in relation to the upcoming Cedar Avenue Bus Rapid Transit (BRT) system and highway improvement project;
- Identify missing trail and sidewalk segments throughout the city that provide important links to the city’s overall sidewalk and trail network, and create a prioritized list of projects to help future construction as funds are made available;
- Review trail and sidewalk connectivity within the four commercial quadrants of the intersection of County Road 42 and Cedar Avenue and recommend improvements;
- Provide preliminary cost estimates to construct the missing trail and sidewalk segments;
- Provide an analysis of the cost of long-term maintenance of the new trail and sidewalk segments in addition to the initial construction costs; and
- Establish policy direction related to active living, the installation of missing trail and sidewalk segments, and overall community health.

A trail and sidewalk plan for Apple Valley

Public and task force input identified a desire for improved non-motorized transit. But input also suggested a strong desire to improve downtown's sidewalk and trail network, and to provide connections to key local destinations including schools, parks, transit, downtown, and regional attractions like the Minnesota Zoo. There was a desire expressed for loops—sidewalks or trails that form reasonable circuits without having a specified destination. Task force members also discussed the economic potential of walking and bicycling, particularly on downtown. Finally, task force members suggested that improvements provide “comforts” for users, including benches, drinking fountains, and navigation aids.

A significant effort was directed to identification of gaps in the existing sidewalk and trail network—locations where no facilities exist for walking or bicycling along routes defined in the city's plans for non-motorized movement. Each gap was evaluated according to consistent criteria, with each criteria assigned a weighting. Accordingly, each of some 40 gaps were identified and assessed, with each receiving a score that would suggest its priority for completion.

At the same time, the task force was looking to create a maximum impact on the ability to serve those residents choosing to walk or bicycle in Apple Valley. Based on analysis of walking zones around transit destinations and schools, two areas of the community were identified as targets for concentrated improvements—in addition to the downtown area, where enhancements and expansions to the Ring Route might better serve those in downtown and those with downtown as a destination.

Enhancements in these zones of concentrated improvement would be directed to core routes that would provide facilities of consistent width and materials, lighting, street trees, street crossing improvements, and other elements that would support walking or bicycling. The core routes generally have trails or sidewalks in place, and improvements might be rather limited at first. Eventually, these core routes might become the core of walking and bicycling movements in smaller zones of the community, similar to the ways in which the Ring Route defines downtown and offers a pattern of movement for motorists and non-motorists.

Recognizing patterns of walking and bicycling that may create a complete network is a largely technical exercise. Apple Valley's 2030 Comprehensive Plan suggests goals that are important in defining how trails and sidewalks “fit” the community. This plan suggests other considerations that not only result in a complete network of trails and sidewalks, but resonate more fully with the 2030 Comprehensive Plan. These factors include:

- connectivity and mobility;
- community health;
- navigation;
- identity;
- hierarchy; and
- community.

Each factor is more fully explored in the trail and sidewalk plan.

Guidance and recommendations

The trail and sidewalk plan offers guidance beyond the pavement required to create a more complete network for walking and bicycling in Apple Valley. To create a network that encourages non-motorized movement in the community, improvements should recognize best practices related to walking and bicycling, including best practices related to:

- pedestrian enhancements;
- trail enhancements;
- bicycle enhancements;
- wayfinding; and
- land use and urban design.

Finally, the trail and sidewalk plan recommends that the community:

- recognize that sidewalks and trails reasonably serve most developed portions of the city;
- focus on creating a more complete system in portions of the Apple Valley community;
- identify the need for more robust funding for maintenance of trails and sidewalks; and
- encourage the implementation of elements that support trail and sidewalk use while lending identity to the community.

A significant point is made relative to funding of improvements to the trail and sidewalk network, as suggested by the recommendations indicated above. This study assessed the costs of completing the identified gaps, with a total construction cost of nearly \$3,000,000. Equally important is the cost of maintaining those segments once they are completed. It is estimated that the costs of maintenance over a 20 year period—for the gaps identified—will total more than \$2,000,000. This is significant, but without adequate maintenance, the ability of BikeWalk Apple Valley to be fully realized is much diminished.



Apple Valley residents use trails and sidewalks for any number of reasons, including recreation and local commuting. As communities evolve, the potential for trails and sidewalks to become a part of the essential nature of the community might be realized.

Building community through walking and biking

Bike-Walk Apple Valley is premised on the idea that a more complete network of walking and bicycling trails in the Apple Valley community not only offers greater options for moving about the community, but it promotes community health by providing trails and sidewalks that encourage people to be active. It's part of a trend toward Active Living, but it also resonates with Apple Valley's 2030 Comprehensive Plan as it looks toward new transit options, a greater diversity of experiences and a stronger sense of community.

The Dakota County Department of Health provided support for the study through its Active Living Dakota County Program with funding from Minnesota's Statewide Health Improvement Program (SHIP).

SHIP is an integral part of Minnesota's nation-leading 2008 health reform law, which strives to help Minnesotans lead longer, healthier lives by preventing the chronic disease risk factors of tobacco use and exposure, poor nutrition and physical inactivity. SHIP seeks to create sustainable, systemic changes in schools, worksites, communities, and health care organizations that make it easier for Minnesotans to incorporate healthy behaviors into their daily lives.

A task force was charged with guiding the work and ensuring it matches the Apple Valley community's goals. Representation on the task force was drawn from the Planning Commission, the Traffic Safety Advisory Committee, and the Parks Commission, along with representatives of the public and stakeholders. Input was aimed at interested parties and key stakeholders, and included:

- direct input from the task force;
- a community meeting conducted at the outset of the process;
- an open house meeting that was conducted once concepts had been developed; and
- interviews with stakeholder groups, community leaders, the Chamber of Commerce, and the local Safe Routes to Schools liaison.

Communities across the country are evolving in subtle ways that could, with time, dramatically change the way they look and function. In an incremental way, cities are looking to expand the choices people have as they move about their community. What started with an orientation to mobility—allowing people more choices in local travel—has a new focus on active living and a desire for greater diversity of experiences.

Mobility

Apple Valley is already seeing new choices for mobility. The recent introduction of bus rapid transit along Cedar Avenue offers residents a



Some parts of Apple Valley are strongly oriented to walking and bicycling, while others are mostly vehicle centric. Accommodating walking and bicycling does not eliminate the car, but given a robust network supporting walking and bicycling, many residents may choose to leave their car at home.



Walking and bicycling are a key part of public health advocates' call for "active living." In Apple Valley, the community has committed to creating a healthy, active, and safe community in its 2030 Comprehensive Plan.

new, more convenient way of travelling to work. Even in our climate, bicycling is becoming a valid choice for some commuters. But these modes do not stand on their own: BRT patrons need to get to stations on Cedar Avenue, and bicyclists need facilities that offer safe routes for travel and facilities to accommodate their bicycles at the end of their journey. Increasingly, walking is seen as a viable alternative for shorter, local trips, especially for students going to school. Schools have responded by creating plans to enhance access in the areas near the school, providing safe and convenient routes for students who live near their school.

New choices are shaping the ways communities respond with transportation systems. Streets are no longer the sole domain of the car, as people expect new modes to be accommodated in public rights-of-way. Long held standards are being revisited, often allowing more modes to fit into the same space that was once directed largely to motorized vehicles.

Active living

Public health concerns have encouraged communities and public health organizations to enhance opportunities for people to live more active lives. The Surgeon General recommends that adults have at least 30 minutes of moderate physical activity every day, and that children have at least an hour each day. While it might not seem to be a significant commitment of time, most Americans fail to meet the Surgeon General's recommendations. Active living initiatives were created to find ways to more directly integrate physical activity in people's daily routines, including walking or bicycling as an alternative mode of transportation.

By increasing routine physical activity the general health of the population is improved, but in many places, barriers limit opportunities. Active living programs seek to alter land use patterns and shift a community's focus from cars to non-motorized movement, including improving sidewalks and trails. While the physical improvements that enhance walking or bicycling are often simple, they can help people make choices that are better for their health.

In Apple Valley, Active Living Dakota County is leading a charge to create more options for active living. Apple Valley's 2030 Comprehensive Plan supports the goals of Dakota County Active Living by advocating policies that promote the community as a model of a healthy, active, and safe community. While a number of factors are noted in one of the "keys" to the community's vision in the 2030 Comprehensive Plan, one of the primary ideas relates to "a comprehensive system of sidewalks, trails and bike lanes connects neighborhoods, jobs, schools, and other destinations as an integral part of our transportation system."

Experiences

Apple Valley “grew up” at a time when movement in personal vehicles dominated development patterns. While this pattern is not disappearing, many residents are beginning to expect greater variety in the patterns they experience. Suburbs are looking to create more distinct “downtowns,” especially trying to capture a sense of civic and social identity in new places where people might live, work, shop, and play. It’s part of what Christopher Leinberger, an urban strategist and developer, describes in his view of suburban evolution. He suggests we’re changing from a society that based in patterns that are “suburban drivable” to ones that are “urban walkable,” and it stems, in part, from people’s own experiences. Media, and television, in particular, influences expectations, with “boomers” who grew up watching *The Brady Bunch*, where a single family residential pattern as the norm. Today, those making choices about where they will live might be more influenced by *Friends*, living in an urban apartment and gathering at a local coffee house. In Apple Valley, the pattern of more diverse and intensive use might be best termed “suburban-intensified,” as it better reflects the scale and orientation of the community’s downtown area.

Communities are also changing based on what their residents experience in other places. We find ourselves intrigued by the patterns of some of the places we visit. We might visit Portland, and be more attracted to the

Patterns of walking and bicycling are best integrated with development, creating a diverse range of experiences for residents and visitors.





Parts of Apple Valley, like downtown’s Ring Route, have established the public realm basis for a pedestrian network within a portion of the community. Elements supporting walking lend a sense of identity to the district and community.

kind of place that results, in part, from a robust transit system. We might visit European cities, where our experience is more strongly shaped by a long history of non-motorized movement than by traveling in a car. We see those places, and begin to form an expectation that our place—our community—should offer those kinds of experiences. New expectations are beginning to shape the kind of place we want for ourselves.

It doesn’t mean that the patterns that exist will be wiped away. In fact, the nature of this kind of change suggests a transition, setting new patterns in place in increments. In Apple Valley, like in most communities, this doesn’t mean that what most people consider traditional development patterns will disappear, but it does suggest an evolution, where new patterns are likely to emerge. And with those patterns, walking and bicycling may become just as important as movement in cars.

BikeWalk principles

Implementing a complete network for walking and bicycling in Apple Valley will happen as a result of well-considered increments, fashioned to respond to identified needs or newly recognized opportunities. It will likely happen over a longer period of time, even with strong commitment to making movement on foot or on bikes an integral part of the community. Maintaining the commitment to walking and biking will become easier as new segments of trails and sidewalks are implemented, and more residents find the use of these facilities inviting and useful, and recognize the positive impacts their walking and bicycling activities have on their physical and mental health and on their community.

As this plan was framed, it was understood that explicit rules would be less useful in defining directions than a broader set of principles that guide the ways in which trails and sidewalks will be integrated into the fabric of Apple Valley. These guiding principles support the function of a robust trail and sidewalk network, but go further to suggest the kind of community that results from commitment to a community that can be best experienced by pedestrians and bicyclists:

- Enhance opportunities for Apple Valley residents and workers to live more active lives by reducing barriers to walking and bicycling, and by introducing features that encourage use of trails and sidewalks.
- Enhance the safety, convenience, and attractiveness of walking and biking for children, especially as they travel to and from schools and parks and recreation facilities.
- Integrate walking and bicycling more directly into the patterns of land use in Apple Valley by designing sites and buildings that facilitate connections between neighborhoods, parks, business areas, regional destinations and walking and bicycling facilities.
- Improve multi-modal access for the Downtown to enhance its economic development potential.



One of the primary trail and sidewalk user groups are children who might walk or bicycle to school. Efforts to enhance convenience and safety of non-motorized connections to schools should be a focus on the trail and sidewalk network.

- Allow Apple Valley to evolve as a suburban and suburban-intensified, walkable place that retains the character of both environments to create a diverse, sustainable, and interesting community.
- Encourage connectivity across modes in Apple Valley through systems that promote walking and bicycling, and offer convenient and comfortable alternatives to movement by automobiles.
- Enhance trails and sidewalks in the community with elements that aid in navigation, build a greater sense of community, and establish a sense of place in Apple Valley corridors, neighborhoods, districts, and common spaces.
- Commit to levels of maintenance required to support a safe, convenient, and comprehensive system of non-motorized transportation in Apple Valley.
- Establish a closer match between capital funding to construct trails and sidewalks and maintenance/repair/replacement funds to sustain a long-term implementation of a “Complete Streets” policy.



Trails in Apple Valley have been incorporated along many streets and roadways. While parts of the community offer trails and sidewalks with good connectivity, other community goals may not be so directly addressed.

Walking and biking in Apple Valley

Apple Valley has more than 60 miles of paved trails and nearly 125 miles of sidewalks that link residents to the city's parks, schools, shopping areas, and other community and regional destinations. While a good system of non-motorized movement exists in Apple Valley, this plan looked more closely at the network of trails and sidewalks to reveal gaps that limit connectivity and mobility. In some cases, the system ends where the sidewalk or trail stops, where a pedestrian on a sidewalk or trail can't easily reach the front door of a store or public building, or where a safe crossing of a roadway can't be achieved by a pedestrian or bicyclists. But what's important in all of this is that the City of Apple Valley is assessing its network of trails and sidewalks in 2010, and in doing so, it is looking ahead to the kind of system that will best serve the community long into the future. This plan is not about merely about fixing broken sidewalks or filling gaps in the network, it intends to demonstrate a path to greater mobility, while at the same time providing for greater diversity, sustainability, and enhanced community health.

The evolution of Apple Valley shows in its orientation to walking and bicycling. With knowledge of the city's policies, one might easily determine the age of a neighborhood by virtue of its sidewalks. At one time, sidewalks were envisioned—even required—along streets as neighborhoods developed. Policies changed with time, requiring a sidewalk on only one side of a street. Later, and for a relatively short time, the requirement for sidewalks along many types of streets was eliminated. Today, the 2030 Comprehensive Plan revives the policy requiring sidewalks along both sides of residential streets.

In Apple Valley, sidewalks support pedestrian use in residential neighborhoods and commercial districts, allowing people to move on foot between their homes and other parts of the community. Sidewalks are concrete, and are generally narrower in width than trails, limiting their use to walking. Still, more experienced bicyclists will prefer to use streets than trails designated by bicycles or shared use, and some novice bicyclists (children, for example) will feel more safe on sidewalks.

Trails in Apple Valley fall into one of three categories:

- park trails
- Park trails are located wholly within parks and open spaces, and are surfaced in bituminous. They provide links between a park and adjacent sidewalks or streets and the surrounding neighborhood. Park trails are intended to be multi-use facilities, accommodating pedestrians and bicyclists. This study did not assess the network of park trails in Apple Valley, but



Patterns of development in Apple Valley have changed over time. At one point, sidewalks were required on both sides of neighborhood streets. That direction has been reinforced in the city's 2030 Comprehensive Plan.



Conditions of trails and sidewalks vary across the community, with some facilities meeting walking or bicycling needs. In other locations, sidewalks terminate before forming needed connections, physical conditions limit opportunities for implementing a trail, or facilities are just uncomfortable for walking or bicycling.

- street trails

recognized the role they might play in a comprehensive system of non-motorized movement.

Street trails are bituminous surfaced and 8 feet wide, and are located along Apple Valley’s collector streets and county roads. The city’s policy is to construct street trails on both sides of these types of roadways, where feasible. Street trails are intended to be multi-use facilities, accommodating pedestrians and bicyclists.

- unpaved trails

Unpaved trails are located in parks and open spaces and are intended solely for use by pedestrians.

There are unique facilities in Apple Valley as well. The Downtown Ring Route is designed with significant portions of the right-of-way dedicated to non-motorized movement. Facilities along the Ring Route are typically composed of a wide paved boulevard with trees and street lights adjacent to the curb, and a zone for pedestrian movement. While bicycles are permitted to use these “sidewalks,” it was noted during the process that serious bicyclists would prefer to use the street, which offers a more consistent surface and provides greater visibility of the bicyclist.

Today, there are no designated bicycle lanes on the city’s streets. The city has installed multi-use pathways along a majority of its major street corridors. The 2030 Comprehensive Plan indicates the city will “explore the use of striped shoulders along collector streets and county roads (except arterial streets).” It further notes that street trails will continue to be used along major street corridors.

