WalkRCV

A Comprehensive Pedestrian Plan for People who Walk in Rutherford College & Valdese

October 2016—FINAL PLAN

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Acknowledgments

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- Danny Griffith, pedestrian advocate
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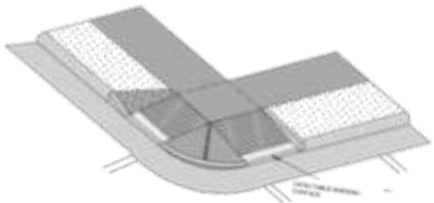
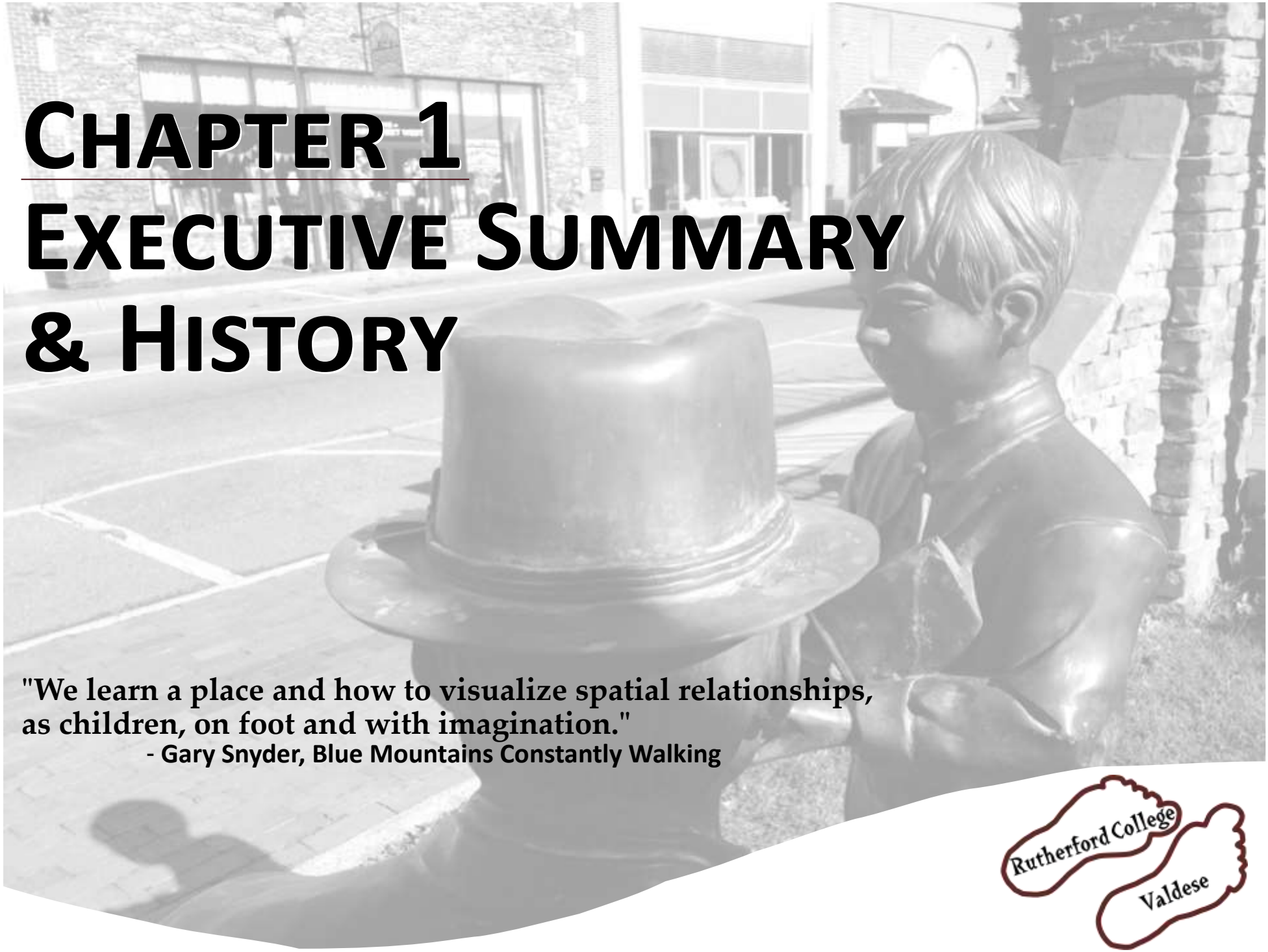
List of Exhibits



Chapter 1
Executive Summary & History



"We learn a place and how to visualize spatial relationships, as children, on foot and with imagination."

- Gary Snyder, Blue Mountains Constantly Walking

Why a Plan for People who Walk?

In September 2015 the United States Surgeon General issued a call to action. Such calls to action are reserved for only the most important health issues facing the country. In it, the Surgeon General stated:

> **"Americans need to walk regularly to combat heart disease and diabetes, while at the same time recognizing that the way neighborhoods are designed often are unsafe or aren't conducive to walking."**

Valdese and Rutherford College emerged in an era when walking was the transportation mode of choice. This plan seeks to make it a safe choice once again.

People walk every day for recreation and for transportation; we just don't always acknowledge it. Walking is oftentimes called "alternative transportation" in policy and funding realms. There is nothing alternative about it; walking is the original form of transportation.

For more than 2,000 years our towns and cities were designed for original transportation. It has only been within the last 100 years that our communities were designed to inhibit original transportation. Walking, along with bicycling, was a normal everyday occurrence in small towns for decades.

The quaint downtowns that dot North Carolina are relics of this formerly bygone era but hold great potential to help communities address emerging health issues called out by the Surgeon General.

A Comprehensive Pedestrian Plan

The Towns of Rutherford College and Valdese are seeking to make their communities more walkable through this Comprehensive Pedestrian Plan.

The North Carolina Department of Transportation (NCDOT) recognizes the vital role walking plays in small town economic development, health and creating a safe place for people of all ages and abilities. This is why the agency has encouraged and funded plans for people who walk for more than a decade. Rutherford College and Valdese pursued a grant through NCDOT's annual call for proposals for walking and bicycling plans in 2015.

The application stated the two towns have a vision of "becoming walkable communities with connected sidewalks and off-road pathways that allow their citizens safe, pedestrian access *within and between both towns*."

A joint planning effort for walkability is a rare occurrence in the United States. Too often communities are limited in their ability and desire to jointly pursue improvements in concert with a neighboring community. Rutherford College and Valdese are pioneering pedestrian planning for North Carolina with this joint effort and seek to build stronger relations between the two towns beyond walkability.

A joint approach is invaluable given current financial realities and the everyday burdens placed upon small towns. Rutherford College and Valdese are neighbors in eastern Burke County. Over the last 10 years, Burke County has seen dramatic job loss as textile and furniture industries have left for foreign locations.

The County is showing signs of improvement as it diversifies its job and employment base. In 2014, Burke County was designated as an economically distressed county by the NC Department of Commerce. The state moved the county into a less-distressed category in 2015.

Rutherford College

Rutherford College is a compact community where residents are within walking distance to anywhere in town. With more than 1,300 residents, Rutherford College is 2.5 miles long and 1.5 miles wide. These are magical dimensions in the world of walkability, as it indicates that many of the town's destination are within a 20-minute walk of the community's center.

Rutherford College is named for the college that was located here decades ago. The campus site is now the location of Valdese General Hospital. The community was reincorporated in 1977. The town prides itself on being a family-oriented community "where neighbors know and care for each other and where grandparents pass land on to their children." The town is bordered on the north by Lake Rhodhiss and on the south by Mineral Springs Mountain.

Rutherford College's strengths include a 2-mile long sidewalk down Malcolm Boulevard that provides a short connection to the elementary school. Malcolm Boulevard is the main north-south street in Rutherford College with I-40 access and has the most heavily used sidewalk in town.

When polled in 2009, residents' favorite reasons to live in Rutherford College were "good school system" followed by "sidewalk". There is also a popular walking track at the hospital.

The 2009 Rutherford College Comprehensive Plan recommends developing a comprehensive sidewalk plan and researching funding options. The town's Action Plans of 2012 and 2013 requested town administration to submit grant applications to "expand and improve sidewalks."

Valdese

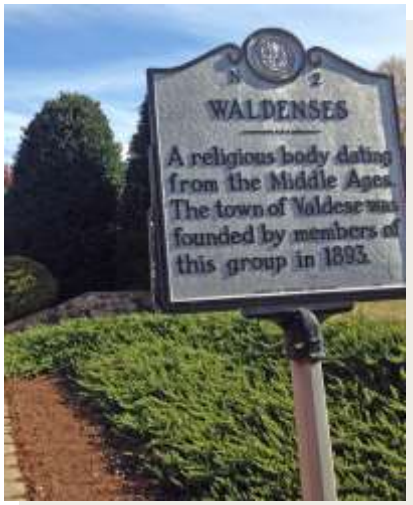
A community of 4,500 residents, the town's name stems from a group of Waldenses from the Cottian Alps of Northern Italy who settled on land located near the Catawba River in eastern Burke County. The center of this community became the town of Valdese, which incorporated in 1920.

The community turned to manufacturing to sustain its economy after the original settlers discovered the soils were not conducive to agriculture. The area remains a manufacturing hub for the region.

A strength of the Valdese walking network includes 2 miles of sidewalk along Main St/US 70 through the central business district. In 2013, Valdese spent $18,000 on sidewalk repair and upgraded existing sidewalks by adding accessible curb ramps in downtown.

The 2013 Valdese Parks and Recreation Plan recommended greenways to connect Children's Park, McGalliard Falls Park and possibly to the Wastewater Treatment Plant at Lake Rhodhiss near the high school. Valdese's Subdivision Ordinance encourages new development to include pedestrian or bicycle facilities.

Valdese completed a Sidewalk Study in 1984 and there have been updates to it in the 1990s and early 2000s. The plan prioritized the construction of existing sidewalks on Laurel St NE and Church St NE. Like Rutherford College, many destinations in Valdese are within a reasonable walking distance of one another.

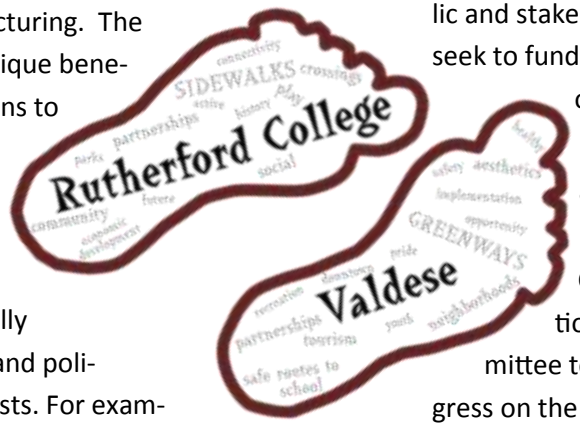


Working together to promote the history and values of Rutherford College and Valdese will only strengthen ties between the two communities.