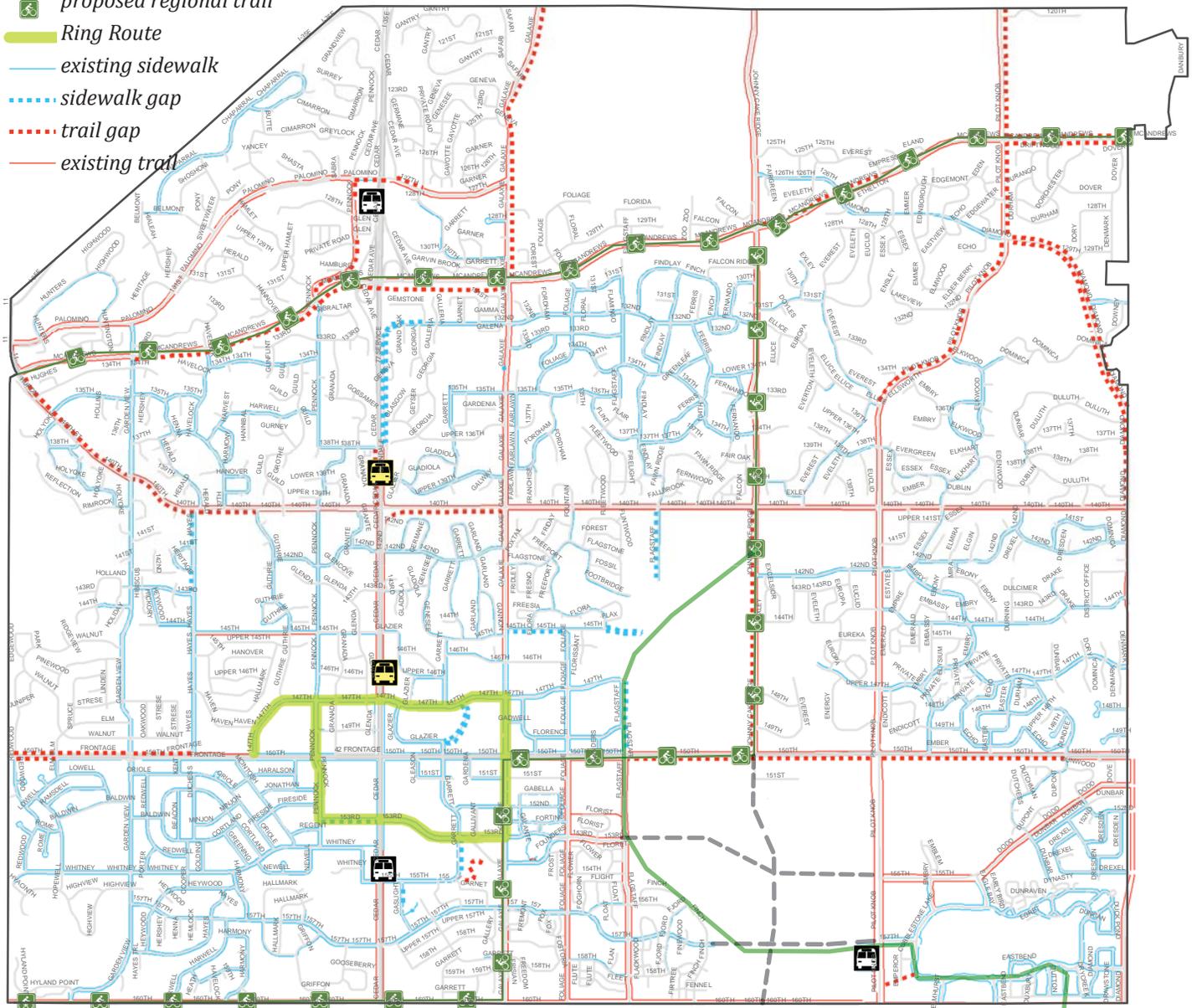
Planned trails and sidewalks

While extensive, the network of trails and sidewalks in Apple Valley is not yet complete. In fact, trails and sidewalks will not be constructed in some areas until development occurs. In order to effectively plan for a complete system, the city has laid out a plan for trails and sidewalk in conceptual fashion, in its Comprehensive Plan. While not specific relative to location, the diagrams demonstrate the city’s intention to create a network supporting non-motorized movement in the Apple Valley community. As the Comprehensive Plan is considered, it must be understood that the locations for trail and sidewalk routes are often “diagrammatic,” with locations for enhanced routes and ultimate directions being established with the benefit of further and focused design and engineering.

Even as this plan for trails and sidewalks was developed, new segments of trail and sidewalk were being implemented. It's an on-going task, and one that will continue through the city's pavement management program, where street surfaces are upgraded across the community according to a program that recognizes the service life of the materials used in the city's streets. As a part of the street reconstruction process, it may be advantageous for the city to evaluate the condition of trail and sidewalk facilities within the same right-of-way.

-  park and ride
-  MVRTA stop
-  roads and highways
-  proposed regional trail
-  Ring Route
-  existing sidewalk
-  sidewalk gap
-  trail gap
-  existing trail

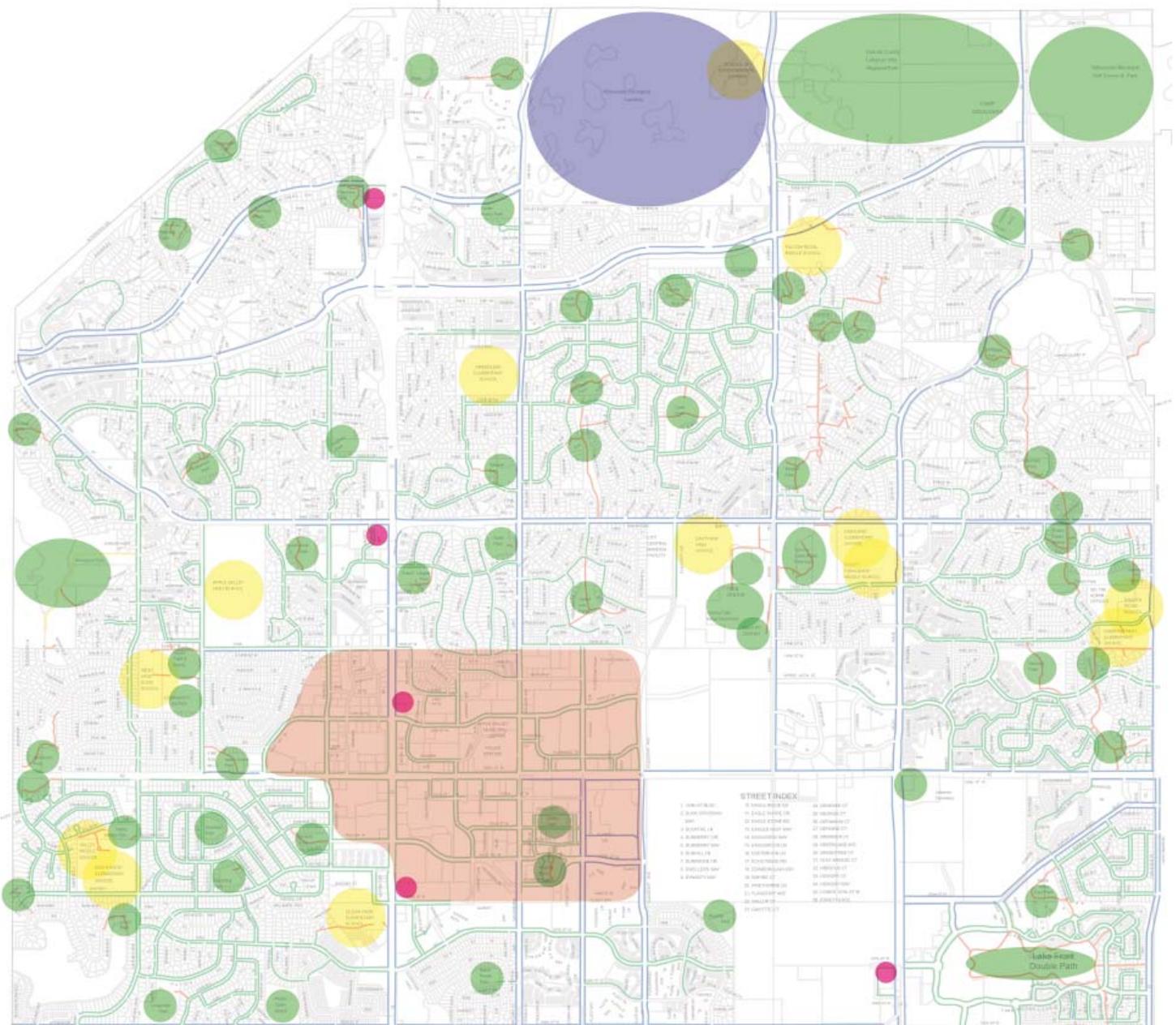
The trail and sidewalk network covers much of currently developed Apple Valley. Gaps occur in all parts of the community, including areas yet to be developed.



Destinations and routes

Walking and bicycling destinations identified by the task force and the community included schools and parks, Apple Valley's downtown area, attractions like the Minnesota Zoo, and transit stations and park and ride facilities.

Task force members identified common routes and likely destinations for pedestrians and bicyclists. Destinations noted include downtown, schools, parks, and transit. Regional destinations, like the Minnesota Zoo or trails or parks in adjacent and nearby communities, were also highlighted. Mention was made of some of the more attractive routes, including Garden View Drive and Palomino Drive. Loops were also discussed, and included loops through neighborhoods that might total four miles or



less, and more expansive loops that covered significant portions of Apple Valley—sometimes as much as 15 to 20 miles.

Eventually, destinations focused on schools and the Cedar Avenue BRT stations. These locations were reinforced by the frequency of use, and the potential for access by pedestrians and bicyclists. Elementary schools were emphasized as a focus for the sidewalk and trail network. In addition to locating these schools relative to other community features, a half-mile radius travel-shed was indicated as a zone of possible walking or bicycling to the schools. Importantly, the ability of school children to walk or bike to school was considered in a series of Safe Routes to Schools assessments.

System assessment

Already, Apple Valley has a significant length of trails and sidewalks in locations throughout the community. The city has a map that identifies these facilities, and by deduction, identifies where walking and bicycling facilities are lacking—“gaps,” in effect, where trails and sidewalks don’t exist. As a part of this process, the locations of these gaps were reviewed, and in some cases adjusted to reflect actual conditions. The city also noted gaps that would be filled as a result of imminent construction activities. In assessing the system, it became important to understand the sidewalk and trail network, how it serves the community, and the relative importance of each identified gap.

In the existing system, the evaluation identified gaps in locations throughout the city. Gap lengths varied by type and length, with gaps noted in both trail and sidewalk facilities. In some parts of the system, gaps were significant, but occurred in areas where surrounding development patterns are not yet complete. In other areas, gaps were relatively short, sometimes only a block or two in length. A total of 40 gaps were identified, with a goal of creating a prioritized list of potential improvements. Gaps were defined as a measured distance in either the sidewalk or trail system that was missing on either side of the right of way. In this assessment, gaps were assessed based on several factors:

- the ability to provide walking or bicycling connections among a variety of land uses;
- the connections they offer to the transportation network;
- the existence of parallel sidewalks or trails within the same right-of-way; and
- the presence of safe crossings to the trail and sidewalk network.

Each gap was scored using a weight based on these factors, resulting in a general scoring of the gaps that established their relative importance as a part of the trail and sidewalk network.



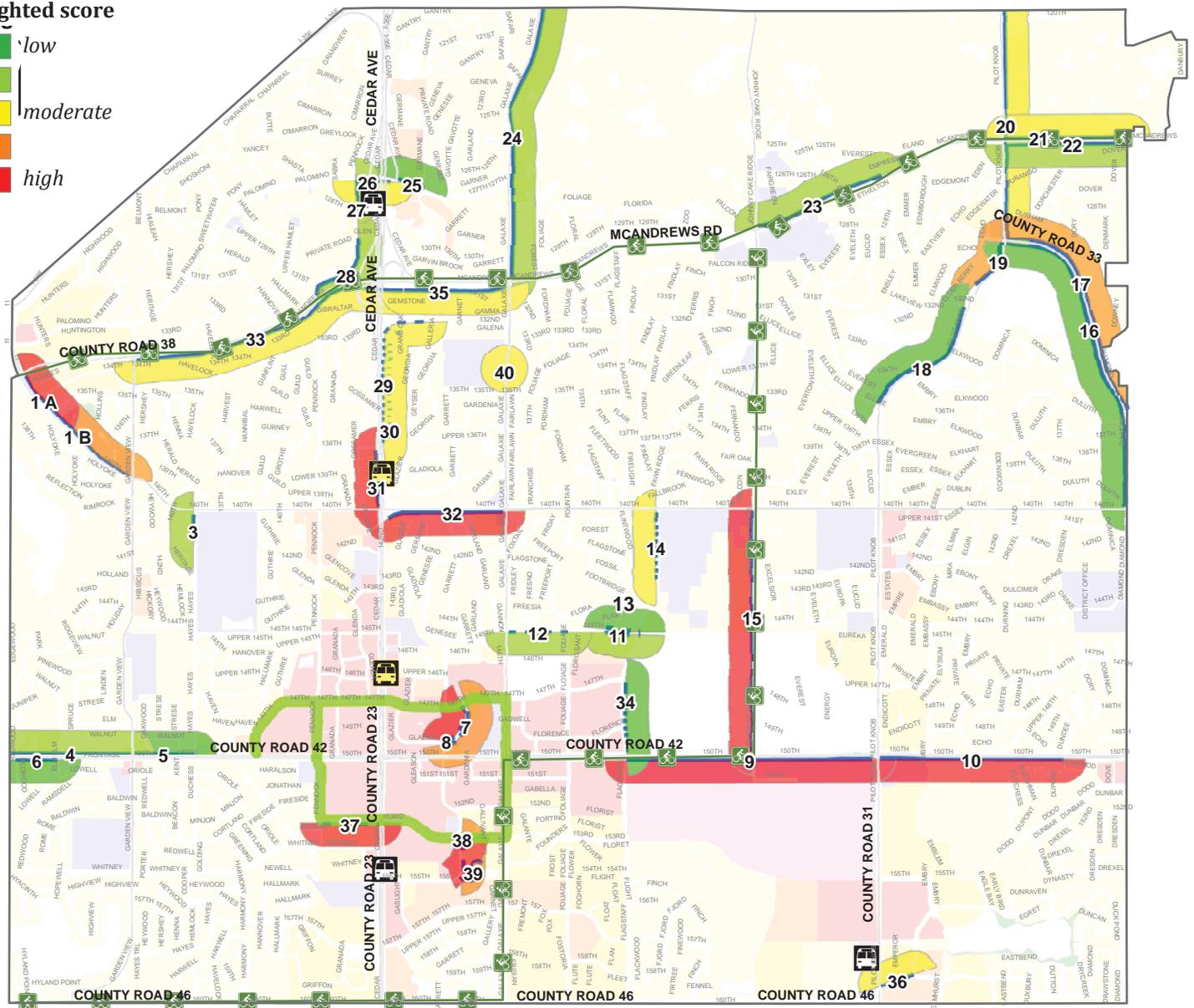
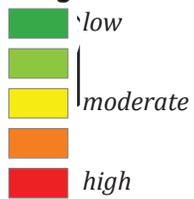
A “gap” analysis assessed locations where sidewalk or trails do not exist in the community, and framed the priority for implementing a sidewalk or trail in the missing segments. Regardless of the assessment, it’s clear that people use certain corridors even with walking or bicycling facilities, and even in the presence of physical obstacles.

Specific variables were identified within each group and assigned a weighted value (1-5) that corresponded to the variables impact on the gap. The gaps that received the highest weighted scores identify priority locations for improvements. Trails and sidewalks were evaluated separately because of the different needs of bicycle (trail) users and pedestrian (sidewalk) users. These weighted values were vetted with the task force based on the rationale provided.

The gap diagram identifies a 500 foot buffer along each segment. Gaps were scored based on criteria including land use, transportation, connections, and barriers.