Step-by-Step for a Walkable Future

Rutherford College and Valdese have grown together and have mutual interests when it comes to economic development, education, tourism and recreation. This plan is an effort to merge those interests into a set of strategies that allows the towns to become linked with one another physically as they have been economically.

Both towns acknowledge they need economic support because of the loss of manufacturing. The Plan is intended to create a unique benefit of encouraging the two towns to rely on each other and share resources. Each town will have its own municipal budget and individual pursuits. This plan is oriented toward mutually beneficial projects, programs and policies that link the towns' interests. For example, a greenway along Lovelady Road links the two, provides a connection to the school complex attended by students who reside in each town, and promotes long-term recreational opportunities on Lake Rhodhiss. Since the Hospital is completely surrounded by Rutherford College, any improvements to the sidewalk network near the hospital need the towns to cooperate. This cooperation includes funding pursuits and agreements on how facilities will be maintained.



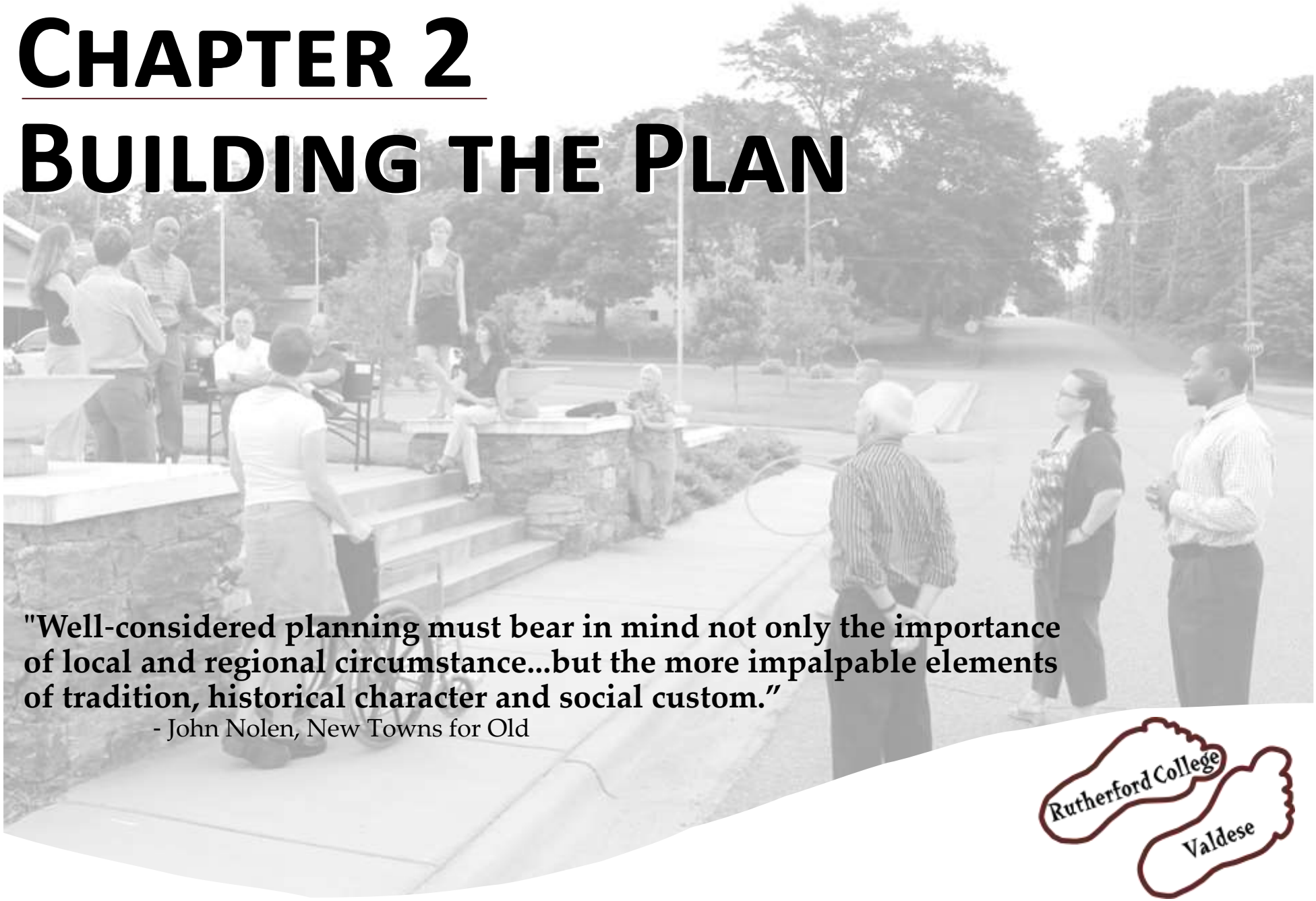
Other sidewalk and greenway improvements located within the towns may be an individual pursuit by the respective community, but the two towns should be aware of such pursuits so they are not unnecessarily competing against one another for funding.

Getting There

This plan is full of ideas and concepts for a more walkable Rutherford College and Valdese. Some recommendations may take years or decades to realize while others are achievable within a year or two of adoption. Below are some strategies the towns can pursue upon completion of this Plan:

- **Lovelady Road Pathway:** This is the highest priority project for the area and the two towns, as determined by public and stakeholder input for this plan. The towns should seek to fund a feasibility study on placing a pathway along or adjacent to existing right-of-way along this route.
- **Joint Steering Committee on Pathways:** The conversation about walkability in Rutherford College and Valdese should begin with adoption of this plan. Organizing a standing committee to annually (or more frequently) discuss progress on the plan and other pathways will be beneficial if efforts such as the Lovelady Road Pathway are to succeed.
- **Incorporate walkability into the area's economic development and health messaging:** This Plan includes sections on the impacts to economic development and health. We know that pathways and sidewalks create jobs and strengthen small towns. We also know they have great potential for widespread health impacts and improving socio-economic conditions for people of all ages and abilities.
- **Be bold:** Walking *is* original transportation. Don't shy away from that premise. Build upon that when formulating policy, approving new development and negotiating project features with DOT and others. See the implementation section for recommendations of development review standards.

Chapter 2
Building the Plan



"Well-considered planning must bear in mind not only the importance of local and regional circumstance...but the more impalpable elements of tradition, historical character and social custom."

- John Nolen, New Towns for Old

Building the Plan

Those who walk the community, manage its businesses and administer the Towns business know the community best. Any good Plan is built from input from these and other key individuals and organizations. The cornerstone of *Walk RCV* is the public/stakeholder input and what is known about the town through analysis of demographic data.

Steering Committee members experimenting with sidewalk widths and personal dimensions.

The efforts to build the plan consisted of a multi-pronged approach to spread awareness of the planning process and ensure a variety of local perspectives were incorporated into the plan. Residents, key stakeholders, and town staff were engaged during the planning process through the following channels:

- Steering Committee Meetings;
- Public Meetings and Outreach Events;
- Public Input Survey; and
- Interactive Map.

Finally, a brief analysis of Census data was compiled to provide a snapshot of prevailing demographic data and conditions across Rutherford College and Valdese.

Steering Committee

The process for the Plan was overseen by a Steering Committee comprised of representatives from both Towns, the County, the business community, pedestrian and health advocacy organizations, and several interested town residents. The Steering Committee convened on four occasions to provide input on pedestrian issues and opportunities, to serve as a sounding board for elements of the planning process, and to review plan deliverables.

The first Steering Committee meeting was held in July 2015 at Valdese Town Hall. The consultant team gathered feedback about important pedestrian destinations and hotspots in the Town to be evaluated by the consultant team.

The second Steering Committee meeting was held concurrently with the Public Workshops at Rutherford College Town Hall and the Old Rock School in Valdese. The meetings were used to gather input from stakeholders on locations for pedestrian facility improvements that would help connect people with popular destinations.

Members of the steering committee met for the third time in October 2015 in Rutherford College. Participants provided edits on the draft plan chapters as well as the results of the most popular projects identified through the community engagement process. The participants rated the relative importance of different types of pedestrian placemaking and land use and development strategies to help identify critera to rank projects (Appendix B, page 98).

The steering committee members assigned their final bonus points to the project rankings at the final meeting in February 2016. They also reviewed the other elements of the working paper and approved the plan to be forwarded to NCDOT's Bicycle and Pedestrian Transportation Planning division for final review and endorsement.

Public Meetings and Outreach Events

Valdese's Waldensian Festival. In August 2015 the consultant team set up an informational booth at the downtown Waldensian Festival to raise awareness about the pedestrian

plan and encourage participation in the public input survey. To attract more survey respondents, a raffle was held and those who completed the survey had the opportunity to win a bottle of wine from the local vineyard. In total, 23 individuals completed the survey during the festival.

Rutherford College Fall Festival. In October 2015 the consultant team set up an informational booth at the Town of Rutherford College Fall Festival to raise awareness about the pedestrian plan and encourage participation in the public input survey. Overall attendance was lower than in previous years due to Festival having been rescheduled and the chilly weather, but many residents stopped by to view the plan and ask questions. In total, 12 individuals completed the survey during the festival and several others wrote comments directly on the map.

Public Workshops

Two public workshops were held on August 31, 2015 at the Old Rock School in Valdese and September 1 at Rutherford College's Town Hall. The purpose of these was to collect input from Town residents and stakeholders on popular destinations in Rutherford College and Valdese as well as pedestrian network improvements that would make walking to these locations safer and more convenient. The workshop was advertised through notices on the radio, posts on both Towns' websites and their Facebook pages, Valdese's Recreation and Friends of Valdese Rec's Facebook Pages, email lists for both Towns' boards and community organizations, emails from local residents and organizations collected during Plan outreach efforts, and announcements at other Town meetings.

The meetings were opened with a presentation by the consultant that included an overview of the plan purpose and timeline, a review of basic pedestrian planning concepts, and preliminary findings from field research in the Town. Meeting attendees were then divided into groups for a mapping exercise. Each group identified places that they would like to walk, and then highlighted gaps in the pedestrian network where construction or improvement projects were needed for sidewalks, greenways and intersections.

Elected leaders as well as families enjoyed filling out the survey during the Waldensian Festival.

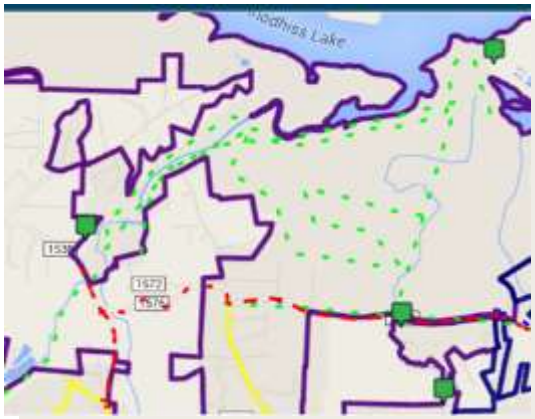
The groups presented their top five pedestrian projects, and common themes that emerged from the exercise were used as the basis for a facilitated discussion that concluded the workshop. Map markups, projects, and discussion topics from the workshop were used to help formulate recommendations in the Plan. Approximately 12 people joined the first evening and eight on the second. Although there was not a large turnout, individuals provided thoughtful and relevant input on these potential pedestrian improvements.

Open House

The final set of Open Houses occurred December 15, 2015 in Valdese and Rutherford College's Town Halls. A set of five display boards were placed around the room, and residents could drop in, learn more about the outcomes of the plan, and vote for their most important projects. Individuals were encouraged to vote for their favorite pedestrian amenities, such as picnic facilities, Walk your Town signs, and public water fountains. Sev-

enteen (17) people attended the meetings. The consultant team used the input from this meeting to refine the final version of the plan.

Public Input Survey



The green dotted lines in this screenshot from the online Interactive Map represent the locations that residents feel a trail is needed. In all, participants identified more than two dozen potential greenway and sidewalk routes in and around Rutherford College and Valdese.

A public input survey was deployed to collect additional input from local residents on their walking habits, popular destinations, barriers to walking, and needed improvements to the pedestrian network. A link to the online survey was posted on both Towns websites and Facebook pages, and in the local newspaper. A link to the survey was also emailed to Town staff, Town boards, community organizations and clubs for further distribution. Hard copies of the survey were made available at public locations such as Town Halls and at events such as the Waldensian Festival and Rutherford College's Fall Festival.

The survey was open for five months from June to October, during which 132 online and printed responses were collected. A summary and analysis of the results from the public input survey are included in several exhibits on the following pages.

Interactive Map

The online interactive mapping tool called WikiMaps was also used as an additional approach to gaining information from surveys and outreach events. The tool allows residents to provide place-specific input on pedestrian issues and opportunities, hazards, routes, and intersection improvements. Residents also shared their own proposed trail routes, specifically adjacent to the wastewater treatment plant and to Draughn High School to the east and McGalliard Falls to the west.

New sidewalks were recommended along the following roads:

- Bravard Street to connect the two towns;
- Hoyle Street and Carolina Street to connect neighborhoods south of railroad crossing with the grocery store and other daily shopping needs; and
- Church street from the intersection with Lydia Ave to McGalliard Falls

Preliminary Public Input Survey Results

The preliminary survey results summarized below represent the 132 Public Input Surveys completed between June and September 2015. Some key findings include:

- More than 90% of respondents walk at least once a month for recreation or exercise.
- The most popular walking destination is the house of a friend or family member.
- More than half of respondents walk to or around downtown Valdese at least once a month;
- One out of five walk to destinations on Malcolm Blvd in Rutherford College.
- Almost half of the respondents walk to parks or recreation centers at least once a month, and a third do so once or twice a week.
- The lack of greenways or trails is cited by 54% of respondents as a major factor that discourages them from

walking; the lack of sidewalks is cited by just 39% of respondents as a major factor.

- A similar proportion of respondents (35%) cited a lack of destinations within walking distance as a major factor.
- Lack of street lighting is a major factor for 25% of respondents.

Among survey participants, a majority of respondents live in 2-person households and slightly more than 1 in 4 respondents live with household members under the age of 18. More than half of respondents are between the ages of 45 and 64 and women were two-thirds of survey respondents. Other results are summarized in Exhibits 2-1, 2-2 and 2-3.

Valdese residents make up 71% of respondents while Rutherford College residents make up 18% of respondents. Valdese has a population of 4,490 and represents approximately 77% of the population area evaluated by this plan; Rutherford College has a population of 1,341 and represents 23% of the population area. People who work in Valdese or Rutherford College represent 31% of respondents.

Demographics

In addition to surveys, it is important to examine a community's demographics as part of evaluating walking and walkability because demographic information provides valuable clues about travel behavior, preferences and can identify potential health-related concerns as they relate to the socio-economic conditions in which someone is raised and/or lives.

Characteristics such as age, income, vehicle ownership, and commute time can suggest a population's potential for walking as a mode of transportation. This section provides a

Exhibit 2-1: Survey: How often do you walk for the following purposes?

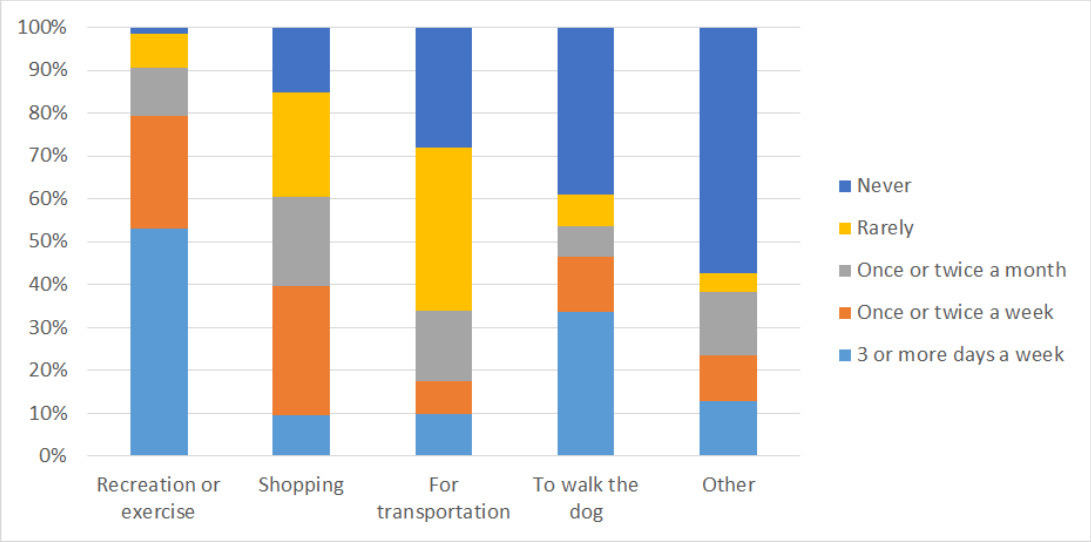


Exhibit 2-2: Survey: Which of the following would encourage you to walk more often?

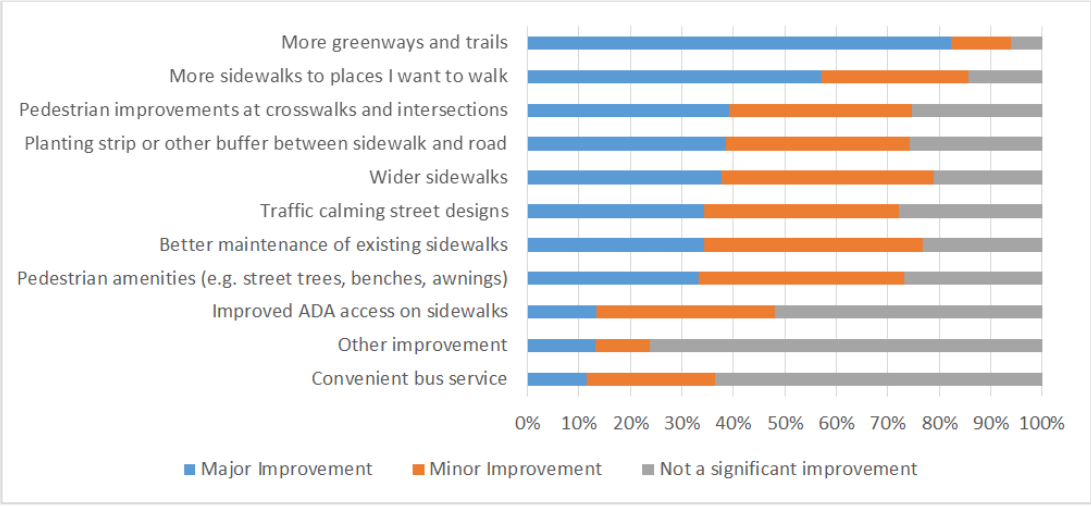
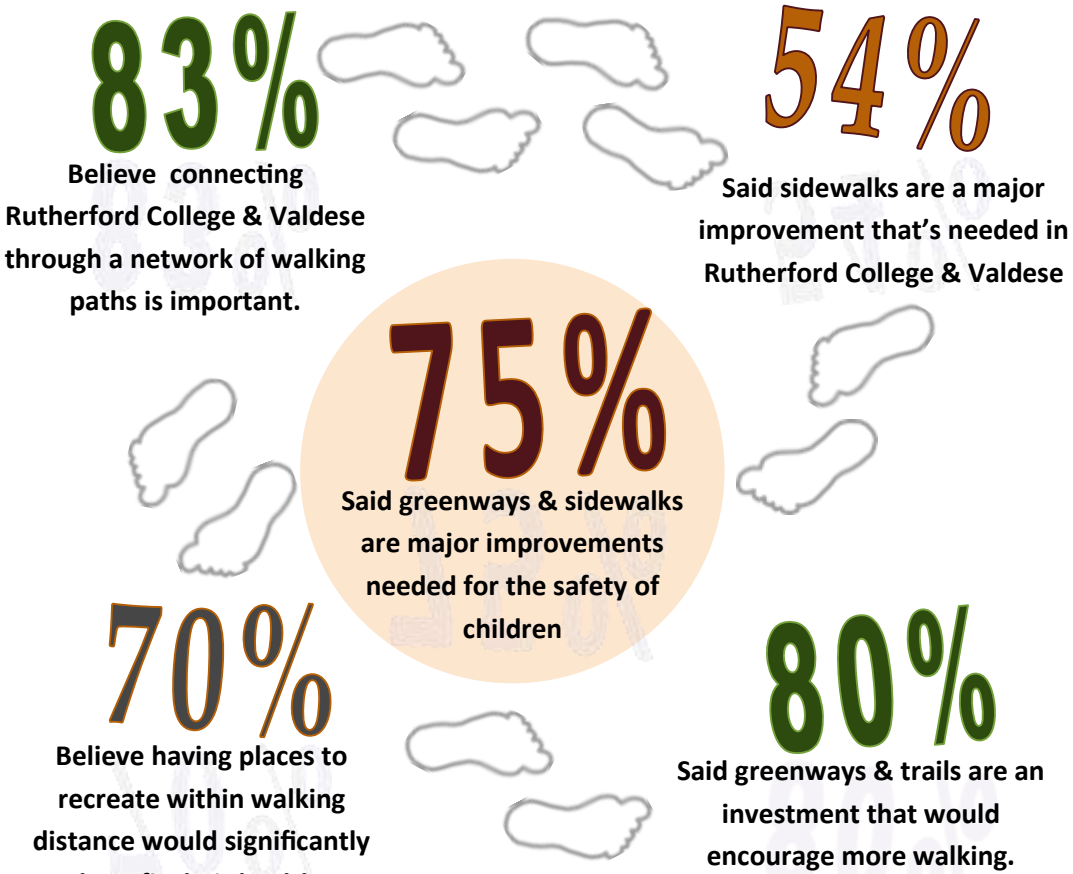


Exhibit 2-3: Survey: Other Key Findings

By the Numbers: Walking in Rutherford College and Valdese



summary of the demographic analysis for Rutherford College and Valdese and explains the implications of the analysis for the recommendations made in this plan. The Census data summarized in this section includes those consider most relevant.