The connectivity ranking system captures the benefits of diversity of land uses along a route as well as from crossing barriers in the system. If the trail or sidewalk crosses a street via a designated crosswalk, then the land

Weighted score



Trail gap weighting factors		
Variable	Weight 1-5 scale	Rationale
Land use		
Residential		Levels of residential density can determine how many potential users of trails will reside in the area
• low density residential	2	
• medium density residential	3	
• high density residential	4	
• neighborhood services	3	
Commercial		Commercial areas are a destination that attracts users. Improved connections can increase the number of users. The downtown area is weighted higher than other business nodes due to the concentration of commercial destinations.
• downtown core	4	
• business nodes	3	
Industrial	1	Less likely destination to attract recreational and/or commuting depending on the nature of the industrial area.
Mixed use	3	Areas of mixed uses have the potential to attract more users.
Institutional	4	Institutions such as churches and government services can attract users.
Park	4	City and regional parks are a destination for recreation and can attract discretionary and recreational sidewalk users.
School	5	Schools attract users, especially children through Safe Routes to Schools.
Transportation		
Cedar Avenue bus rapid transit	4	The Minnesota Valley Transit Authority (MVTA) offers park and ride bus rapid transit from four stops along Cedar Avenue. These stops attract bicycle riders that choose cycling from the short trip from home to the bus stop. The bus provides the connection to their destination.
Other MVTA stops	3	The MVTA offers local and regional service that attracts users to stops.
Regional trail alternatives	4	Regional trail alternatives connect local bicyclists and pedestrians to the larger regional trail system. Regional trail attract users from their origin to destinations, whether for recreation or commuting.
Ring route	3	The downtown area is defined by a series of streets that comprise the Ring Route, which was identified in the 1987 Commercial Area Planning Study.
Current community connections		
		Connections are weighted based on existing trail infrastructure. Gaps are measured as “no existing trail alternatives” or “existing trail alternative.”
No alternative	3	No trail exists on either side of the street. Improvements would connection a gap between the endpoints of two trails.
Alternative connection		A trail exists on one side of a street. Users may choose an alternative; expanding the system may be redundant or increase access depending on location.
• Potential connection expansion	2	A parallel trail would be more heavily weighted if it improved accessibility to destinations on both sides of the right-of-way.
• Connection expansion restricted	1	If a trail exists and the gap is located near an unexpandable location and/or provided no access, these gaps are wighter lower.

Sidewalk gap weighting factors

<i>Variable</i>	<i>Weight 1-5 scale</i>	<i>Rationale</i>
Land use		
Residential		Levels of residential density can determine how many potential users of sidewalks will reside in the area
• low density residential	2	
• medium density residential	3	
• high density residential	4	
• neighborhood services	3	
Commercial		Commercial areas are a destination that attracts users. Improved connections can increase the number of users. The downtown area is weighted higher than other business nodes due to the concentration of commercial destinations.
• downtown core	4	
• business nodes	2	
Industrial	1	Less likely destination to attract recreational and/or commuting depending on the nature of the industrial area.
Mixed use	4	Areas of mixed uses have the potential to attract more users.
Institutional	3	Institutions such as churches and government services can attract users.
Park	4	City and regional parks are a destination for recreation and can attract discretionary and recreational sidewalk users.
School	5	Schools attract users, especially children through Safe Routes to Schools.
Transportation		
Cedar Avenue bus rapid transit	4	The Minnesota Valley Transit Authority (MVTA) offers park and ride bus rapid transit from four stops along Cedar Avenue. These stops attract bicycle riders that choose cycling from the short trip from home to the bus stop. The bus provides the connection to their destination.
Other MVTA stops	3	The MVTA offers local and regional service that attracts users to stops.
Regional trail alternatives	2	Regional trail alternatives connect local bicyclists and pedestrians to the larger regional trail system. Regional trail attract users from their origin to destinations, whether for recreation or commuting.
Ring route	4	The downtown area is defined by a series of streets that comprise the Ring Route, which was identified in the 1987 Commercial Area Planning Study.
Current community connections		
		Connections are weighted based on existing trail infrastructure. Gaps are measured as “no existing sidewalk alternatives” or “existing sidewalk alternative.”
No alternative	4	No sidewalk exists on either side of the street. Improvements would connection a gap between the endpoints of two sidewalks.
Alternative connection		A sidewalk exists on one side of a street. Users may choose an alternative; expanding the system may be redundant or increase access depending on location.
• Potential connection expansion	2	A parallel sidewalk would be more heavily weighted if it improved accessibility to destinations on both sides of the right-of-way.
• Connection expansion restricted	1	If a sidewalk exists and the gap is located near an unexpandable location and/or provided no access, these gaps are wighter lower.

uses within the buffer area (a 500 foot zone along the trail or sidewalk segment) was also included in the connectivity scoring.

Gaps were ranked based on their need for improvements using Geographic Information System (GIS). Data was assembled from information provided by the Metropolitan Council, Minnesota Valley Transit Authority, and the City of Apple Valley.

Safe Routes to Schools

Communities across Minnesota, including Apple Valley, are considering improvements to the way children access schools from their neighborhoods. Safe Routes to Schools funds projects that make communities more accommodating to walking and bicycling, especially in areas near schools, promoting safe walking and bicycling and encouraging physical activity for students (and for parents who accompany their children to and from school each day).

In Apple Valley, four elementary schools participated in a Safe Routes to School assessment, which was performed by Kimley-Horn and Associates, Inc. between February and May 2010. Studies for each school resulted in the identification of actions that would increase safety and accessibility for students accessing a school on foot or on bicycle. Walking or bicycling areas were truncated at major roadways that could not be easily crossed by an elementary school student, which created a walking zone where improvements would be targeted. Examples of improvements recommended in the Safe Routes to Schools studies include:

- Creating a target area for a walking school bus, where students and adult “drivers” walk a prescribed route, stopping along the way to add students much like a school bus would collect student along its route;
- Adding signs to better direct parents during pick up and drop off;
- Enhancing bicycle parking/storage areas at schools;
- Upgrading or enhancing of street crossings, including retaining adult crossing guards;
- Adding signs to warn drivers of school crossings at streets; and
- Completing sidewalk or trail connections.

These kinds of improvements are important considerations for the trail and sidewalk plan. School district policies limit busing of students to those who live more than one-half mile from the school or live across a major roadway from the school (for elementary school students), focusing attention to those who may have few choices other than walking or bicycling.



Providing bicycle racks at likely destinations for bicyclists encourages use, as evidenced by the rack at Greenleaf Elementary School.

Four elementary school zones were analyzed as part of a Safe Routes to Schools assessment. Recommendations focused on areas more proximate to the schools, but forming safe and convenient connections from greater distances would be desirable. (Graphic prepared by Kimley-Horn and Associates, Inc.)



Bus rapid transit and transit service connections

With the recent introduction of bus rapid transit along the Cedar Avenue corridor, Apple Valley’s commuting population has another choice for accessing the larger metropolitan area. With the Apple Valley Transit Station serving the Cedar Avenue BRT at Cedar Avenue and 155th Street, the Palomino Hills Park and Ride at Palomino Drive and Pennock Avenue, the 157th Street Station at Pilot Knob Road and 157th Street, commuters have a range of choices for beginning or ending their transit trip. In the future, commuters choosing BRT will have additional choices with transit stations near 140th Avenue and 147th Avenue, but these stations will not offer park and ride options.

As enhanced transit options were considered in Apple Valley, the trail and sidewalk network became an important factor in understanding how transit functions as a system. For those commuters living reasonably near a station, or for those with a destination near a station, being able to walk or bike as a part of their commuting trip is an important feature. The trail and sidewalk network must be extended or expanded to ensure those choices are available for transit users, or upgraded to ensure existing trail and sidewalk components are serviceable for walking or bicycling access to transit locations. One of the more important upgrades will involve lighting, making certain that routes commonly used by pedestrians or bicyclists to access transit are safe and inviting.



The introduction of bus rapid transit along Cedar Avenue in Apple Valley makes the new 155th Street Station a likely destination for pedestrians and bicyclists, in addition to traditional park and rider users.

Regional walking and bicycling facilities

Residents can look forward to facilities for walking or bicycling that will be implemented on a more regional basis. Dakota County has identified concept alignments for the Dakota County South Urban Regional Trail that would connect Lebanon Hills Regional Park to Murphy Hanrehan Park Reserve as well as connecting to regional trails in Scott County. The North Creek Greenway Trail would connect the Vermillion River in Empire Township to the Minnesota Zoo and Lebanon Hills Regional Park, and would, in the concepts posed, use existing trails in city parks for portions of the route.

Dakota County is planning regional trails or greenways that will offer recreation opportunities for Apple Valley residents as well as providing connections for walking and bicycling beyond the community's borders. (source: Dakota County 2030 Park System Plan)



Future Trails:

- | | |
|--|---|
| 1 Cannon Valley Regional Trail Link | 9 Rich Valley Greenway Regional Trail |
| 2 Eagan Greenway Regional Trail | 10 Terrace Oaks Greenway Regional Trail |
| 3 Rosemount River Access Greenway Regional Trail | 11 Vermillion Highlands Greenway Regional Trail |
| 4 Highline Greenway Regional Trail | 12 Chub Creek Greenway Regional Trail |
| 5 Lake Marion Greenway Regional Trail | 13 Vermillion River Greenway Regional Trail |
| 6 Minnesota River Greenway Regional Trail | |
| 7 Mississippi River Regional Trail: Hastings to Red Wing | |
| 8 North Creek Greenway Regional Trail | |

A trail and sidewalk system

An expanded network of non-motorized movement in Apple Valley will result in an expansion of the city’s trails and sidewalks, but this plan views trails and sidewalks to be more than an alternative mode of transportation. Trails and facilities need to be recognized as a true community asset, which might be achieved by understanding their orientation to:

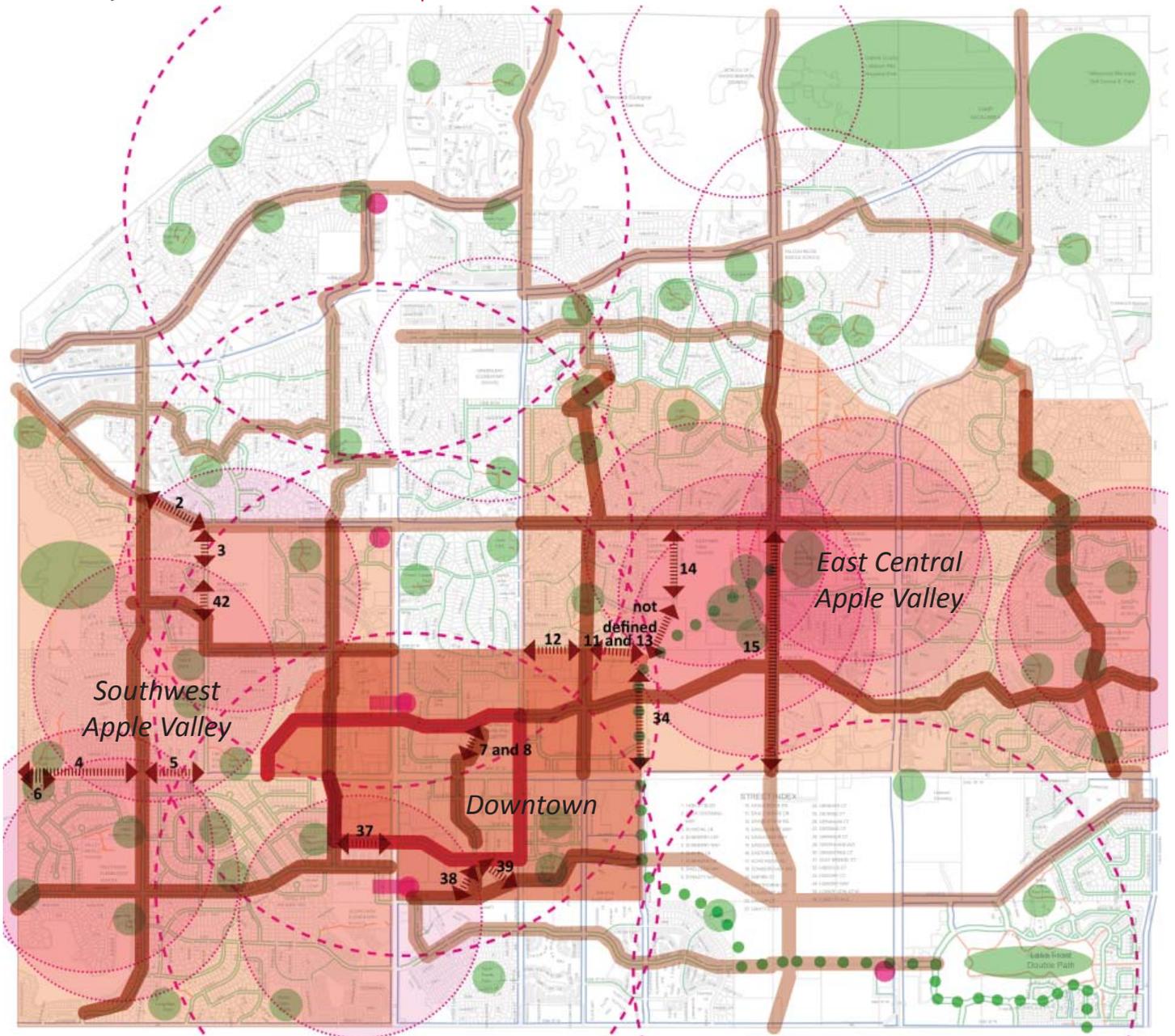
- connectivity and mobility offering pedestrians and bicyclists viable choices to move about the community, especially for trips destined for transit, school, and recreation; as those aspects of a trail and sidewalk system are more fully accommodated, the choices for trips might expand to include shopping and entertainment destinations.
- community health providing walking and bicycling opportunities that are safe, convenient, and accommodating enough to encourage all residents to use them, which encourages alternative transportation modes but more importantly exposes them to physical activity that leads to better physical and mental health.
- navigation establishing signage and wayfinding that allows pedestrians and bicyclists to understand routes to common or likely destinations, and that demonstrates the comprehensive nature of the trail and sidewalk network available to them.
- identity using elements to support trails and sidewalks that reinforce an identity for the community, and as important, establishes an identity for Apple Valley that suggests walking and bicycling as an intrinsic community quality.
- hierarchy establishing an order of movement reflective of walking and bicycling in the community, much like the way Downtown’s Ring Route creates a zone recognized as Apple Valley’s downtown.
- community allowing residents and visitors using Apple Valley’s trail and sidewalk network to as a part of the community’s public space, and encourage “gathering” as a part of the walking or bicycling experience.

Core routes

BikeWalk Apple Valley encourages a focus on implementation zones and core routes.

While cross-community connections might be desired by some pedestrians or bicyclists, the frequency of use on local trips suggests incremental implementation of the trail and sidewalk network.

Many of the basic patterns for trails and sidewalks have been established as roadways and development has occurred across the city. While some trail or sidewalk segments have been identified as gaps, and others will only have trails or sidewalks implemented as adjacent parcels are developed, a look at the existing network of trails and sidewalk shows clearly that this could be an important transportation option for Apple Valley residents, and nearly every neighborhood seems to have trail or sidewalk facilities relatively near most homes.



In Apple Valley’s street network, there seems to be a hierarchy that allows people to better navigate while driving—wider streets and fewer driveways and intersections suggest connectivity to other roads and zones of the city, while narrower streets with more drives suggest a more local street. In this way, there is legibility to the city’s street network. There doesn’t seem to be as clear a hierarchy in the city’s trails and sidewalks, unless someone using a trail or sidewalk recognizes an adjacent street as a factor in determining the trail’s connectivity. If Apple Valley begins to recognize the need for this kind of hierarchy, a network focused on a core of pedestrian and bicycle movement might evolve, with an expanded network that reaches nearer to homes.

The core network might function in ways similar to Downtown’s Ring Route: a clear route is established to gather and distribute pedestrian and bicycle movement, with facilities that support walking and bicycling concentrated along that route. Enhanced crossings of major streets occur where a core route interfaces with more heavily travelled streets, but the network doesn’t rely on the major streets. Rather, the core routes would have less vehicle traffic, making it more comfortable for pedestrians on sidewalks and for bicyclists using on-street bicycle lanes.

In the streets that serve as core routes, there may be opportunities to get cars to better “fit” with pedestrians and bicyclists. The aim should not be to obstruct vehicle traffic, but rather to encourage traffic behavior that is conducive to pedestrian and bicycle movement in the same right-of-way. This approach has gained popularity as “Complete Streets,” where the capacity of the street to accommodate a wide range of movements is considered, and steps are taken to reshape the street to accommodate those modes of movement that support the community and adjacent land use along those corridors.

Certain routes were identified by the task force and the community as possible segments of a core network. Garden View Drive, Palomino Drive, and Pennock Avenue might serve as these routes, and with the addition of Whitney Drive, noted for its direct link to the 155th Street Transit Station, a core loop begins to evolve. In other parts of the community, the patterns of street linkages might not be so clear, but off-street trails are more common. Here, the routes might take greater advantage of these off-street walking and bicycling facilities to create the core network. In both cases, routes might be chosen for their ability to connect more directly with significant walking or bicycling destinations, such as parks, schools, and the downtown area. In both cases, the core network needs to be more clearly defined in the city’s hierarchy of streets and trails.

Once these routes are established, an expanded network—the finer grain of the city’s trail and sidewalk network—comes into play. This level of the



Sidewalks and trails feeding “core routes” become important in the trail and sidewalk plan, allowing lesser travelled routes to feed more significant walking and bicycling facilities.



County Road 42 and Cedar Avenue are barriers to non-motorized movement, and can be unpleasant or uncomfortable corridors for walking or bicycling. Nearby parallel routes are often better locations for trail and sidewalk facilities.

enhanced walking and bicycling, and that, over time, a more complete network of sidewalk and trails would result. When looking at the ways in which most people use sidewalks and trails, this kind of concentration of facilities makes sense: most people will walk or bike between destinations within or near their neighborhood, but will use other modes for more distant destinations. Eventually, the system will allow for greater mobility across all of Apple Valley, but defining areas of concentration of trails and sidewalks is a first step.

Early in the planning process, an attempt was made to define likely destinations for pedestrians and bicyclists. The pattern includes regional destinations like the Minnesota Zoo, downtown Apple Valley, and the community's numerous parks. However, two significant and basic patterns emerged:

- walkers and bicyclists seeking access to transit could form a significant non-motorized population in the community, and creating improved links to transit facilities would be a logical step in the development of an enhanced sidewalk and trail network; and
- creating connections to schools as a part of sidewalk and trail network might better accommodate walkers or bicyclists who do not have other choices in modes. Most students don't drive, and some don't have bus transportation available (based on school district policy). When coupled with the earlier Safe Routes to Schools work, a concentration of walking and bicycling improvements related to the schools in Apple Valley is a logical and appropriate direction.

In addition to the basic pattern, both those walkers and bicyclists seeking access to transit and school children share a frequency in their use of sidewalks and trails.

Two areas of concentration are identified related to the activities of schools, one in southwest Apple Valley and a second in east central Apple Valley. These zones include:

In southwest Apple Valley:

- Southview Elementary School;
- Westview Elementary School;
- Cedar Park Elementary School;
- Valley Middle School;
- Apple Valley High School;
- Hayes Arena;
- Apple Valley Community Center; and
- general proximity to the 155th Street Transit Station.



Access to the enhanced transit service available on Cedar Avenue is a key reason for improving links in Apple Valley's trail and sidewalk network.



The MVTA's new transit facility at 155th Street is an important destination for walkers and bicyclists in Apple Valley. Walkways over Cedar Avenue facilitate crossings of Cedar Avenue.

In east central Apple Valley:

- Highland Elementary School;
- Diamond Path Elementary School;
- Scott Highlands Middle School;
- Dakota Ridge School; and
- general proximity to the 155th Street Transit Station.

Connections to transit

A second logical direction for implementing improvements to the city's trail and sidewalk network focuses on providing access to transit, especially the Cedar Avenue BRT. Like schools, access to transit is a frequent activity, and improvements would not only benefit those already using transit, but might encourage others to become more frequent transit patrons.

Improvements related to transit should link bus stations and park and ride facilities more directly to neighborhoods, but should also look to create links to between transit stops and Apple Valley employers. Routes might include:

- an east-west link along Whitney Drive to the 155th Street BRT Station;
- connections through the downtown to mixed use areas in downtown and higher density residential areas lying at or beyond the edges of downtown.

- For these routes, improvements like lighting become important, and maintenance is a real concern. During winter months, especially, limited daylight at peak transit times suggests that lighting be provided along key routes, and removal of snow and ice to create a safe and obstacle-free passage is critical.

Downtown

In downtown Apple Valley, the Ring Route defines a core of movement that includes wide sidewalks. Participants in this process noted that these sidewalks do not address the needs of bicycling commuters, and that the use of the sidewalk is dangerous or uncomfortable. For serious bicyclists, streets are preferred. While casual bicyclists may still prefer the separation from vehicles afforded by the wide sidewalks, the city should study the potential of adding bicycle lanes in certain segments of the Ring Route. The result may be a change in the roadway configuration, with the introduction of a three-lane roadway (based on engineering analysis of the road segments) and on-street bicycles lanes at the edges of the roadway. Some communities are looking at more innovative methods of incorporating bicycle facilities on streets, including bike boxes at intersections.

Aside from enhancing opportunities for bicyclists, expanding the network of trails and sidewalks must address the basic need for access to buildings—not just access to a trail or sidewalk. Throughout the downtown area, sidewalks fail to make logical connections across sites to the front doors of buildings. While many examples exist, the City of Apple Valley might want to set an example by creating a sidewalk between the front door of the Municipal Center and the public sidewalk at Galaxie Avenue. In doing so, a portion of the ornamental fence will have to be removed—but the new portal could become a highlight of the path, artfully framing the connection between the public realm at the street and a sidewalk to the front of the building.



Cedar Avenue is a significant impediment to walking and bicycling, particularly for those attempting to move about the downtown area.

The gap analysis identified a few locations where facilities for walking or bicycling in downtown were missing. Along Garrett Avenue, for instance, a link for pedestrians could be created between 147th Avenue and County Road 42, following the street or perhaps winding through green spaces between buildings to create a more interesting route. A study performed in 2008 anticipating the arrival of BRT and advocating for the incremental evolution of the downtown area based on development patterns that would be more supportive of transit identified the opportunity to transform drive aisles at the fronts of retail building to become more “street-like,” especially for those drives that link to a public street. The routes for pedestrians, in particular, might make better use of lighting designed to accommodate pedestrian activity, with “street” trees, plantings, and other typical streetscape features added to make the path—and the storefront—more inviting.

The finer grain of movement created by sidewalks along streets in downtown, and the linking of sidewalks and trails that exist to storefronts and fronts doors of downtown’s buildings, would be a tremendous advantage for those moving about downtown on foot or on a bicycle. In fact, the city might consider added guidance for the downtown area that is more direct in requiring pedestrian- and bicycle-friendly site design.

Resolution of gaps

As each of the gaps were scored, a priority for implementation evolved based on the technical assessment of missing segments of sidewalks and trails. The cost of completing those gaps is dependent largely on the length of the segment requiring completion, so a fair cost-benefit analysis is not possible (longer segments will cost more, but can’t be fairly compared to shorter segments with lower implementation costs), regardless of the priority.



Even as this plan was being formulated, improvements to Apple Valley’s trail and sidewalk network were being planned or implemented—resolving gaps that had been identified during early investigations.

As the network of trails and sidewalks in Apple Valley was considered, the task force assumed the position that a system would be best defined based on a technical assessment of gaps balanced with a more planning oriented vision for the ways in which a complete trail and sidewalk network would serve the community. In this way, gaps are resolved not only for their ranking or the result of a cost-benefit analysis, but for their longer term role as a part of the fabric of the Apple Valley community.

Integration of trails and sidewalks within rights-of-way

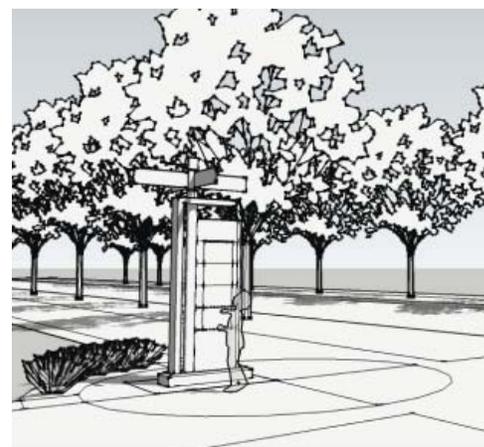
There are locations where trail and sidewalk improvements cannot be reasonably accommodated within the existing right-of-way. Some locations may present the opportunity to gain additional land for trail or sidewalk purposes through direct acquisition or permanent easements, but there may be no possibility for additional land in others. In these areas, accommodation of trail and sidewalk facilities may require a change within the right-of-way, and maybe to the roadway itself.

Easy solutions often involve the narrowing or elimination of a boulevard to create space sufficient for a sidewalk or trail. In some cases, the opportunity to creating a boulevard feel might be achieved by placing trees at the outside edges of the right-of-way instead of between the curb and a sidewalk. This places the trail or sidewalk immediately at the edge of the roadway, eliminating the buffer zone often created by trees in a boulevard. In some cases, this solution might be one of only a few choices available.

Accommodation of a trail or sidewalk in areas of limited right-of-way may, in some cases, suggest that the width of the roadway itself be reconsidered. Guidance for lane width and shoulders, and even for the basic configuration of lanes in a street, is evolving, and the opportunity to gain a few feet for a trail or sidewalk improvement could be gained by narrowing travel lanes slightly—and often, it’s only a few additional feet are needed to create a sidewalk or trail along the road. However, the city must comply with Minnesota Department of Transportation standards for roadway design along Municipal State Aid Routes. Recognition of the context is critical, with the ability to balance pedestrian and bicycle accommodation with vehicles on the road being based on the more immediate patterns and conditions of the road and neighborhood.

While Apple Valley does not have any on-street bicycle lanes today, the ability to accommodate them is most often based on available public right-of-way. The same principles of balancing needs based on context applies here, where a more complete picture of the ways the road serves community and transportation needs is required.

Navigation aids—wayfinding signs and kiosks—are viewed as important elements of the trail and sidewalk network.

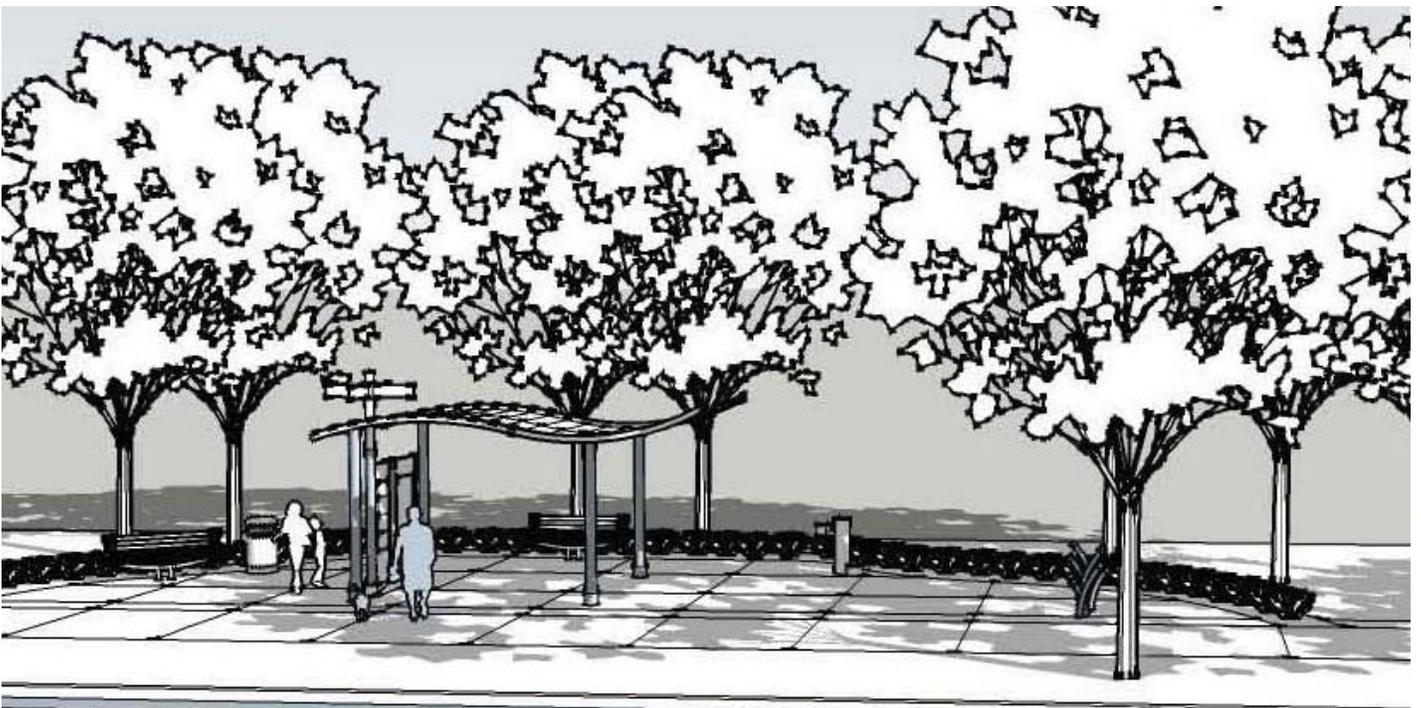


Support facilities

Trails and sidewalks are the backbone of a system of movement oriented to pedestrians and bicyclists. Still, there are features that are logically introduced to support the trail and sidewalk to make the experience more comfortable or inviting, and to suggest more directly identify the trail or sidewalk to the community or even a particular neighborhood. These kinds of streetscape—or “trailscape”—improvements are much more compelling when experienced as a pedestrian or bicyclist, where the speeds of movement are lower and the expectation of being engaged by the environment is much greater.

Improvements would be directed to the core routes in areas of targeted trail and sidewalk improvements, and to key intersections and public spaces in downtown. Intersections and key locations would be identified by special signs, gathering areas along sidewalks and trails would include information signs, benches, and perhaps drinking fountains, and identification or directional signs would be located to ensure the system is easily navigated. These kinds of improvements would be designed as a “family” of related elements that reinforce the continuity of the trail and sidewalk network, but also to read as Apple Valley elements. While the trail and sidewalk system might reflect on the kind of community Apple Valley is, people from outside of the community will more readily identify these features with the community—much like the streetscape improvements along the Ring Route define downtown Apple Valley.

Some locations along core routes may merit greater attention. The creation of nodes along the trail and sidewalk network might offer “comforts” to users such as benches, overhead cover, and perhaps even drinking fountains. Like the streetscape improvements along the Ring Route, these spaces might become identity features for the Apple Valley community.



Best practices for trails and sidewalks

The following features of trail, sidewalk, and street improvements are considered best practices to ensure that streets and corridors are accessible to people of all ages and mobility, and to make trip planning and navigation more convenient and safe. These considerations are organized as follows:

- Pedestrian enhancements
- Trail enhancements
- Bicycle enhancements
- Wayfinding
- Land use and urban design

Pedestrian Enhancements

Pedestrian bump-outs or collared crosswalks not only allow for safe pedestrian crossing, but more importantly, shorten the crossing distance and give the pedestrian improved viewing of oncoming traffic. A collared crosswalk narrows the street at the crosswalk, which gives the driver a sense of caution and induces reduced speeds.

Median refuge islands provide a safe area for pedestrians to wait or rest when they cross a wide street.

Countdown pedestrian signals, including Accessible Pedestrian Signals, consist of a regular pedestrian signal with standard shapes and color, and an added display of the number of seconds left for a pedestrian to safely cross the street. This type of signal is easily understood by all age groups, increases the feeling of safety, reduces the number of pedestrians stranded in the crosswalk when the light changes, and is well suited for wide crossings and areas with large numbers of senior citizens.

Sidewalks separated from the roadway by a planting strip create a pleasant and safe environment for pedestrians. They also create a buffer from the splash from vehicles, room for street furniture, and a better environment for wheelchair users (i.e. constant grade at driveways). Planting trees shades the sidewalk. Providing benches under the shading tree extends the amenity value.

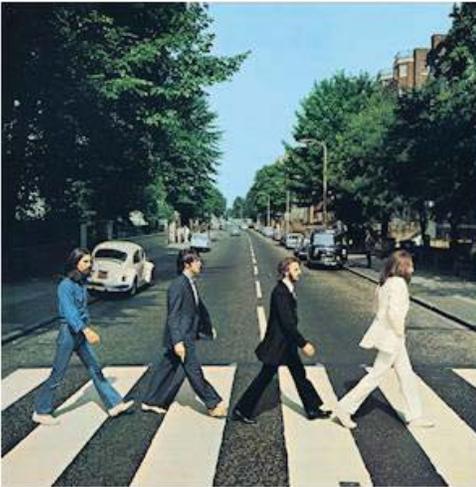
Mobility- and vision-impaired pedestrians need special attention. The American with Disabilities Act (ADA) establishes parameters for how trail and sidewalk facilities will be implemented. While the ADA does not define specific requirements (as the ADA is a civil rights law), parameters for minimum passage, slope, cross slope, and other technical requirements are define in the Americans with Disabilities Act Standards for Accessible Design.



“Bump-outs,” which have already been implemented in some places in Apple Valley, decrease pedestrian crossing distances and often reduce vehicle speeds.



Graphic and audible crossing signals enhance use of sidewalks and trails for all users.



Well-defined—and sometimes well-known—crossings are key features of a trail and sidewalk network.



In some communities, trail corridors have taken on more park-like appearances and amenities, and have resulted in the creation of unique places in the fabric of the community.