According to 2010 U.S. Census data, the age characteristics of Valdese and Rutherford College are very similar (Exhibit 2-4), based on age groups of Older Adults, Working Population and Youth. The Older Adults population cohort comprises roughly 26% of the each town's overall population compared to only 18.4% of the state's population in this age group.

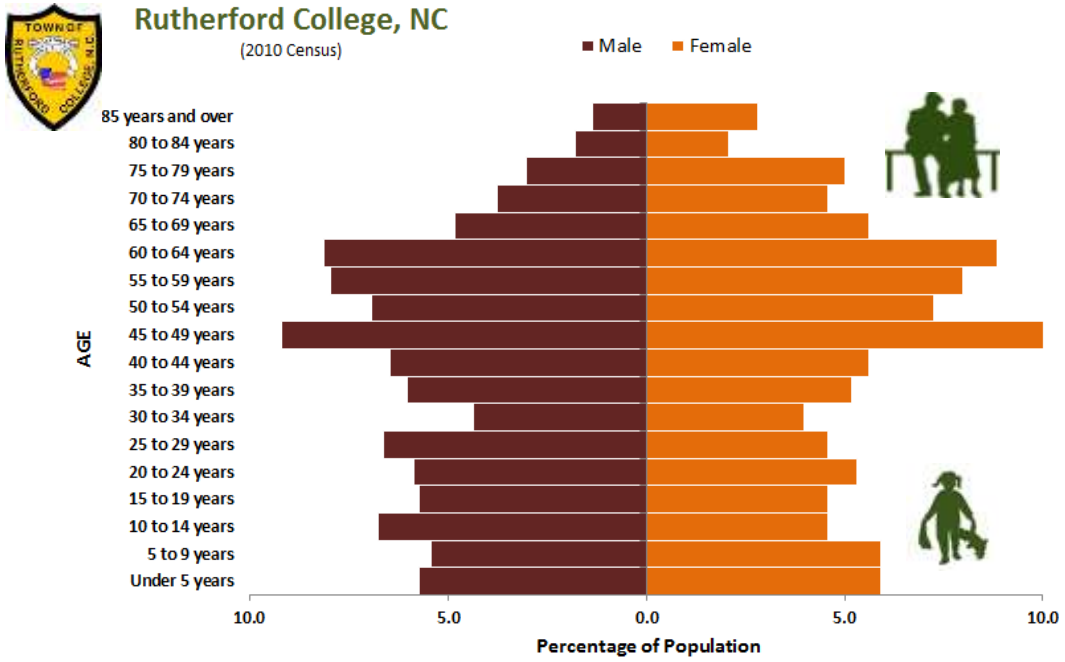
The working population of each community hovers around 50% and is slightly lower than North Carolina's proportion at 54.8%.

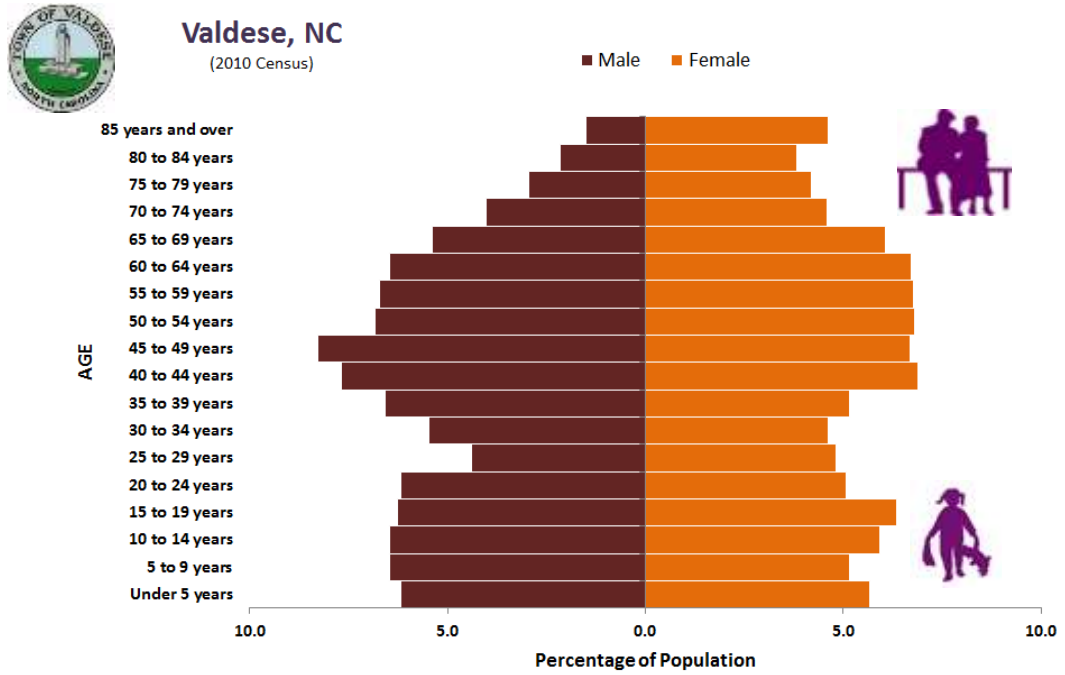
The youth percentage for Rutherford College is 22.3% and 24.1 for Valdese, with each community rating lower for this age group when compared to 26.8% of North Carolina's population that is age 19 years and younger.

While general proportions for population cohorts are the same, the older segments of the working population in Rutherford College (ages 45 to 60) are noticeably larger than their peer cohorts in Valdese, meaning that Rutherford College will likely see an increase in the percentage of older adults in coming decades. Programs and facilities for walking may need to take into account these demographic changes. This supports plan recommendations for efforts such as improving curb ramp design and implementation, which provide necessary facilities for people with disabilities and make it easier for older adults to navigate the system.

Exhibit 2-4: Census Data by Age Group

Population Pyramids: Comparing Demographics in Rutherford College and Valdese





Older Adults (age 60+)

26.0% of Rutherford College

26.7% of Valdese

Older adults are seeking walkable communities because they want to lead an independent lifestyle as they approach retirement and ultimately retire. Older adults are concerned about their safety while walking in terms of self-defense and the risk of falling. The isolation that can come from being in a large, rural estate during retirement has been shown to have negative physical and mental health effects.

Working Population

51.8% of Rutherford College

49.2% of Valdese

The life of a working adult is complicated. They are seeking greater work/life balance while also considering the needs of the family, both elders and offspring.

Youth (age <19)

22.3% of Rutherford College

24.1% of Valdese

Youth seek to explore the world around them and express their free will in these years. With increasing demands on the family and most households having both parental units in the workforce, youth are being asked to be more independent. Walkable communities allow for this to occur in a safe environment.

Exhibit 2-5: Census Journey to Work Data

Mode of Transportation to Work	Rutherford College %	Valdese %	North Carolina %
Drove Alone	81.0	76.1	81.1
Carpooled	9.1	8.6	10.4
Worked at Home	9.2	10.8	4.4
Public Transportation	0.0	0.0	1.1
Walked	0.7	0.7	1.8

Travel Time to Work for Residents	Rutherford College	Valdese
Less than 10 minutes	11.5%	22.3%
10 to 14 minutes	19.1%	15.0%
15 to 19 minutes	28.0%	15.6%
20 to 24 minutes	23.8%	17.7%
25 to 29 minutes	3.5%	5.9%
30 to 34 minutes	9.8%	13.2%
35 to 44 minutes	1.6%	0.0%
45 to 59 minutes	0.7%	6.0%
60 or more minutes	2.0%	3.6%
Mean travel time to work (minutes)	14.9	18.4

For other Census-related data, the American Community Survey is used for estimates for mode of transportation to work and travel time to work.

The American Community Survey only measures commute modes of transportation and has no metric to indicate number of walking trips per day for recreation or other purposes.

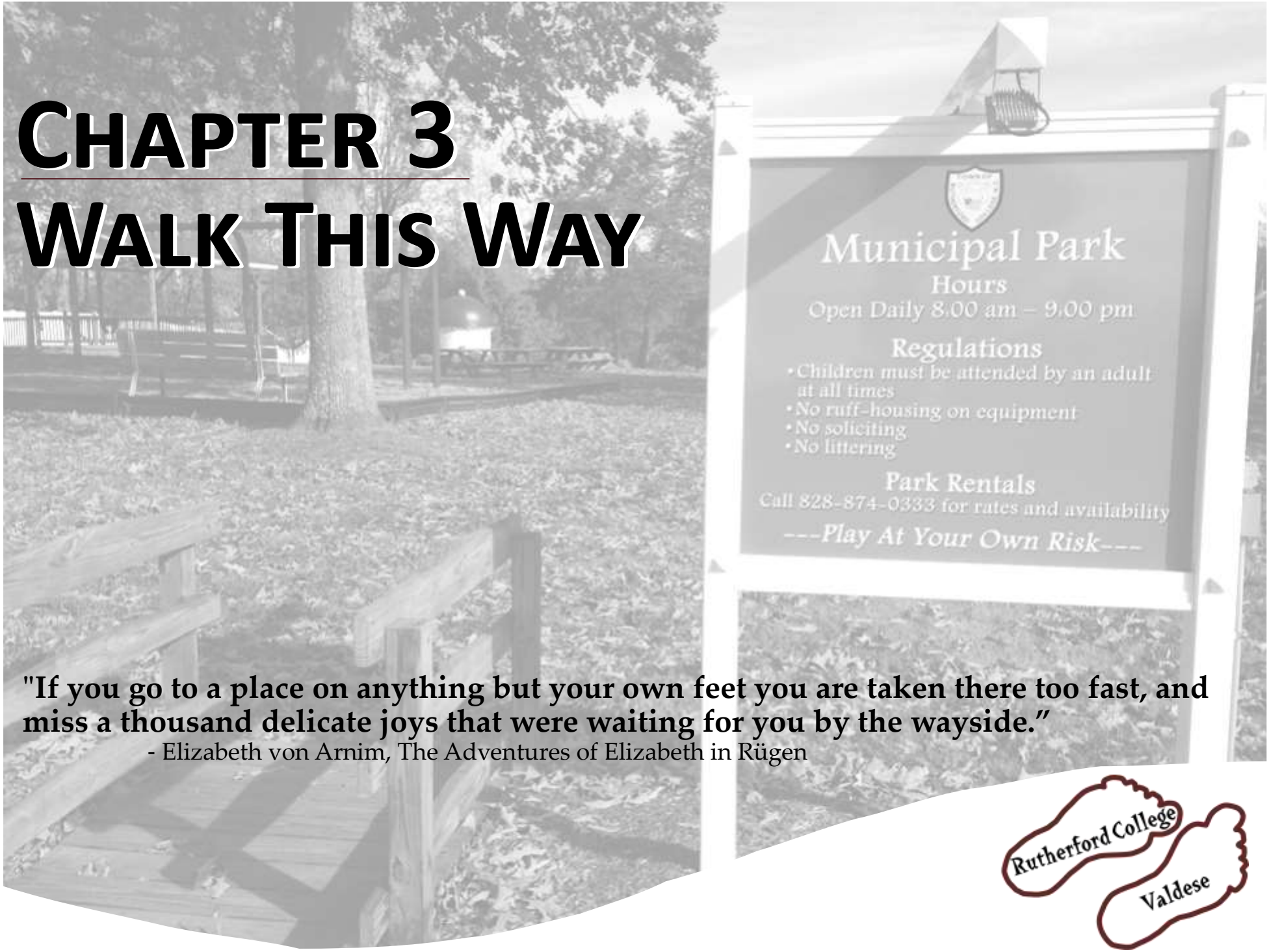
Unfortunately, the American Community Survey data for small towns and rural areas is largely unreliable within the margins typically seen for pedestrian mode share. For example, the survey, which samples a portion of the population every 5 years, indicates no one commutes on a bicycle. This is a statistic that seems unlikely.