Trail Enhancements

Well-planned off-road trails and multi-use paths provide pedestrian and bicycle mobility. Within parks and along road corridors, these facilities serve both the recreation user and the commuter. Key components for a safe and attractive trail include:

- Continuous separation from traffic, with few street or driveway crossings.
- Scenic qualities to attract multi-generational users.
- Connections to desired destinations such as shopping, schools, library, etc.
- Well-designed street crossings.
- Shorter trip lengths than roadway network, connecting dead-end streets or short-cuts through open spaces.
- Visibility for increased safety and personal security.
- Good location and design, including adequate width and sight distance and avoidance of slopes, poor drainage, and blind corners.
- Proper maintenance, with regular sweeping, snow-plowing, and repairs.

Shared use trails provide connections between destinations for transportation purposes, such as bus rapid transit stations and stops.

Shared use trails may be needed for different types of users. For streets where traffic volume or traffic speed results in unsafe conditions for pedestrians or bicyclists, a separate path of travel for pedestrians, bicyclists, and other non-motorized transportation modes helps reduce conflicts between motorists and pedestrians while expanding the number and types of facilities that are accessible to pedestrians.

Shared use trails often are used along recreational, high amenity corridors. Shared use trails typically offer longer, uninterrupted stretches of path that are perceived as more family-friendly than the typical urban streetscape. They are often on greenways that connect urban residents and the natural environment.

Minimum standards for trails and paths. Where a trail or path is parallel to a roadway, special consideration might be given to provide separation from the roadway by at least 5 feet or greater, where practicable. The multi-use path itself should be at least 8 feet wide for walker and bicyclist to share the corridor safely.

Bicycle Enhancements

Bicycle enhancements include the following elements: policy development, bicycle safety education programs, on-road bikeways and bike lanes, bicycle support facilities, and standards for bicycle parking and storage.

Bicycle safety education programs are best addressed to a target audience, such as children and adults. Increasingly cities are partnering with community organizations and the business community through chambers of commerce to sponsor courses and events that promote bicycling safety as an adjunct to enforcement of bicycle and motorist behavior to reduce bicycle and vehicle accidents. These programs are often included in the Safe Routes to School programs to encourage children to walk and bicycle to school.

Locating bicycle routes and facilities along streets that offer the direct routes to workplaces, shopping and entertainment/hospitality areas, schools, transit stations, and other popular destinations enhances their use and viability.

Signed bike routes for recreation purposes are created to provide access to and between significant parks and open spaces destinations.

Shared roadways, where bikes share the same travel lanes, are enhanced for bike safety by widened outside travel lanes. While a painted and dedicated lane on the shoulder of a roadway might be optimal, widening the shoulder may be the only way to improve bicyclist safety in some situations.

The needs of bicyclists can be accommodated by retrofitting existing roadways to include bicycle lanes by using the following methods:

- Physically widening the roadway to add a bike lane;
- Re-stripping the existing roadway to add bike lanes, including marking roadway shoulders as bike lanes, consideration of reducing travel lane widths, reducing the number of travel lanes (when supported by engineering analysis and traffic projections, reconsidering the need for on-street parking, and removing parking from one side of the street.

Colored bike lanes and raised bike lanes are used in Europe and in some areas of the United States. Raised bike lanes incorporate the convenience of riding on the street with the psychological separation of a barrier.



The incorporation of bicycle lanes on streets accommodates those bicyclists who prefer to travel on streets for reasons of safety, comfort, and continuity.



Expansive street crossings sometimes take advantage of median refuge points, providing a somewhat protected zone for pedestrians who could not cross during one cycle of the “walk” signal.



Unique opportunities for place-making can result from the introduction of facilities that support the walking and bicycling network.

Bicycle parking improvements (bike racks and lockers) should be included in transit stations and park-and-ride facilities.

Bike route information may be integrated into transit route maps and signs. Bike route maps should be provided at all locations where transit information is provided to help make the transition between modes as seamless as possible.

Cities can lead the way in bike rack installation. Many cities have initiated a proactive bicycle rack installation program for their own buildings (city hall, community center) and parks, and also often in partnership with schools, libraries, other public entities, and private businesses.

Cities can require private development to install bike facilities.

Another method for obtaining additional bike racks and storage facilities is for a city to adopt legislation, usually as part of zoning code amendments, to require a minimum number of bicycle racks and lockers as part of new developments. This type of legislation is usually focused on a city's downtown and multi-family residential development. As part of this initiative, many cities often require office developments to include shower and locker facilities based on employment densities, to make bicycling to work an attractive option.

- Bike racks or lockers should be anchored to the ground surface or structure for security and stability.
- Bike parking for school or business uses that are covered and visible for security are more appealing to users and longer periods of parking.
- Bike parking is most convenient if it is located no further than 50 ft. from a building entrance.
- Businesses installing bicycle parking should consider two types: parking near the main entry, which functions as short-term parking for customers, and parking for employees, which could be further away from main building entrance while remaining visible and secure, or better yet, providing space within the building.
- Bike parking within pedestrian right-of-way should allow sufficient passage for pedestrians.

Wayfinding

Wayfinding comprises both spatial and environmental cues in finding one's way to and from destinations. Wayfinding is important for both pedestrians and bicyclists to increase a sense of orientation, enhance comfort and security, and increase a willingness to explore and enjoy a community. Signage helps both local residents and visitors navigate

a community's streets and sidewalks. An effective wayfinding program must be conceived and carried out to promote walking, but must include guidance for car drivers and bicyclists as well to point them to appropriate parking for their destination.

Vehicular directional signs, pedestrian route signs, downtown neighborhood maps, landmarks, and online route finders are key elements of a comprehensive wayfinding program.

An effective downtown pedestrian wayfinding system is based on a "park-once" premise. The wayfinding system should encourage drivers to park, leave their car, and use pedestrian directional signage to reach their destinations. Apple Valley's downtown has many auto-oriented businesses, with large parking areas, which presents a significant challenge for a pedestrian moving between destinations, forcing them to walk through parking areas and connecting roadways. However, as the downtown is redeveloped with infill development, and as large surface parking lots are replaced by parking garages and ramps, a system of new paths and pedestrian corridors could be created and connected to sidewalks to encourage more people to walk in the downtown.

Visual, tactile, and auditory cues are all used in a comprehensive wayfinding program. Examples include the tactile warning strips that are installed in all new curb ramps and curb ramp retrofits at intersections.

Signage that guides pedestrians to transit stations is an important feature that promotes connectivity between different travel modes.

Neighborhood walking maps and walking route signage can be created to promote neighborhood walking routes and safe routes to school.

A bicycle route signage and wayfinding protocol should be developed. This protocol should include signs and pavement markings. Route signs should provide a directional arrow, destination, and distance. Bicycle routes on trails and those on streets will require separate protocols in certain situations.

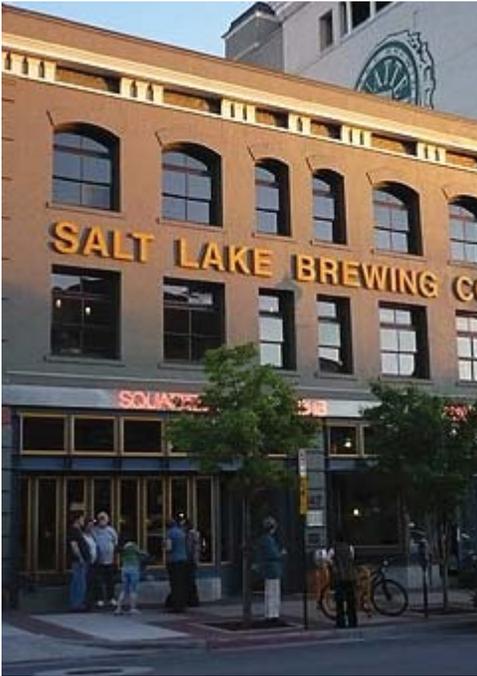
Land Use and "Suburban-intensified" Design

A safe and walkable pedestrian environment supports and is supported by compact and mixed-use patterns of development.

The public/private interface is the connection between the public realm, usually the sidewalk, and the private property or uses. This interface can contribute to an increased perception of personal security



Signage and wayfinding devices are important for all sidewalk and trail networks, particularly where there exist many choices of destinations or possible routes.



Activity on public sidewalks is critical in establishing a sense of purpose for sidewalks in a downtown area. The interface between the public sidewalk and a storefront, whether a traditional building or a “big box,” demands a physical and visual connection.



Enhanced street crossing can be more elaborated, allowing for the street to feel more like a zone meant to accommodate pedestrian movement.

among pedestrians. The presence of windows, porches, decks, balconies, and outdoor cafes adjacent to the pedestrian corridor facilitate activity along and surveillance of the streetscape. Weather protection such as awnings in the frontage zone, and pedestrian-oriented shop signage, add to the level of convenience and comfort.

Locate buildings close to the street and sidewalk. This site planning requirement, along with the provision of multiple entrances to buildings, is the basic feature of pedestrian-oriented development and that differentiates it from auto-oriented development that usually has a parking lot in front of buildings.

Pedestrian-level lighting should be considered along pedestrian corridors where use suggests pedestrian activity during non-daylight hours, and where the introduction of lighting would be compatible with adjacent and surrounding land use.

A network of public spaces and parks encourages people to want to walk between them. When public spaces are connected to a community’s downtown, this network can encourage more people to patronize businesses more often, especially restaurants and cafes. These network connections may also encourage more eating establishments to provide curbside dining and outdoor eating courtyards.

Consider the establishment of pedestrian and/or bicycle zone in the downtown. If the downtown, or a portion of it, is defined as a pedestrian and/or bicycle zone, the city might considering accepting a vehicular Level of Service of D or E in order to provide bike lanes, compact intersections, or leading pedestrian signal intervals.

Create a checklist for walkability and bikeability for new developments. This checklist would contain guidelines and standards to improve pedestrian and bicyclist access and safety.

Moving forward

Like most communities, Apple Valley has a wide range of priorities that are presented to decision-makers, and implementation of BikeWalk Apple Valley is one of many. This plan encourages an incremental evolution and expansion of the city’s trail and sidewalk network, with a focus on implementation zones. Eventually, the network will be complete to the point where logical cross-community connections and routes are formed, but to begin, it is logical to create a complete network within portions of the city to capitalize on existing facilities and to address immediate needs.

While physical improvements to the trail and sidewalk system are one focus for implementation, there are others that might be addressed as well. As this plan was formulated, it was recognized that, when compared to capital costs, the costs of maintaining a robust and serviceable system is significant. It also recognizes that some of the “best practices” might be addressed as improvements are planned, and especially, as proposals for new development are brought forward. Accommodating pedestrian and bicycle activity must extend beyond the public realm to address the ways in which walkers and bicyclists reach the front doors of their destinations. Finally, this plan directs attention to components that support walking and bicycling in Apple Valley with features that invite use of trails and sidewalks while satisfying other community goals. Ultimately, trails and sidewalks are not merely an optional piece of the city’s infrastructure, but a core element of the community’s identity.

Recommendations

The planning process assessed the network of trails and sidewalks in Apple Valley from a technical and an overall system planning perspective, and was shaped by principles that guide the community in its efforts to better accommodate active living goals and an orientation to non-motorized movement. While the technical analysis scored gaps in the trail and sidewalk network, recommendations for improvements:

- recognize that sidewalks and trails reasonably serve most developed portions of the city;
- focus on creating a more complete system in portions of the Apple Valley community;
- identify the need for more robust funding for maintenance of trails and sidewalks; and
- encourage the implementation of elements that support trail and sidewalk use while lending identity to the community.

The study was oriented to filling gaps in the trail and sidewalk network in Apple Valley, but those gaps exist throughout the city—in areas that are developed as well as in parts of the community that will see development in the upcoming decades. Task force suggestions directed the study



Whatever improvements occur in a trail and sidewalk network, they will require maintenance. As use grows, expectations for care grow as well.

toward completion of the network in more focused areas, essentially building a complete system in a more incremental way, and eventually completing the system in all parts of Apple Valley. By coupling this direction with recent efforts related to Safe Routes to Schools, two “zones” were identified as possible targets for trail and sidewalk improvements:

- Southwest Apple Valley, including improvements that build upon the Safe Routes to Schools recommendations for Southview Elementary School, Westview Elementary School, and Cedar Park Elementary School; this zone includes Valley Middle School, Apple Valley High School, Hayes Arena, the Community Center, and an important east-west link to the BRT Station along Whitney Drive.
- East Central Apple Valley, including improvements that build upon the Safe Routes to Schools recommendations for Highland Elementary School and Diamond Path Elementary School; this zone includes Scott Highlands Middle School and Dakota Ridge School.

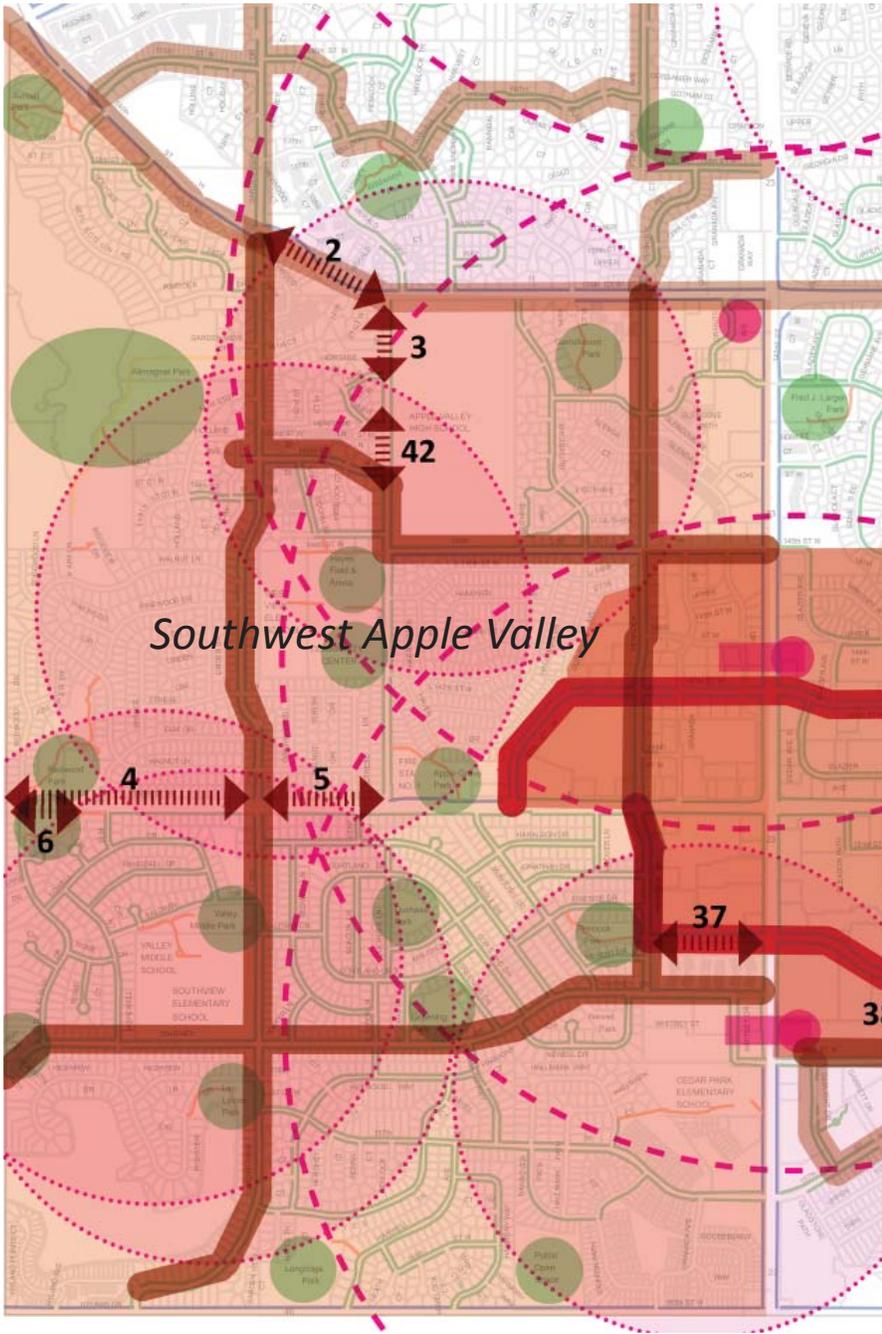
It is also clear the the downtown area might merit attention as trails and sidewalks are considered. Not only is this area a commercial and civic destination, but the presence of stations supporting bus rapid transit on Cedar Avenue suggest the need for improved access for pedestrians and bicyclists. In this way, the function of the Ring Route might be bolstered by allowing it to better serve non-motorized transit, and other key routes can be defined, further assessed, and, ultimately, implemented.

The task force noted the desire for loops as a part of the sidewalk and trail system. These loops might be seen as a way of establishing a hierarchy of pedestrian and bicycle facilities in the community, organizing paths of primary non-motorized movement where a higher concentration of infrastructure supportive of walking and bicycling might be directed. As these routes become established, they offer greater legibility to the sidewalk and trail network, and begin to lend a sense of identity to the community—and perhaps to each “zone” of the community.

Southwest Apple Valley

In Southwest Apple Valley, the primary routes might be organized along Garden View Drive, Pennock Avenue/Pennock Lane, Whitney Drive, and a combination of 143rd Street, Hayes Road, and 145th Street. Most residents would be within about one-half mile of these routes, with many having existing sidewalks or trails to use to reach the loop. The resulting loop totals about 3.7 miles, or about one hour walk.

These routes follow roadways designated as collectors, carrying traffic that is more likely to have origins or destinations within the zone--that is, the traffic is not merely passing through the zone. Forecasted volumes



One of two possible zones for target implementation of trail and sidewalk improvements might be in Southwest Apple Valley, with its proximity to the 155th Street Transit Station, its location near downtown, and the concentration of schools in the area.

(measured in ADT, average daily trips) for these routes, as noted in the Comprehensive Plan, are:

Garden View Drive	6,400 south of CR 42
Pennock Avenue/Pennock Lane	14,000 to 15,000
Whitney Drive	3,800
143rd Street, Hayes Road, 145th Street	2,800

Improvements along these streets that would encourage walking and bicycling include clearly separated sidewalks (with trees in boulevards)—particularly for the north-south routes with higher traffic volumes, sidewalks at a uniform width of six feet that are continuous across drives, and marked bicycle lanes on the streets. Emphasis should be placed on providing safe connections across County Road 42, particularly at its intersections with Garden View Drive and Pennock Avenue, where traffic volumes are significant and crossing distances are longer.

This route includes a stretch of Pennock Avenue that is a part of the Downtown Ring Route, as well as Whitney Drive, which offers a reasonable connection to the 155th Street Transit Station.

The primary routes in this zone do not include any of the gaps noted by the city or assessed as a part of the gap analysis. However, there are gaps that were identified and assessed, and completion of those segments offers greater depth to the network in this part of the community.

Recommended actions and improvements, beyond completion of missing segments, include:

- Study of the potential for pedestrian safety enhancements at crossing of major streets
- Completion of segments identified and assessed in the gap analysis
- Establishing sidewalks consistently across driveway areas
- Enhancement of lighting along primary routes to levels conducive for pedestrian movement (with illumination level based on adjacent land use)
- Establishment of street trees along primary routes
- Implementation of sidewalks of consistent widths along primary routes
- Addition of bicycle lanes with appropriate markings and signing along primary routes
- Implementation of signage and wayfinding

East Central Apple Valley

East Central Apple Valley presents conditions similar, in some ways, to Southwest Apple Valley. The major difference is the presence of trails in city parks that form significant north-south connections. Like Southwest Apple Valley, a series of streets and trails are defined as core routes, with most of this area within about one-half mile, with sidewalks along neighborhood streets offering connections to the core routes. On the north, the core route is focused on 140th Street, which also provides a significant link across the entire community, although it is challenged by a crossing of Cedar Avenue. Trails through parks from the westerly



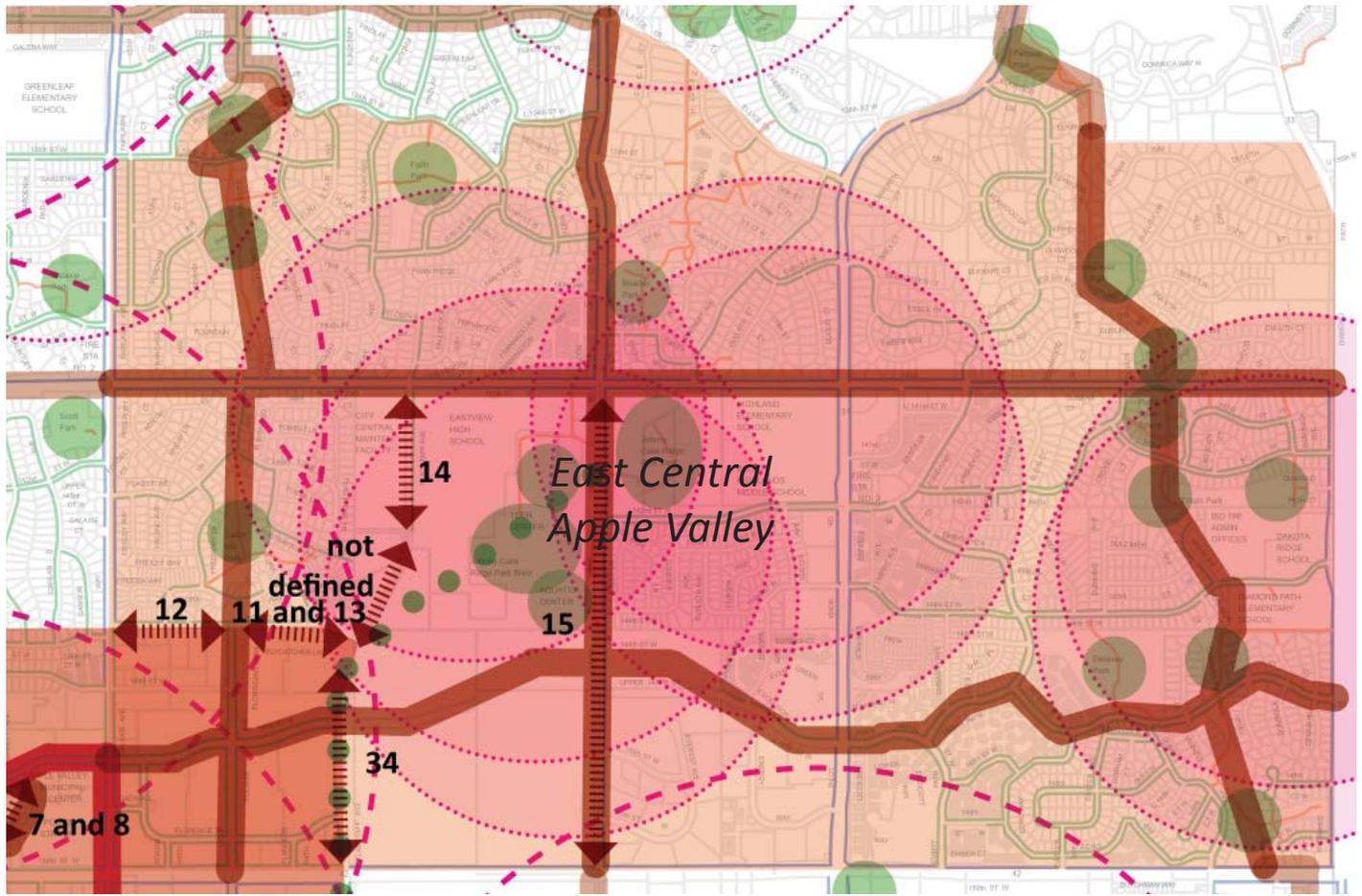
Where Southwest Apple Valley's trails and sidewalks might occur largely along streets, in East Central Apple Valley, a string of connected parks offers a unique walking and bicycling opportunity.

core route, using Greenleaf Park and Cedar Isle Park for portions of the route. Similarly, parks are used for portions of the easterly link, including Summerfield Park, a public open space at 140th Street, Tintah Park, and Diamond Path Park. The south portion of the core route includes 147th Street and Upper 147th Street. The zone also includes Johnny Cake Ridge Road as a core route, given its location near the center of the zone.

The streets that form portions of the core route are designated in the 2030 Comprehensive Plan as major or minor collectors, with projected traffic volumes (measured in ADT) as follows:

140th Street, west of Pilot Knob Road	15,800 to 22,500
140th Street, east of Pilot Knob Road	9,700 to 10,400
147th Street/Upper 147th Street, west of Johnny Cake Ridge Road	11,000 to 13,200
147th Street/ Upper 147th Street, east of Johnny Cake Ridge Road	7,000 to 11,000
Johnny Cake Ridge Road	16,300 to 19,800

East Central Apple Valley has similar logic for trail and sidewalk improvements as Southwest Apple Valley. Transit proximity, schools and downtown are important nearby destinations, and new roadway corridors offer opportunities for accommodating contemporary trail and sidewalk facilities.



Some streets will be implemented in areas of Apple Valley that are currently undeveloped, presenting the significant opportunity to include well-considered trail and sidewalk facilities as these roads are implemented or upgraded coincident with new development. For portions of the core route that utilize trails in parks, continuity in navigation and lighting for night use will be important. For streets like 140th Street, the challenge may be trying to achieve a more comfortable environment for walking or bicycling along the corridor given current traffic speeds.

Completion of identified gaps will occur with development along Johnny Cake Ridge Road. Completion of other missing segments will help to connect neighborhoods to the core routes.

Recommended actions and improvements, beyond completion of missing segments, include:

- Study of the potential for pedestrian safety enhancements at crossing of major streets;
- Completion of segments identified and assessed in the gap analysis;
- Enhancement of lighting along primary routes to levels conducive for pedestrian movement (with illumination level based on adjacent land use); in this case, the level of illumination in parks will be a concern of neighbors who likely have experienced little or no lighting in these parks;
- Establishment of street trees along primary routes;
- Implementation of sidewalks of consistent widths along primary routes;
- Addition of bicycle lanes with appropriate markings and signing along primary routes; and
- Implementation of signage and wayfinding.

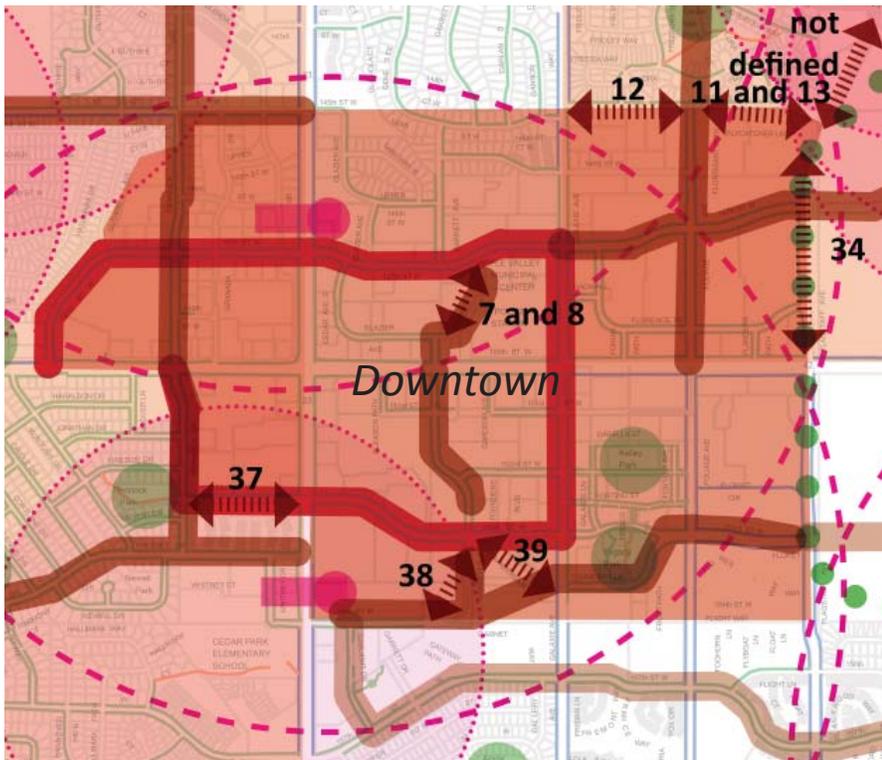
Downtown

Today in the downtown area, movement is focused on the car. Streets and parking areas dominate, but in areas around the Central Village patterns of development are changing to ones that better accommodate pedestrians. The introduction of bus rapid transit along the Cedar Avenue corridor, with a significant station in the downtown area, has the potential to spur greater pedestrian activity—and possibly bicycle activity—if reasonable accommodations are made.

The patterns of the Ring Route form the core routes for movement in the downtown area, and with wide sidewalks, a foundation for pedestrian movement has been established. Still, not all routes readily accommodate pedestrians, sites, in many cases, fail to provide proper connections



The Ring Route forms the core of a downtown sidewalk network, but more localized connections are still needed to serve walkers and bicyclists.



In the downtown zone, links to transit are important improvements, particularly those connections that link to neighborhoods east and west of downtown.

between buildings and the public realm of the street, and desire lines for movement to and from the BRT station are not recognized for pedestrian movement. Key recommendations to enhance the downtown area for pedestrian movement include:

- Completion of the sidewalk network at the gap locations identified;
- Creation of new sidewalk or trail links at key desire lines, especially the link across the pond area in the southeast portion of downtown to create a more direct link to the BRT station from the east and along Whitney Drive on the west side of Cedar Avenue;
- Implementation of lighting along trail routes in the downtown area to effect more conducive passage during times of limited daylight;
- Implementation of signage and wayfinding to aid in navigation for pedestrians for routes across the community; and
- Review of site design guidelines for parcels in the downtown area to ensure logical connections are created between primary building entries and sidewalks or trails.

Facilitating bicycle movement in the downtown area also looks first to the Ring Route. As noted during interviews and as gained from public and stakeholder input during this process, serious bicyclists prefer to use downtown's streets, as they view traveling on sidewalks less safe due to lack of visibility, varying cross slopes, and potential conflicts with pedestrian movement. Accommodation of bicycle movement on streets

requires a reconfiguration of roadways to provide bicycle lanes and other features that support safe on-street bicycle movement, in most cases taking the form of a three-lane roadway. Further engineering analysis will determine the viability of a conversion of segments of the Ring Route to a three-lane roadway, including consideration of average daily traffic (ADT) projections, the spacing of access points along the roadway, and factors such as system continuity. Major portions of the Ring Route have projected ADT (according to the recent Comprehensive Plan update) of the following:

147th Street	18,100 east of TH 77 10,600 west of TH 77
Galaxie Avenue	20,100 south of County Road 42 21,100 north of County Road 42
153rd Street	13,200 east of TH 77 10,300 west of TH 77
Pennock Avenue	14,200 south of County Road 42 14,700 north of County Road 42

Engineering analysis will determine the feasibility of reconfiguring some of these streets to three lanes with on-street bicycle lanes. For some roadways a reconfiguration to three lanes is not possible, and a more extensive re-working may be necessary to accommodate an on-street bicycle lane.

Recommendations for enhancing bicycle movement within Apple Valley's downtown area include:

- Creation of bicycle lanes on certain streets through reconfiguration of areas within the curbs to accommodate three lanes of traffic and bicycle lanes, or more extensive restructuring of the roadways to maintain traffic lanes while adding bicycle lanes;

Expansive parking lots without connections to a public sidewalk or trail limit the utility of walking or bicycling in downtown.

As new development occurs, or as improvements are contemplated, creating these connections is significant to walkers and bicyclists. It also results in a more humane experience for drivers once they leave their cars to enter the store.





County Road 42 and Cedar Avenue forms a significant barrier to pedestrian and bicycle movement. Incorporation of the overhead pedestrian bridges created for the Cedar Avenue BRT present a real opportunity for enhancing connectivity.

- Addition of signage indicating the presence of bicycle lanes for motorists, as well as special features that offer improved safety for bicyclists (such as bike boxes at intersections);
- Implementation of signage and wayfinding to aid in navigation for bicyclists for routes across the community; and
- Provision of bicycle parking areas near building entries, with a preference for a balance of bike lockers with open-air bike racks.

Other factors also influence the ability for pedestrian and bicycle movement to be a reasonable choice in downtown Apple Valley. The downtown area does not exist on its own, so connections to nearby neighborhoods are a critical piece of the sidewalk and trail network. Crossings of Cedar Avenue remain an obstacle, and planned improvements to the roadway will focus at-grade crossings to a limited number of intersections. Bridges for pedestrians at BRT stations will facilitate crossings, but they link directly to the BRT stations, perhaps giving the impression to non-BRT patrons that these crossings are more or less the exclusive realm of the BRT system. In fact, if they provide for safe pedestrian crossing they should be designed to be a part of the city's trail and sidewalk network, with access for any pedestrian choosing to use sidewalks or trails in the downtown area. This results in an additional action: working with the Minnesota Valley Transit Authority to maintain access to the BRT bridges for non-BRT users, and providing signage and educating the public about the accessibility of the BRT bridges over Cedar Avenue.