Exhibit 2-5 shows some select journey to work data for the workers age 16 years and older in Rutherford College and Valdese. The mode to work share indicates 0.7% of workers 16 years and older in the two towns walk as a means of commuting (the margin of error is +/- 0.5%). The table also includes data for North Carolina.

The American Community Survey indicates that the average travel time to work for Rutherford College is 14.9 minutes and 18.4 minutes for Valdese, which are each less than the NC average of 23.6. More than 30% of residents in each town report a commute time of less than 10 minutes. This could indicate greater potential for converting some trips to walking or bicycling.

Data was not available through the American Community Survey for vehicle access/ownership.

Chapter 3
Walk This Way



"If you go to a place on anything but your own feet you are taken there too fast, and miss a thousand delicate joys that were waiting for you by the wayside."

- Elizabeth von Arnim, The Adventures of Elizabeth in Rügen

Rutherford College
Valdese

Walk this Way

Rutherford College and Valdese have good bones, meaning prevailing development patterns, well-connected streets, and destinations in close proximity to one another can make walkability efforts more impactful.

The network of sidewalks generally provides for the basic mobility needs of the majority of citizens on foot in each town. The majority of main roads and streets that connect neighborhoods to destinations have sidewalks on at least one side. Valdese has worked in recent years to upgrade or install curb ramps to provide better access for persons with disabilities. NCDOT, through its resurfacing projects, is upgrading intersections to include ramps.

Existing Sidewalks

The existing sidewalk network has evolved over time with the goal of providing a functional network of routes so pedestrians avoid conflicts with motorists. Many routes outside the downtown core of the two towns have sidewalks on one side of the road to the extent of what was the town limits at the time of construction. These sidewalks are typically 4-feet or 5-feet in width, which is a minimum standard that allows for one pedestrian to move in one direction. It is likely that these minimum standards were implemented due to right-of-way and other constraints such as topography or existing roadway configuration.

Exhibit 3-1 contains the general streetside characteristics of existing sidewalks along major routes in Rutherford College and Valdese. Each sidewalk was evaluated for Pedestrian Level of Service to get a sense of conditions for pedestrians who use these sidewalks. Conditions are generally good to moderate as the speed limit and low traffic volumes allow for a more pleasant walking experience. Malcolm Boulevard is calculated at Level of Service C (Moderate), which is influenced by the section south of US 70, which has no sidewalks. North of US 70, conditions are similar to Main Street in Valdese (LOS B – Good).

Exhibit 3-2 illustrates the existing sidewalk network for Rutherford College and Valdese.

Exhibit 3-1: Existing Sidewalks & Street Characteristics

Existing Sidewalk Routes	Speed Limit	Traffic Count (2013 or most recent)	Pedestrian Level of Service
Main St, Sterling St to Children's Park (Valdese)	20 mph - 35 mph	6,200 to 9,300	LOS B (Good)
Malcolm Blvd, Perkins Rd to Talmon St (Rutherford Coll)	35 mph – 45 mph	9,200 to 14,000	LOS C (Moderate)
Church St, Main St to Margaret St (Valdese)	35 mph	3,200	LOS B (Good)
Praley St, Main St to Carolina St (Valdese)	25 mph	1,300	LOS A (Very Good)
Laurel St, Main St to Lovelady Rd (Valdese)	35 mph	Not Available	LOS B (Good)
Gardiol Ave, Laurel Ave to Curville St (Valdese)	35 mph	Not Available	LOS B (Good)

Exhibit 3-2: Existing Conditions Map

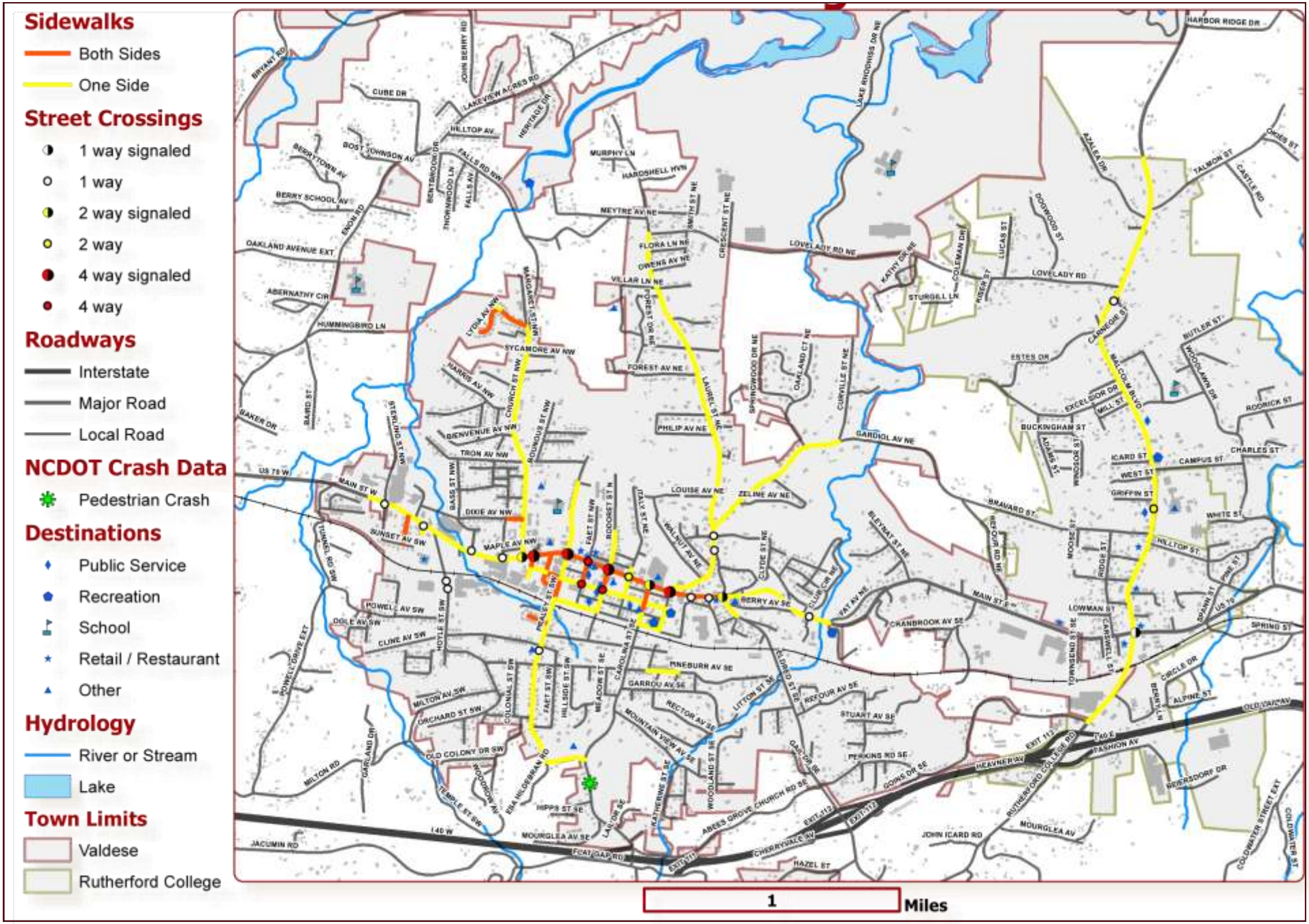


Exhibit 3-3: Survey: Where would you walk if it were safer or more convenient to do so?

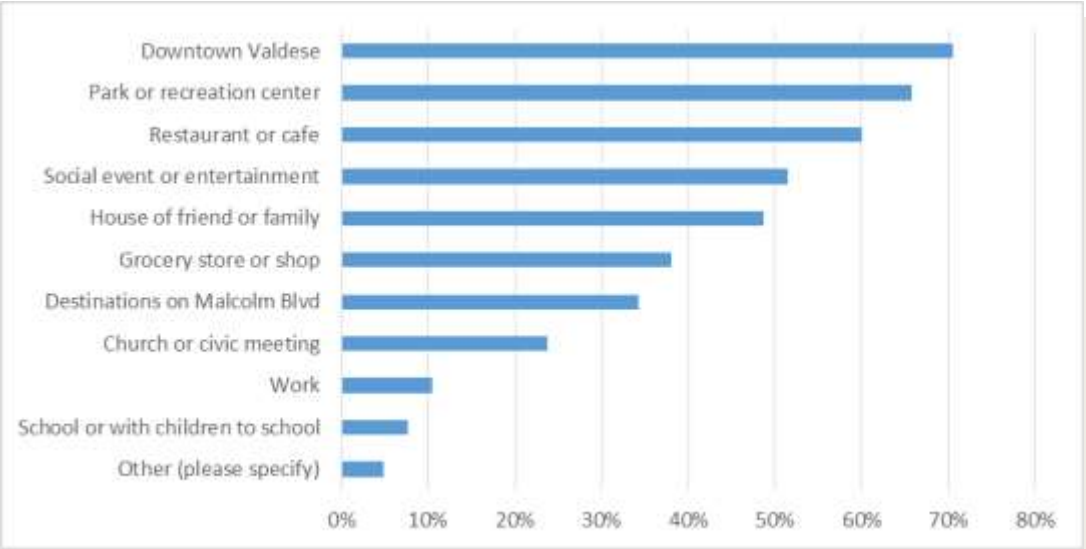
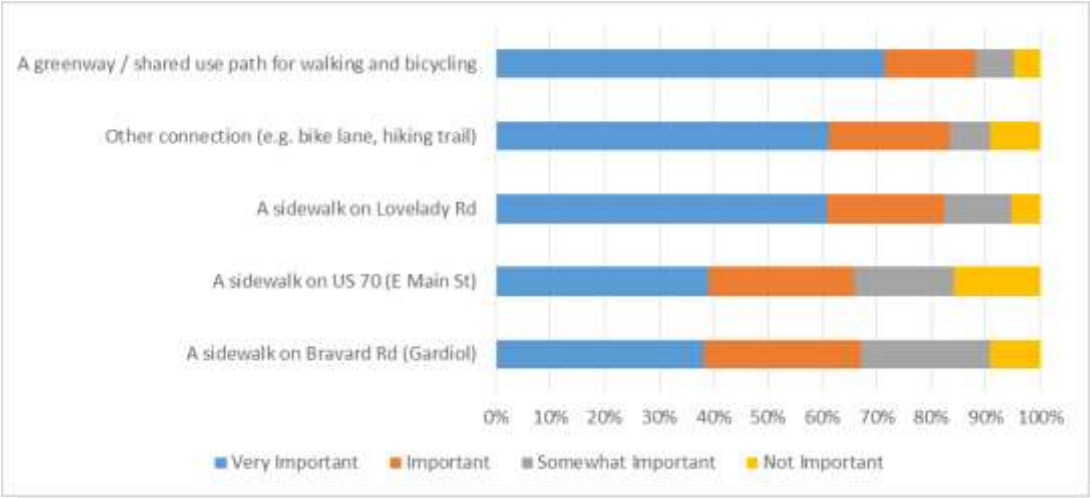


Exhibit 3-4: Survey: Rate the importance of developing the following connections?