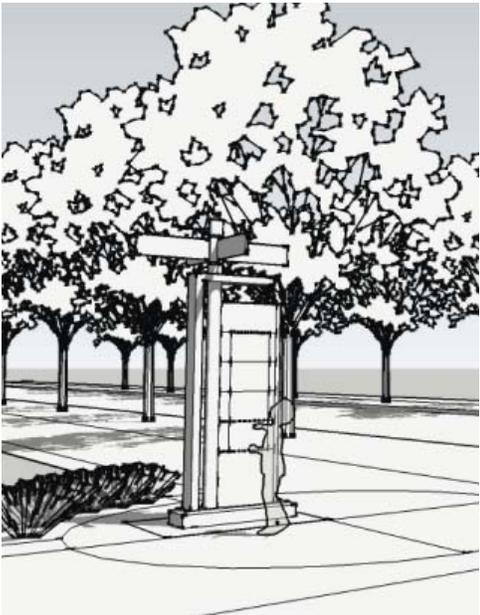
Facilities supporting walking and bicycling

Having pavement or stripe defining a bicycle path on a street is only a beginning. A true system will look to support the users of Apple Valley's trails and sidewalks with navigation aids, street trees along key routes (a strategy achieving environmental goals as well as system legibility), lighting, benches and trash receptacles, and even drinking fountains



Nodes along walking and bicycling routes might be enhanced with features that serve the needs of users, while lending identity to the community and its neighborhoods.

Wayfinding signs and kiosks are important components of a trail and sidewalk network.

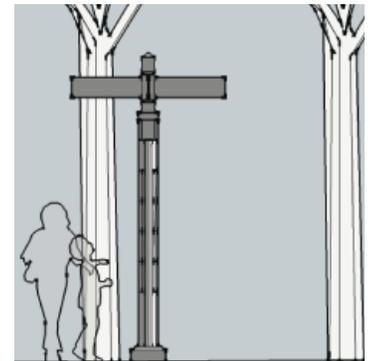
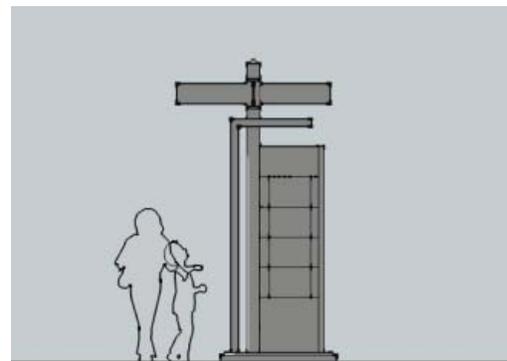


and public art. While these features are oriented in scale and detail to pedestrians, they serve bicyclists as well, and even suggest cues to motorists about proper driving speed, community navigation, and integration of vehicle movement with other modes.

Some features are linear in nature, and work to define routes in their entirety. Street trees and lighting along core routes can be used to reinforce a hierarchy of pedestrian and bicycle facilities, much like downtown’s Ring Route suggests a zone for the community’s commercial activity core.

Other features are grouped in key locations or set as individual pieces along walking and biking routes. At intersections of core routes, wayfinding signage and possibly kiosks or small shelters might occur. In other locations, a stand-alone wayfinding sign or kiosk might be used to guide trail and sidewalk users.

While these features serve trail and sidewalk users for navigation and





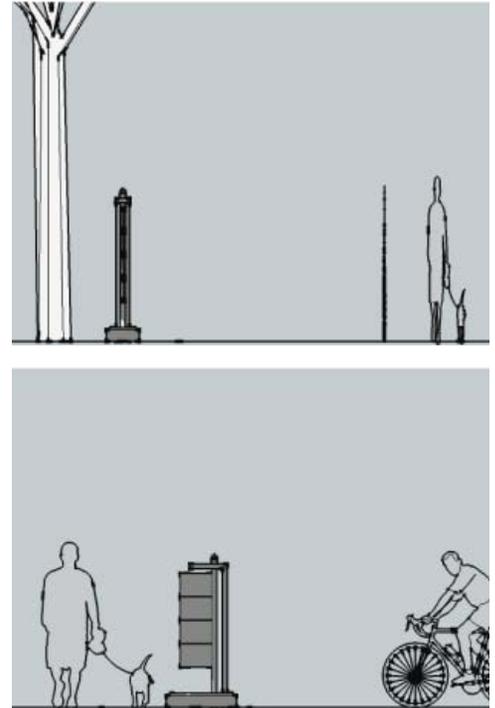
comfort, they lend a sense of identity and create opportunities for gathering—if even at a small, scale. Importantly, they convey a message about Apple Valley, and its orientation to active and healthy lifestyles.

Costs of construction and maintenance

The process of creating this plan recognized that completion of the trail and sidewalk network will require capital and operating expenditures. In this plan, the costs of completing gaps were assessed along with projecting the annual maintenance costs for each of the gaps.

The construction cost analysis for each gap considered the possible need for seven items that would have to be constructed for the gap to be considered complete. These needs included crosswalk paint, bituminous trail, six and eight foot wide concrete sidewalks, signal count down timers, pedestrian ramps and retaining walls (with the possibility of retaining wall fencing). Assumptions made in the construction analysis included:

- if a gap crosses a barrier as indicated in the gap analysis sidewalk paint is needed;
- if a gap approaches or has the need to cross a raised curb a pedestrian ramp will need to be constructed, and if no curb exists or if it is not raised a pedestrian ramp is assumed not to be needed;
- if a gap crosses a barrier where a stop light is involved and the stop light does not have a signal countdown timer one is needed to complete the gap;
- a retaining wall is needed when the slope of the gap area is assumed to be too steep uphill or down hill to complete the gap otherwise;



Even at the scale of walking, small signs are important in guiding users to their destinations.

The cost of **constructing** gaps identified in the plan is demonstrated in the “Example” (top) and “Gap Number 1” (bottom); a breakout of the costs of all gap segments is included in Appendix B.

Gap Number		EXAMPLE	Location:		
Construction Items	Unit Name	Unit Cost	Quantity	Cost	
Crosswalk paint	Each	600		\$0	
Bituminous Trail	LF	25		\$0	
6' Concrete Sidewalk	LF	25		\$0	
8' Concrete Sidewalk	LF	35		\$0	
Signal Countdown Timers	Each	8000		\$0	
Pedestrian Ramp	Each	2000		\$0	
Retaining Wall	SF	25		\$0	
				Construction Subtotal	\$0
				20% Contingency	\$0
				Project Total	\$0

Gap Number		1	Location: East side of 140th St. between Garden View and C		
Construction Items	Unit Name	Unit Cost	Quantity	Cost	
Crosswalk paint	Each	600	0	\$0	
Bituminous Trail	LF	25	3097	\$77,425	
6' Concrete Sidewalk	LF	25	0	\$0	
8' Concrete Sidewalk	LF	35	0	\$0	
Signal Countdown Timers	Each	8000	0	\$0	
Pedestrian Ramp	Each	2000	2	\$4,000	
Retaining Wall	SF	25	840	\$21,000	
				Construction Subtotal	\$102,425
				20% Contingency	\$20,485
				Project Total	\$122,910

- fencing is included with the gap if the slope is too far down hill; and
- the gap is assumed to be constructed of the same material as the trail or sidewalk it connects to.

A complete assessment of the costs of constructing trails or sidewalks at identified gaps is included in Appendix B.

The maintenance costs were examined using methods similar to the construction cost assessment. The maintenance costs were determined by evaluating the gap on five possible needs to keep the gap safe and functional:

- re-painting cross walks;
- replacing 6' wide concrete surfaces;
- replacing 8' wide concrete surfaces;
- bituminous patching; and
- landscaping/root pruning.

The frequency of each maintenance activity was also projected for each gap segment:

- concrete surfaces have a service life of approximately 25 to 30 years, so it was assumed that approximately 3.33% of the sidewalk would need to be replaced each year;
- bituminous surfaces are weaker than concrete resulting in a shorter service life, so it was assumed that more frequent patching—about 6% of the trail system—would be required each year;
- based on the policies of a number of cities, it was determined that

Maintenance Items	Unit Name	Unit Cost	Quantity	Yearly Cost	Life Time Cost (20 yrs)
Re-Paint Cross Walks	Each	600	0	\$0	\$0
6' Concrete Replacement Slabs	LF	35	0	\$0	\$0
8' Concrete Replacement Slabs	LF	48	0	\$0	\$0
Bituminous Patching	LF	16	0	\$0	\$0
Landscaping/Root Pruning	LF	8	0	\$0	\$0
Maintenance Total				\$0	\$0

The cost of **maintaining** gaps identified in the plan is demonstrated in the "Example" (top) and "Gap Number 1" (bottom); a breakout of the costs of all gap segments is included in Appendix B.

Maintenance Items	Unit Name	Unit Cost	Quantity	Yearly Cost	Life Time Cost (20 yrs)
Re-Paint Cross Walks	Each	600	0	\$0	\$0
6' Concrete Replacement Slabs	LF	35	0	\$0	\$0
8' Concrete Replacement Slabs	LF	48	0	\$0	\$0
Bituminous Patching	LF	16	3097	\$2,973	\$59,462
Landscaping/Root Pruning	LF	8	3097	\$619	\$12,388
Maintenance Total				\$3,593	\$71,850

crosswalks would require annual repainting;

- the costs of replacing sections of concrete, in instances where only partial replacement of a segment is required, would cost more than the initial construction; and
- tree root pruning and general landscape care would be required on approximately 2.5% the network per year.

A complete assessment of the costs of maintaining the trails or sidewalk at identified gaps is included in Appendix B.



While snow removal is often mentioned as a need, regular sweeping of trails and sidewalks promotes their use.

Appendices

Appendix A: Summary of interviews conducted

Appendix B: HR Green Company Memo re: Comprehensive Trail and Sidewalk Plan

Appendix A: Summary of interviews conducted

As part of the community outreach and to supplement the work of the Task Force, several interviews of key stakeholders were conducted:

- Apple Valley Mayor Mary Hamann-Roland
- Apple Valley Planning Commission
- Apple Valley Parks and Recreation Advisory Committee
- Apple Valley Transportation Safety Advisory Committee
- Ed Kearney, President and CEO of Apple Valley Chamber of Commerce
- Jeff Milbauer, President of Valley Bike and Ski Shop
- Bike Friendly Apple Valley
- Kris Jenson, Community Health Specialist, Dakota County Public Health Department

The following is a summary of the key points made in those interviews regarding issues, opportunities, directions, and limitations:

- Biking in Apple Valley needs to be safe, easy, fun, and cool. It needs to be the preferred choice. Walking on sidewalks and paths should be available, accessible, and connected too, to give residents a ready choice for a more active life.
- There are no striped bike lanes in Apple Valley. Consider creating a dual system, one for those who have a definite destination in mind and a second for recreational bikers. Consider “calling out” bike routes by painting them green or blue as is done in other cities. Look at appropriate locations for bike boxes at signalized intersections.
- Consider creating a 3-lane configuration for most of the roadways that comprise the Downtown Ring Route, to permit the creation of bike lanes. This will help people get around downtown for lunch, and generally help all businesses. Link the shopping centers. Bike and pedestrian improvements will help downtown businesses.
- Don’t just fill gaps in our existing sidewalk and path system. Try to create bicycle loops that connect parks and major destinations., including Ensure that there are direct connections to the new BRT transit service stops. Sidewalks should be thought of as a system, on a grid, to give pedestrians multiple options. Do it right, with proper signage for orientation and directions.
- Develop a program for bike racks on both public facilities and private businesses. Make them a marketing tool for active living for everyone. Work with businesses to ensure that bike racks are appropriately located (consider safety, convenience) to promote their use.
- Put resources into better marked crosswalks. Consider special signals designed for bikers and walkers only. Make biking and walking equal and special, an attractive alternative to using your car

all the time.

- Ensure that off-road trails are plowed very soon after snowfalls.
- Life in a wheelchair is already difficult, but in Apple Valley trying to get anywhere in a wheelchair is extremely difficult and dangerous. This situation needs to be improved.
- Install “stations” along the bike and pedestrian routes, with benches, exercise stations, water fountains. Consider business sponsorships or partnerships for these amenities/features.
- Reconsider using the Apple Valley Transit ‘swoosh” design in sidewalks because this design causes problems for young bikers. No curved seams, please.
- Make a special effort to make the 155th Street transit station more attractive and usable for transit riders and others. Include amenities such as a coffee shop.
- The City should check all of its ordinances to make sure that they do not discourage or prohibit desired improvements for bikers and walkers.
- Focus on making needed improvements for our children, especially on their routes to schools. The City and County and School District should all work together to implement the recommendations of the recently-completed Safe Routes to School reports.
- Consider the changing demographics in Apple Valley. We have an increasing number of seniors who need to have good facilities for active living.
- Work closely with Dakota County to complete the Dakota County North Creek Greenway project.

Appendix B: HR Green Company Memo re: Comprehensive Trail and Sidewalk Plan

MEMO



Howard R. Green Company

To: City of Apple Valley
From: Jack Broz
Subject: Comprehensive Trail and Sidewalk Plan
Date: July 14, 2010

1. PROJECT GOAL

The goal of the project is to use the 40 identified gaps in the City of Apple Valley's sidewalk and trail network and create a priority list of potential improvements. Gaps were defined as a measured distance in either the sidewalk or trail system that was missing on either side within the right of way. For the purpose of potential implementation, gaps will be ranked based on criteria and given a cost estimate.

2. PROJECT APPROACH

The project involved analyzing existing conditions and factors that contribute to sidewalk and trail use in the City of Apple Valley. The gaps within the project area were ranked based on their need for improvements using Geographic Information System (GIS). Existing data from the Metropolitan Council, LHB, Minnesota Valley Transit Authority, and the City of Apple Valley are used as the base map. The gaps were then analyzed by determining cost estimates to complete each gap and providing estimated yearly and lifetime maintenance costs.

3. GAP PRIORITIZATION RANKING

The sidewalk and trail prioritization ranking process examined the gaps within the project area and ranked them based on their need for improvements to facilitate access for both bicyclists and pedestrians. The variables were divided into four different groups 1) land use 2) transportation 3) current city connections and 4) crossing of barriers. Specific variables were identified within each group and assigned a weighted value (1-5) that corresponded to the variables impact on the gap. The gaps that received the highest weighted scores will identify priority locations for improvements. The following Tables 1 and 2 identify the variables for trails and sidewalks separately because of the different needs of bike/trail and sidewalk/pedestrian users. These are preliminary weighted values and were vetted with the public and officials based on the rationale provided.

The connectivity ranking system is also included in the analysis in order to capture the benefits of diversity of land uses along a route as well as from crossing barriers in the system. If the trail or sidewalk crosses a street via a designated crosswalk, then the land uses within the buffer area will also be included in the connectivity.

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4. COST ANALYSIS

The cost analysis examined initial construction costs and maintenance costs for each individual gap. The construction cost analysis of each gap considered the possible need of seven different items that would have to be constructed in order for the gap to be considered complete. These needs included crosswalk paint, bituminous trail, six and eight foot wide concrete sidewalks, signal count down timers, pedestrian ramps and retaining walls (with the possibility of retaining wall fencing). Assumptions made in the construction analysis were as follows: 1) if a gap crosses a barrier as indicated in the gap analysis sidewalk paint is needed. 2) if a gap approaches or has the need to cross a raised curb a pedestrian ramp will need to be constructed, if no curb exists or if it is not raised a pedestrian ramp is assumed not to be needed. 3) If a gap crosses a barrier where a stop light is involved and the stop light does not have a signal countdown timer one is needed to complete the gap. 4) A retaining wall is needed when the slope of the gap area is assumed to be too steep uphill or down hill to complete the gap otherwise; fencing is included with the gap if the slope is too far down hill. 5) The gap is assumed to be constructed of the same material as the trail or sidewalk it connects to. The construction costs are included in the sample analysis, figure 1.

The maintenance costs were examined in similar technique to the construction costs. The maintenance costs were determined by evaluating the gap on 5 possible needs to keep the gap safe and functional. The possible needs were re-paint cross walks, replace 6' and 8' wide concrete, bituminous patching, and landscaping/root pruning. The frequency of need for each maintenance need was also determined. Concrete lifetime is approximately 25-30 yrs so it was assumed that approximately 3.33% of the sidewalk would need to be replaced a year. Bituminous material is weaker than concrete so it was assumed to need more frequent patching; approximately 6% of the trail system per year. After consulting with various cities' policies it was determined that crosswalks would require repainting once per year, it was also determined it would cost more to replace sections of concrete sidewalk than it would for initial construction. It was also assumed that the gap would require tree root pruning and general landscaping on approximately 2.5% the network per year. The maintenance costs are included in the sample analysis, figure 1.