What attracts Pedestrians?

The most effective sidewalk investments are those that link residential areas and employment centers to other attractions, such as schools, parks, cultural and historic sites, downtowns and greenways.

The core areas of Valdese and Rutherford College contain the majority of these destinations and, as noted previously, most are linked to existing residential neighborhoods with sidewalks on the streets where more potential conflicts could occur between pedestrians and motorists.

Popular **Rutherford College** destinations include:

- Rutherford College Park;
- Town Hall;
- Rutherford College Elementary School;
- Hospital;
- Post Office; and
- Commercial areas along Malcolm Boulevard.

Popular **Valdese** destinations include:

- Downtown & nearby commercial, public attractions;
- Town Hall and Library;
- Old Rock School;
- Valdese Elementary School;
- Trail of Faith;
- Children's Park; and
- Valdese Recreation Center.

Destinations beyond the towns' limits include Draughn High School, Lake Rhodhiss and Heritage Middle School.

What people said attracts them

Exhibit 3-3 summarizes input from survey participants on

where they would walk if it were safer or more convenient. Some highlights include:

- More than 70% of respondents would walk to Downtown Valdese more often if walking were safer and more convenient.
- Two thirds would walk more often to parks or recreation centers.
- Other popular walking destinations included restaurants or café and social event or entertainment.
- 33% of respondents would walk more often to destinations on Malcolm Blvd.

How do we get them there?

Exhibit 3-4 showcases how survey respondents rated various preferences for linking the two towns and popular destinations. A sidewalk on Lovelady Road, US 70, and Bravard Road all received majority support in terms of overall importance. The concept of having overall connections within and between the two communities fared much higher in overall preferences.

- More than 70% of respondents rated a greenway or shared use path connection between Valdese and Rutherford College as “Very Important”; 88% felt that such a connection was “Important” or “Very Important”.
- 83% of respondent felt that connecting Valdese and Rutherford College with a sidewalk on Lovelady Rd was “Important” or “Very Important”.
- An equal proportion of respondents felt that other types of connections between the towns, such as a bike lane, was “Important” or “Very Important”.

Exhibit 3-5: Survey: Destinations where connections are important

Survey: Are there specific destinations in Rutherford College and Valdese that you believe should be connected by greenways or trails?

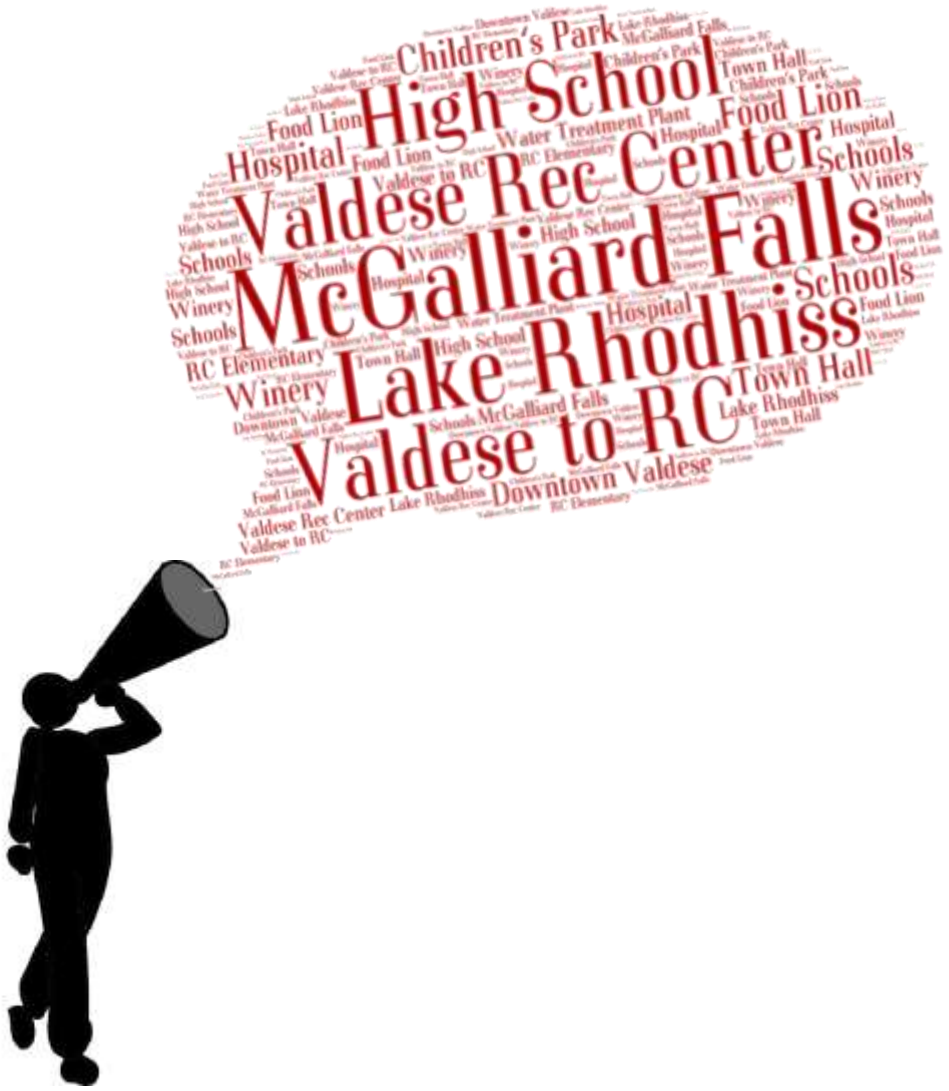


Exhibit 3-6: Survey: Specific locations where there are pedestrian hazards or barriers

Survey: Are there any specific locations in Valdese or Rutherford College where there are pedestrian hazards or barriers that make walking unsafe or inconvenient?

Areas of Concern

Pedestrian crash data was compiled utilizing NCDOT's Pedestrian and Bicycle Crash Data tool. The database contains data from 1997 through 2012 on all pedestrian crashes across the State. Data can be sorted many different ways and at different geographic scales. Over the 16-year period of time there were seven total pedestrian crashes with a motorist in Rutherford College (2 crashes) and Valdese (5 crashes).

Of those seven crashes…

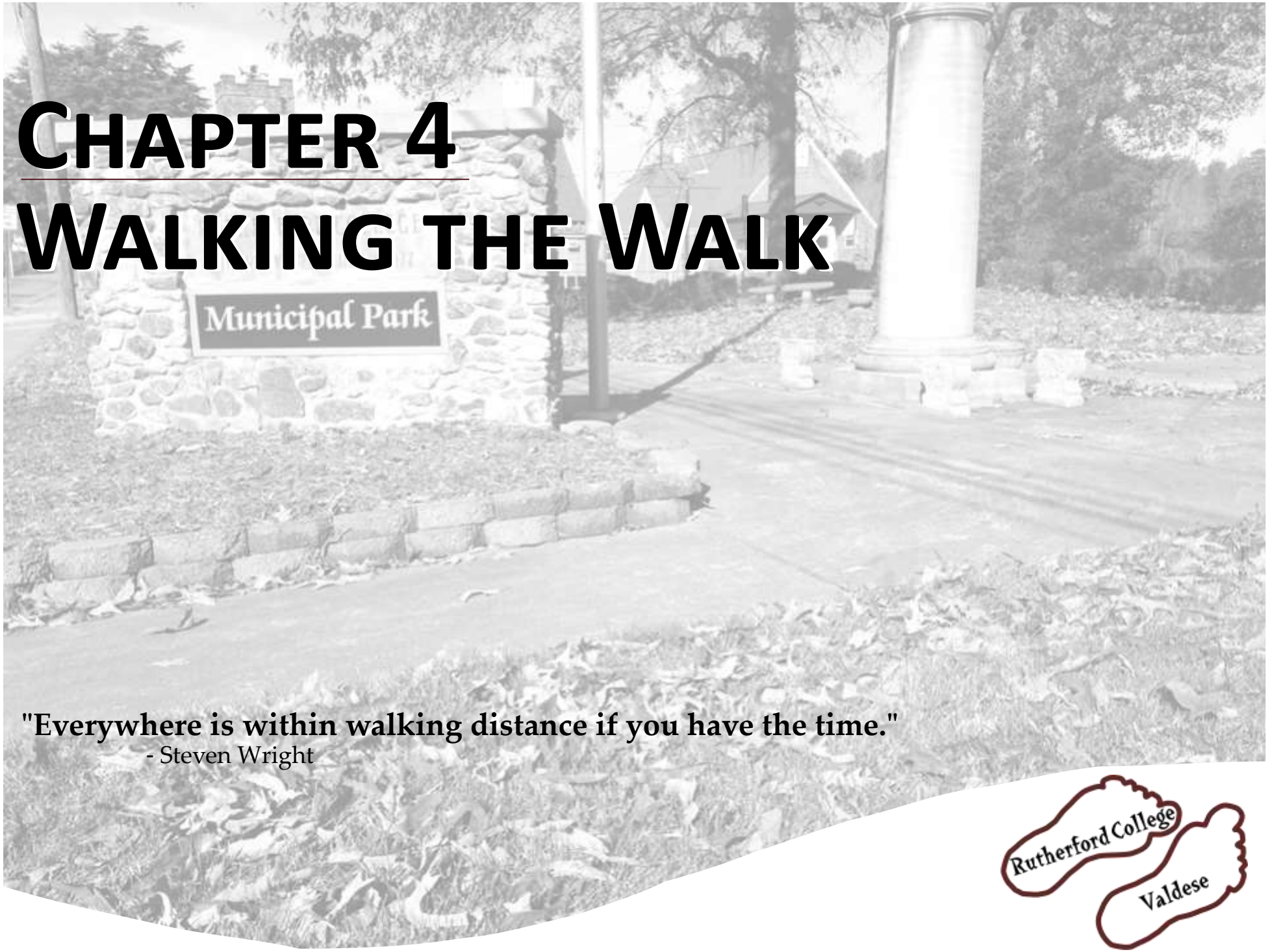
- 2 resulted in a disabling injury;
- 4 occurred on roadways with a posted speed limit of 30 mph or greater;
- 4 were in public vehicular areas, which could be a driveway crossing at a street or in a parking lot; and
- 6 occurred during daylight hours.