Figure 1: Example Cost Analysis

Gap Number		EXAMPLE		Location:	
Construction Items	Unit Name	Unit Cost	Quantity	Cost	Possible Cost Sharing Partners
Crosswalk paint	Each	600		\$0	
Bituminous Trail	LF	25		\$0	
8" Concrete Sidewalk	LF	25		\$0	
8" Concrete Sidewalk	LF	35		\$0	
Signal Countdown Timers	Each	8000		\$0	
Pedestrian Ramp	Each	2000		\$0	
Retaining Wall	SF	25		\$0	
		Construction Subtotal		\$0	
		20% Contingency		\$0	
		Project Total		\$0	
Notes: EXAMPLE					
Maintenance Items					
	Unit Name	Unit Cost	Quantity	Yearly Cost	Life Time Cost (20 yrs)
	Re-Paint Cross Walks	Each	600	\$0	\$0
	8" Concrete Replacement Slabs	LF	35	\$0	\$0
	8" Concrete Replacement Slabs	LF	43	\$0	\$0
	Bituminous Patching	LF	16	\$0	\$0
	Landscaping/Root Pruning	LF	8	\$0	\$0
			Maintenance Total	\$0	\$0
Gap Number 1					
Location: East side of 140th St. between Garden View and CR 38					
Construction Items	Unit Name	Unit Cost	Quantity	Cost	Possible Cost Sharing Partners
Crosswalk paint	Each	600		\$0	
Bituminous Trail	LF	25	3097	\$77,425	
8" Concrete Sidewalk	LF	25		\$0	
8" Concrete Sidewalk	LF	35		\$0	
Signal Countdown Timers	Each	8000		\$0	
Pedestrian Ramp	Each	2000	2	\$4,000	
Retaining Wall	SF	25	840	\$21,000	
		Construction Subtotal		\$102,425	
		20% Contingency		\$20,485	
		Project Total		\$122,910	
Notes: Golf Course between 135th st and Garden View drive in NW portion green is very close to the road Assumption-Retaining wall needed between 135th street & 134th street Retaining wall also needed between 134th&CR 38 Loss of significant amount of mature trees along golf course Also electric box south of 134th street may need to be relocated					
Maintenance Items					
	Unit Name	Unit Cost	Quantity	Yearly Cost	Life Time Cost (20 yrs)
	Re-Paint Cross Walks	Each	600	\$0	\$0
	8" Concrete Replacement Slabs	LF	35	\$0	\$0
	8" Concrete Replacement Slabs	LF	48	\$0	\$0
	Bituminous Patching	LF	16	\$2,973	\$59,462
	Landscaping/Root Pruning	LF	8	\$619	\$12,388
			Maintenance Total	\$3,593	\$71,850

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CITY OF APPLE VALLEY SIDEWALK AND TRAILS GAP ANALYSIS

LOCATION

The following Figures identify the land use and gap locations in the trail system. The two maps illustrate and example of how the connectivity ranking system methodology.

Figure 2: Land Use Plan 2020

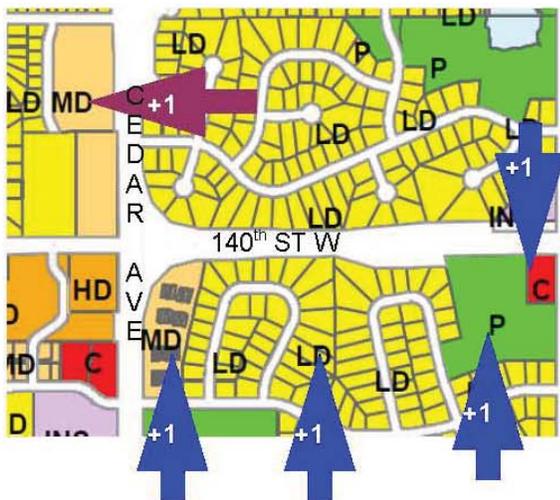
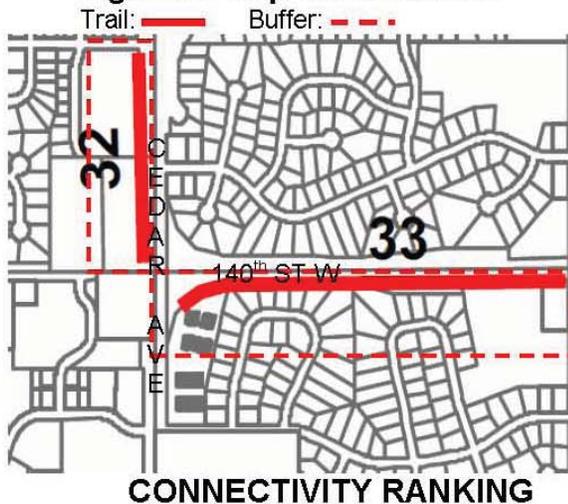


Figure 3: Gap Identification



CONNECTIVITY RANKING

The connectivity ranking system provides additional analysis for sidewalk and trail prioritization. The ranking system identifies the gaps (Figure 3 as 32 and 33) and accounts for the type of land use (Figure 2). Each type of land use receives one point if it is parallel to the sidewalk or within the trail buffer zone. The buffer zone is 500 feet around the identified gap. The connectivity

The point system assumes that a gap that connects more than one type of land use is more important than a gap connecting only one land use. This is due to the origin-destination integration along the potential trail/sidewalk. Crossing a barrier via crosswalk/pedestrian bridge would also include the land uses extending across the street.

For example, in Figure 2 and 3, Gap 33 includes Low Density Residential (LD) as well as Medium Density (MD), a Park (P), and Commercial (C) would receive a connectivity ranking of four. Gap 32 would receive only a value of one because it only connects Moderate Density (MD) residential. Separate commercial nodes, parks, and destinations each receive their own point of connectivity.

The connectivity ranking table would then be weighted based on the number of connections. The connectivity weighting is added to the total for score for weighting factors. Connectivity is weighed as 1 point per land use. For example:

Total score = Sum(weighting factor variables) + connectivity points.

CONNECTIVITY TABLE	
CONNECTIVITY POINTS	WEIGHTING
1	1
2	2
3	3
4	4
5	5

TABLE 1: TRAIL GAP WEIGHTING FACTORS

Variable	Weighting Factor (1-5)	Rationale
1) Land Use		
Low Density Residential	2	Levels of residential density can determine how many potential users of trails will reside in the area.
Medium Density Residential	3	
High Density Residential	4	
Neighborhood Services	3	
Commercial		
Downtown Core	4	Commercial areas are a destination that attract trips. Improved connections can increase the number of riders. The downtown core would be weighted higher than other business nodes due to concentration of commercial destinations
Business Nodes	3	
Industrial		
Industrial	1	Less likely destination to attract recreational and or commuting depending on the nature of the industrial site.
Mixed Use		
Mixed Use	3	Commercial and residential areas can attract riders weighted higher for sidewalks
Institutional		
Institutional	4	Institutions such as churches and government services can attract riders.
Parks		
Parks	4	City and regional parks are a destination for recreation and can attract discretionary and recreational travel.
Schools		
Schools	5	Schools can attract riders especially children as Safe Routes to School program.
2) Transportation		
Cedar Ave - Bus Rapid Transit (BRT)	4	The Minnesota valley transit Authority (MVTA) offers park and ride bus rapid transit from three stops on Cedar Avenue. These stops attract bike riders that choose cycling from the short trip from home to bus stop. The bus can then commute to the end destination.
Other MVTA Stops	3	The MVTA offers expanded local and regional service that attract park and ride cyclists to the stops.
Regional Trail Alternatives	4	Regional trail alternatives connect local riders to a larger regional bike system. Regional trails attract users from origin to destination for recreation or commuting.
Ring Route - Downtown Route	3	The downtown area route is defined in the 1987 Commercial Area Planning Study identifies a ring route that connects commercial areas.
3) Current City Connections		
No Alternative	3	The trail system connections are weighted on the measures of existing trail infrastructure. The gaps are measured as no existing trail alternatives and existing parallel trail alternative. No trail exists on either side of the street. Improvement would connect a gap between two trailheads.
Alternative Connection		A trail already exists on either side of the right-of-way. Riders may choose the alternative and expanding the system may either be redundant or increase accessibility depending on location.
Potential Connection Expansion	2	A parallel trail would be more heavily weighted if it improved accessibility to destinations on both side of right-of-way.

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TABLE 2: **SIDEWALK GAP WEIGHTING FACTORS**

Variable	Weighting Factor (1-5)	Rationale
1) Land Use		
Low Density Residential	2	Levels of residential density can determine how many potential users of trails will reside in the area.
Medium Density Residential	3	
High Density Residential	4	
Neighborhood Services	3	
Commercial		
Downtown Core	4	Commercial areas are a destination that attract trips. Improved connections can increase the number of riders. The downtown core would be weighted higher than other business nodes due to concentration of commercial destinations
Business Nodes	2	
Industrial	1	Less likely destination to attract recreational and or commuting depending on the nature of the industrial site.
Mixed Use	4	Commercial and residential areas can attract riders weighted higher for sidewalks
Institutional	3	Institutions such as churches and government services can attract riders.
Parks	4	City and regional parks are a destination for recreation and can attract discretionary and recreational travel.
Schools	5	Schools can attract riders especially children as Safe Routes to School program.
2) Transportation		
Cedar Ave - Bus Rapid Transit (BRT)	4	The Minnesota valley transit Authority (MVTA) offers park and ride bus rapid transit from three stops on Cedar Avenue. These stops attract bike riders that choose cycling from the short trip from home to bus stop. The bus can then commute to the end destination.
Other MVTA Stops	3	The MVTA offers expanded local and regional service that attract park and ride cyclists to the stops.
Regional Trail Alternatives	2	Regional trail alternatives connect local riders to a larger regional bike system. Regional trails attract users from origin to destination for recreation or commuting.
Ring Route - Downtown Route	4	The downtown area route is defined in the 1987 Commercial Area Planning Study identifies a ring route that connects commercial areas.
3) Current City Connections		
No Alternative	4	The trail sytem connections are weighted on the measures of existing trail infrastructure. The gaps are measured as no existing trail alternatives and existing parallel trail alternative. No trail exists on either side of the street. Improvement would connect a gap between two trailheads.
Alternative Connection		A trail already exists on either side of the right-of-way. Riders may choose the alternative and expanding the system may either be redundant or increase accessibility depending on location.
Potential Connection Expansion	2	A parallel trail would be more heavily weighted if it improved accessibility to destinations on both side of right-of-way.
Connection Expansion Restricted	1	If an alternative exists and the gap is location near an unexpandable location and or provides no accessibility then these gaps are weighted lower.

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Length	Type	EditSegNum	StSide	WtCombined	WtLULD	WtLUMD	WtLUHD	WtLUNS	WtCOMDtC	WtCOMBsNd	WtLUIndus	WtLUMix
3097	Trail	1A	L	29	2	3	-	-	-	-	-	-
3097	Trail	1B	L	25	2	3	-	-	-	-	-	-
683	Sidewalk	3	R	19	2	-	-	-	-	-	-	-
2550	Trail	4	R	18	2	-	-	3	-	-	-	-
1266	Trail	5	R	16	2	-	-	3	-	-	-	-
1029	Trail	6	L	15	2	-	-	-	-	-	-	-
1127	Sidewalk	7	R	25	-	-	-	-	4	-	-	-
1002	Sidewalk	8	R	29	-	-	4	-	4	-	-	-
5234	Trail	9	L	27	-	-	-	-	4	-	-	3
3908	Trail	10	L	28	2	3	-	-	-	-	-	3
2863	Sidewalk	11	R	19	2	3	4	-	-	-	1	-
2863	Sidewalk	12	R	17	2	3	4	-	-	-	1	-
757	Sidewalk	13	L	16	2	-	-	-	-	-	1	-
1485	Sidewalk	14	R	21	2	-	-	-	-	-	-	-
5141	Trail	15	R	32	2	-	-	-	-	2	1	3
6849	Trail	16	R	16	2	-	-	-	-	-	-	-
7070	Trail	17	L	23	2	3	-	-	-	-	-	-
2989	Trail	18	R	14	2	-	-	-	-	-	-	-
1122	Trail	19	R	22	2	3	-	-	-	-	-	-
4888	Trail	20	L	21	2	-	-	-	-	-	-	3
2535	Trail	21	L	20	-	-	-	-	-	-	-	3
2558	Trail	22	R	19	2	-	-	-	-	-	-	-
2867	Trail	23	L	18	2	-	-	-	-	-	-	-
5950	Trail	24	L	17	2	-	-	-	-	-	-	-
617	Trail	25	R	8	2	-	4	-	-	-	-	-
770	Trail	26	R	21	2	-	4	-	-	-	-	-
420	Trail	27	R	18	2	3	-	-	-	-	-	-
1730	Trail	28	R	19	2	3	-	-	-	3	-	-
3289	Sidewalk	29	L	20	2	3	-	-	-	-	-	-
2800	Sidewalk	30	R	20	2	3	-	-	-	-	-	-
1219	Trail	31	R	28	2	3	4	-	-	-	-	-
2455	Trail	32	R	27	2	3	4	-	-	2	-	-
6072	Trail	33	R	21	2	3	-	-	-	-	-	-
1512	Sidewalk	34	L	14	-	-	-	-	-	-	1	4
2168	Trail	35	R	21	2	3	-	-	-	-	-	-
746	Trail	36	R	21	-	-	4	-	-	2	-	3
1181	Sidewalk	37	R	31	2	3	-	-	4	-	-	-
644	Sidewalk	38	L	23	-	-	4	-	4	-	-	4
960	Trail	39	R	27	-	-	4	-	4	-	-	4
50	Sidewalk	40	R	20	2	-	-	-	-	-	-	-

EditSegNum	WtLUInstit	WtLUPark	WtTRANbr	WtTRANmvt	WtTRANrgt	WtCCCnoal	WtCCCaltp	WtCCCconr	WtCrosBar	WtFountain
1A	-	4	-	-	4	4	2	-	5	-
1B	-	4	-	-	4	-	2	-	5	-
3	-	-	-	-	-	-	2	-	10	-
4	-	4	-	-	-	4	-	-	-	-
5	-	4	-	-	-	-	2	-	-	-
6	-	4	-	-	-	4	-	-	-	-
7	3	-	-	-	-	4	-	-	5	-
8	3	-	-	-	-	4	-	-	5	-
9	4	-	-	-	4	-	2	-	5	-
10	4	-	-	-	4	-	2	-	5	-
11	-	-	-	-	-	4	-	-	-	-
12	-	-	-	-	-	-	2	-	-	-
13	-	4	-	-	-	4	-	-	-	-
14	3	4	-	-	-	-	2	-	5	-
15	4	4	-	-	4	-	2	-	5	-
16	-	-	-	-	-	4	-	-	5	-
17	-	4	-	-	-	4	-	-	5	-
18	-	-	-	-	-	-	2	-	5	-
19	-	-	-	-	-	-	2	-	10	-
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21	-	-	-	-	4	3	-	-	5	-
22	-	-	-	-	4	3	-	-	5	-
23	4	-	-	-	-	-	2	-	5	-
24	-	4	-	-	4	-	2	-	-	-
25	-	-	-	-	-	-	2	-	-	-
26	4	4	-	-	-	-	2	-	5	-
27	4	-	4	-	-	-	-	-	5	-
28	-	-	-	-	4	-	2	-	-	-
29	3	-	-	3	-	4	-	-	-	-
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31	-	4	-	3	-	-	2	-	5	-
32	-	4	-	-	-	-	2	-	5	-
33	-	-	-	-	4	-	2	-	5	-
34	-	-	-	-	2	-	2	-	-	-
35	-	-	-	-	4	-	2	-	5	-
36	4	-	-	3	-	-	-	-	5	-
37	3	4	4	-	-	-	2	-	-	-
38	-	-	-	-	-	-	2	-	-	-
39	-	-	-	-	-	-	2	-	5	-
40	-	4	-	-	-	4	-	-	5	-

EditSegNum	WtRingRd	WtSchool
1A	-	5
1B	-	5
3	-	5
4	-	5
5	-	5
6	-	5
7	4	5
8	4	5
9	-	5
10	-	5
11	-	5
12	-	5
13	-	5
14	-	5
15	-	5
16	-	5
17	-	5
18	-	5
19	-	5
20	-	5
21	-	5
22	-	5
23	-	5
24	-	5
25	-	-
26	-	-
27	-	-
28	-	5
29	-	5
30	-	5
31	-	5
32	-	5
33	-	5
34	-	5
35	-	5
36	-	-
37	4	5
38	4	5
39	3	5
40	-	5