No distinct patterns emerge in this data due primarily to the small dataset. A majority of crashes occurring on higher speed roadways is common as motorists traveling at higher speed may not see the pedestrian in their field of vision.

When asked about areas that posed a concern to survey respondents, they identified the locations shown in Exhibit 3-6. South Malcolm Boulevard, which is the widest road in the two towns and has the highest speed limit was the area cited of most concern. Another popular response was the actions of motorists along Malcolm Boulevard. Laurel Street was an area of concern in Valdese.

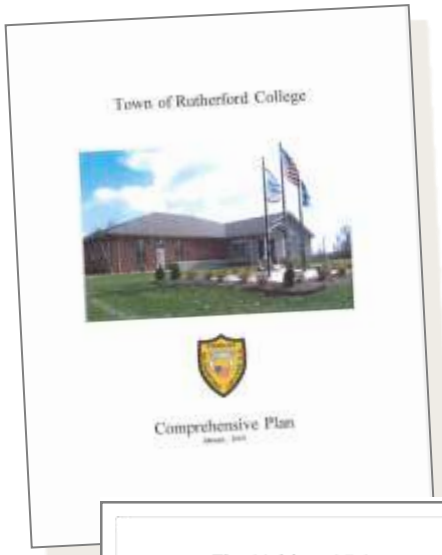
Other non-location specific concerns related to lack of lighting, loose dogs, lack of streetside curbs, and sidewalks close to the road.

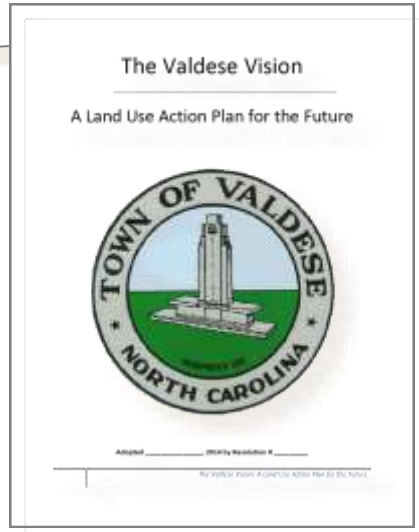
Chapter 4
Walking the Walk



"Everywhere is within walking distance if you have the time."
- Steven Wright

Walking the Walk





More than a dozen existing plans and policies for Rutherford College, Valdese and the region were reviewed to identify themes related to walkability.

Fueled by the booming economy in the post-World War II era, planners and decision makers implemented zoning ordinances, development regulations, and transportation policies that prioritized the needs of automobiles at the expense of pedestrians and other non-motorized travelers. As we separated our land uses and built bigger roads and parking lots, we lost the connectivity between our homes and our schools and we increased the distance between our office and the grocery store. We made it difficult to navigate from place to place by anything other than a car.

The Town of Valdese was not immune to this type of land development pattern; nor was the Town of Rutherford College whose original land use pattern was shaped by a college campus. In both towns, pedestrian mobility was central to town life.

Each town's development activity shifted away from traditional neighborhood/campus development patterns near the in-town neighborhoods to auto-oriented development patterns along today's busy roads such as US 70 where there was an adequate land supply to accommodate large parking lots and wide roads.

In Valdese, old schools nearer to downtown neighborhoods were closed or repurposed when larger, less accessible schools opened. Fortunately for Rutherford College, the walkable Rutherford College Elementary School still serves the nearby neighborhoods.

However, Rutherford College and Valdese are on a path of change. With recent projects and plans, the Towns are taking steps to reestablish pedestrian connections and improve overall walkability.

When one views Valdese and Rutherford College's plans as a complete body of work, it is clear that the towns want to become places that are well-connected—towns where residents can walk to the grocery store, to schools, to parks, and to local businesses. While stating a desire or adopting a vision is a good starting place, a vision alone cannot create a connected and coordinated pedestrian network.

Communities need good policies and implementation plans to transform their vision to on-the-ground sidewalks, safe intersection crossings, and off-street paths. Exhibit 4-1 shows how policy impacts walkability and these are the elements by which existing plans were summarized.

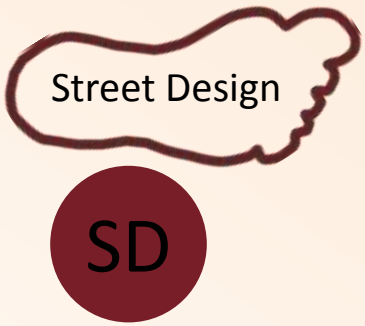
Rutherford College and Valdese need a set of built-environment policies (recreation facilities, neighborhood design, safety, aesthetics, facilities, destinations to walk to, policies that influence land use and transportation systems) that result in features that facilitate walking. This section of WalkRCV evaluates each town's built-environment policies.

The Plans evaluated for this include:

- Rutherford College & Valdese Land Use Plans;
- Valdese Vision;
- Valdese Recreation Plan;
- Valdese Main Street Plans;
- Regional Transportation Plan;
- GHMPO Long Range Transportation Plan;
- Locally Administered Project Program (LAPP);
- Western Piedmont Regional Bike Plan; and
- Zoning ordinances

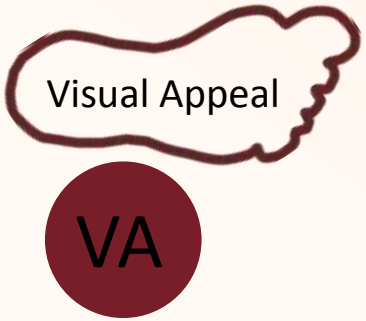
Exhibit 4-1: How Policies Impact Walkability

How Policies Impact Walkability

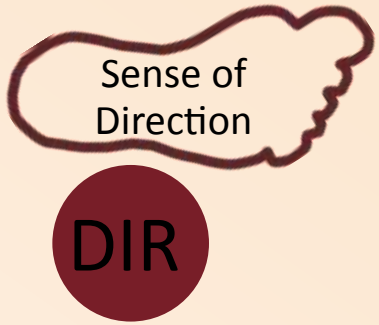


Well-designed streets reduce vehicle speeds but do not inhibit the efficient flow of transit. Crosswalks are appropriately spaced, signed, signaled, and easy to see. Streets accommodate a balance of users, including cars, bikes, and pedestrians. Connected streets are prioritized over cul-de-sacs and dead end streets.

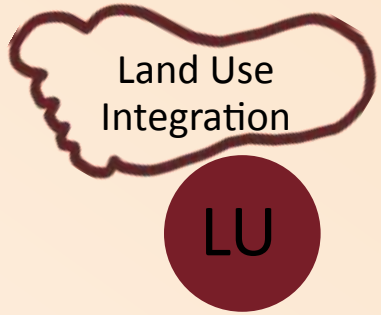
Sidewalks are accessible and passable for those in wheelchairs or with strollers. The width, ideally 5 to 8 feet across with few or no obstructions, allows for comfortable passing Sidewalks are in good repair, are well-lighted, and are continuous. Pedestrians can progress down the street without stepping around trees, benches, bicycle racks or other street furniture.



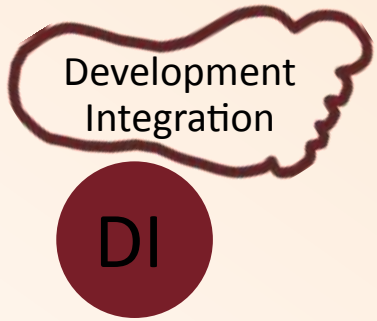
The built environment provides cues to drivers that they are entering a pedestrian area. Streets have a sense of place and they include public spaces. Texture is provided by trees, benches, lighting, and public art. Buildings are oriented to the street with street facing storefronts that are interesting and welcoming. Retail and restaurant establishments cater to the pedestrian. Buildings have design elements that appeal to the pedestrian.



Pedestrians know where they are and how to get to the next destination, with signage, informational materials, and education programs to promote walking trips.



Land use and density patterns throughout the town integrate residential land use with other land uses, such as commercial centers, schools, and parks to decrease the distance between homes and destinations. The area dedicated to car storage is minimized



Sidewalk construction and placement of other features are required during development. The development process prioritizes the needs of pedestrians through dimensional development standards (e.g. building setbacks, building entrance placement, parking lot standards, and building height, scale, and mass).

Greenways and open space result in positive health, economic, environmental, and social outcomes. They are an avenue for recreation and transportation and they increase a town's attractiveness.

Exhibit 4-2: Comprehensive Plans Review: Goals & Objectives

Comprehensive Plan Goals	Influences on Walkability
Encourage low-impact, environmentally friendly businesses, including retail, service industries, and medical and professional offices.	
Explore design related guidelines and minimum standards regulating the aesthetic quality of new and existing development.	
Identify and acquire land in strategic locations to encourage appropriate development including open space preservation, greenways, parks and other passive recreation opportunities.	
Preserve the community's open spaces through density controls and zoning and subdivision regulations	
Require open space as a percentage of total acreage, in the form of shared or community open space or buffers in new subdivisions	
Determine the feasibly of a greenway through town	
Explore feasibility of buried utilities down Malcolm Blvd. & Provide more lighting	

SD **Most Applicable**

SD **Less or Not Applicable in this context**

Before evaluating Rutherford College and Valdese's specific plans, it is important to think about the difference between pedestrian networks where pedestrians feel safe, comfortable, and welcome and a place that feels unsafe, uncomfortable, or even life threatening. While not exhaustive, Exhibits 4-2 and 4-3 highlights the key elements that make the difference.

Comprehensive Land Use Plans

Rutherford College created its first Comprehensive Plan in January of 2009 to provide a framework and policy direction for land use decisions. The plan consists of goals, objectives, policies, and recommendations for growth and development. Rutherford College kicked-off its process to update its comprehensive plan in 2015 and was completed in 2016. Exhibit 4-2 highlights key elements and the influences on walkability contained in these plans.

Valdese Vision

The Valdese Vision (the Vision), adopted in 2014, is the Town's guiding land use plan; serving as the Town's reference and policy document to guide Valdese's physical growth and development. The first portion of the Vision documents existing conditions while the second identifies priorities and provides recommendations. The plan is broad in nature and has few recommendations directly related to pedestrian infrastructure. It does, however, include a number of recommendations that improve pedestrian friendliness. Exhibit 4-3 contains elements of this vision that impact walkability.

Exhibit 4-3: Valdese Vision & Influences on Walkability

Priority Areas	Influences on Walkability
1: Commercial/Downtown Development • 1.2: Ensure that the scale and design of commercial development is consistent with the unique small town character of Valdese, especially in the Central Business District. • 1.3: Ensure that new commercial development is designed with pedestrian oriented features and sidewalks that provide linkages to residential neighborhoods wherever practical. • 1.5: Establish voluntary design guidelines for all commercial, multi-family, and institutional uses.	
3: Local Economic Development • 3.3: Evaluate the Town's existing zoning ordinance to determine where amendments are necessary to encourage and enable more compact, mixed-use development.	
4: Residential Development • 4.4: Amend Subdivision Regulations to require that all new roads be designed and constructed to meet NCDOT standards and be dedicated to the public upon completion. • 4.5: Encourage residential subdivisions that incorporate conservation subdivision design. • 4.7: Encourage the development of mixed use and multi-family housing in appropriate zoning districts.	

Priority Areas	Influences on Walkability
5: Community Appearance • 5.5: Give highest priority for beautification efforts to major thoroughfares and entry-ways. • 5.6: Implement a comprehensive signage and wayfinding program throughout Town. • 5.7: Establish an entryway and commercial corridor overlay zone that includes more stringent appearance and site design standards.	
6: General Services • 6.3: Maintain an updated street inventory that reflects the condition and maintenance needs of all Town streets. • 6.5: Limit the number of street curb cuts in new commercial development to avoid traffic congestion and help improve safety. • 6.6: Participate in the Unifour RPO* to ensure a coordinated and regional approach to transportation planning and to identify funding for future transportation needs. *The Valdese Vision references the Unifor RPO, however the Greater Hickory MPO includes Valdese. • 6.7: Pursue NCDOT funding to develop a comprehensive Bicycle and Pedestrian Plan. • 6.11: Provide incentives for infill development where infrastructure already exists.	
8: Recreation and Cultural Resources • 8.1: Prepare and adopt a recreation master plan for parks, trails, and greenways. • 8.2: Require new development and redevelopment projects to incorporate public spaces and encourage appropriate treatment of the public realm for sidewalks, etc.	

The Valdese Vision mentions Powell Bill funds even though it does not specifically say how the Town should use these dollars. The Vision notes that Powell Bill funds may be used, "for the purposes of maintaining, repairing, constructing, reconstructing or widening of any street or public thoroughfare within the municipal limits or for planning, construction, and maintenance of bikeways, greenways or sidewalks." The Town should consider adopting a policy statement or amending the Vision to indicates strong support for the use of Powell Bill funds for pedestrian projects.

Influences

Valdese Main Street Plans

Main Street revitalization is a long-standing goal for the Town of Valdese. The Town entered the NC-STEP Program in 2006, which paved the way to becoming a Small Towns Main Street Community in 2013 and a full Main Street Community in 2015. Designated Main Street Communities follow the National Main Street Center's Four-Point Approach™ of Organization, Promotion, Design, and Economic Restructuring. While all four points add to a pedestrian friendly environment, The Walk RCV plan focuses on the Design aspects that enhance the pedestrian environment.

The Valdese Main Street Market Analysis (2014) is a report that summarizes the Town's market conditions and provides direction for future downtown redevelopment and revitalization strategies. One component of the Market Analysis is the summary of results from a two-part survey--an intercept survey designed to assess what consumers look for in downtown Valdese and a downtown Valdese downtown business owners survey. The survey asked consumers and business owners to place a "low, high, or moderate priority on possible downtown Valdese enhancements efforts to improve the downtown area's streets, sidewalks, lighting, furnishings, green spaces, trails, etc." Eighty-three percent of respondents ranked this item as a high to moderate priority compared to 73% of the business owners.

Recommendation: Adopt a policy statement supporting use of Powell Bill funds for pedestrian projects.

Because consumers and business owners identified these types of improvements as a priority, the Market Analysis provided three Design Action Steps (DAS) aimed at improving the Town's pedestrian environment.

In addition to the three action steps listed above, DAS-9 addresses vehicular wayfinding signage. It states, "Work with the Town to improve current downtown signage, and consider implementing a wayfinding signage program including, but not limited to directional signage into downtown from I-40 and US 70; Parking signage directing downtown customers to public parking spaces, and to public facilities such as Town Hall, the Museum, Old Rock School, Police, etc." We recommend that the Main Street Committee amend this action step to reflect the need for pedestrian scale wayfinding.

The Downtown Valdese Streetscape Plan is a plan to enhance one block of Main Street, between Rodoret Street and Italy Street, through sidewalk, planting, and street furniture improvements. The impetus for the streetscape came about

after the Town discovered trees along the block were destroying sewer lines. Repairing and replacing sewer lines and planting new sewer-line friendly street trees requires the Town to tear into existing infrastructure. Seeing this as an opportunity to improve the streetscape, the Town's Main Street Coordinator and the Design Sub-committee worked with a consultant to develop renderings to illustrate the block's potential. While plans are still conceptual, the Downtown Valdese Streetscape Plan is a good example of integrating pedestrian projects with infrastructure projects (road, water, sewer, utility, and storm-water).

Influences

SD SWD GW

Regional Transportation Plans

Rutherford College and Valdese are members of the Greater Hickory MPO (GHMPO) that is staffed by the Western Piedmont Council of Governments. The GHMPO oversees the region's transportation planning process and provides locally based transportation planning to give communities the opportunity to make transportation investment decisions that enhance economic and community development goals.

GHMPO Long Range Transportation Plan

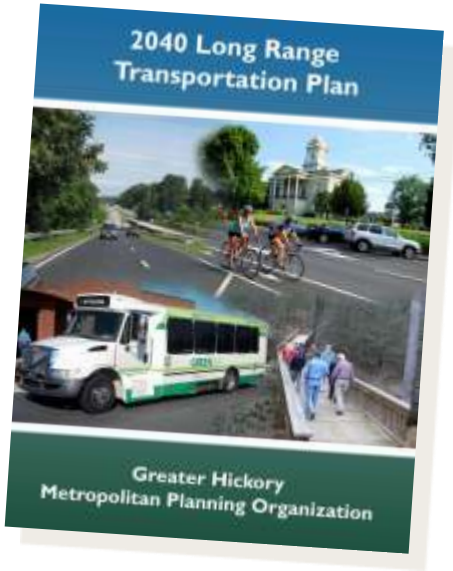
The GHMPO Long Range Transportation Plan includes a Bicycle and Pedestrian Mode Chapter that summarizes the Region's current conditions and the benefits of bicycling and walking, and it documents existing facilities. While not specific to Rutherford College or Valdese, the LRTP acknowledges that many of the region's municipal pedestrian networks do not have adequate connectivity for a safe walking environment, noting that some towns lack sidewalks and designated crosswalks, have broken and uneven pavement, and have inadequate signage. The LRTP also notes that existing greenways are generally short segments located in municipalities or recreational areas and primarily used for exercise and recreation. It also mentions the presence of routes that represent safe, user-friendly design, including those that separate the walker from the roadway using curbing and planting strips, and increased lighting for safety. During visits to Rutherford Collge and Valdese, the consultant team documented conditions that reflect both the strengths and challenges of the region's pedestrian network.

Recommendation: Main Street Committee amend action steps to reflect need for pedestrian wayfinding

The plan also includes very broad recommendations pertaining to engineering, education, enforcement, and encouragement. Many of Walk RCV's recommendations reflect the intent of the LRTP's recommendations, including how projects were prioritized.

The LRTP also provides an existing and recommended facilities map. The map includes the proposed McGalliard greenway and segments of sidewalk that would link Valdese to Rutherford College via Lovelady Road.

The LRTP's Financial Plan states, "Based on the history of the financing of bicycle and pedestrian projects, and the analysis of existing financial resources available to the NCDOT and the Greater Hickory Urban Area, the following very conservative and general assumptions were



The Greater Hickory MPO produces a Long Range Transportation Plan and can be a conduit to help Rutherford College and Valdese seek funding for sidewalks and greenway projects.

made to guide the development of revenue projections through the year 2040: Funding for bicycle paths, greenways, sidewalks and other pedestrian facilities will continue to increase at an average of five percent (5%) annually by a variety of Federal, State and local sources." The available dollars form bicycle and pedestrian projects will help the GHMPO achieve its Bicycle and Pedestrian transportation goal and policies, which state:

Goal: Create a safe effective bikeway, sidewalk, and greenway network that is integrated with the transportation system, links together resources and destinations, provides an alternative to automobile travel, increases recreational opportunities, advances healthy lifestyles and enhances the quality of life in the Greater Hickory Area.

Policies:

- Provide a pedestrian and bicycle system that allows greater access to and links between public transit, schools, parks and other major activity centers.
- Develop a system that integrates pedestrian and bicycle modes of travel with motor vehicle transportation, and connects inter-regionally with existing bike and pedestrian
- Increase pedestrian and bicycling activity for both transportation and recreation to promote healthy, active living and improve public health.
- Promote, through public education, the economic, environmental, and health benefits of walking and biking as practical modes of transportation.
- Partner with local, county, and state agencies to encourage bicycling and pedestrian activities across different populations.
- Recommend that new or widened roadways are designed to include the land on each side of the road with sufficient width to accommodate bicycle and pedestrian facilities safely.
- Encourage the delineation of safe pedestrian ways and bicycle routes, emphasizing separation from vehicular areas when possible.
- Recommend the installation of signage when bicycle routes and pedestrian facilities are integrated with roadways.

Locally Administered Projects Program

The GHMPO adopted LAPP to prioritize and program regional projects that make use of the federal funding under the purview of the GHMPO. The process will involve a once-a-year call for all local highway, transit, bicycle and pedestrian projects, and results in an annual program of projects added to the GHMPO's Metropolitan Transportation Improvement Program (MTIP). Neither Rutherford College or Valdese have current projects funded through LAPP.

Western Piedmont Regional Bike Plan

The Western Piedmont Regional Bike Plan addresses on-road bicyclist facilities and therefore does not have recommendations pertaining to Rutherford College or Valdese's pedestrian environment. The one mention of trails is listed as an objective under the goal, "Encouraging Bicycle Use for Different Purposes, Ages and Skill Levels." The objective is to promote

bike trails by listing them to the "Rails to Trails" website and publicizing trail-related events.

Valdese Recreation Plan

The Valdese Recreation Plan (2013) is an assessment of current recreation conditions, future needs and an action plan to address those needs. Throughout the planning process, the Town of Valdese and the Parks and Recreation Commission surveyed community members about future recreation needs; a walking trail/greenway at McGalliard falls park consistently ranked high as a need or preference. For example, the survey summary notes, "The three most popular facilities that citizens would support renovating or developing were a walking trail/greenway at McGalliard Falls Park, expanding the Valdese Recreation Center Building for Fitness Studio/Racquetball, and replacing the pool bubble or building a permanent structure." Likewise, the focus group summary states, "Participants wanted to see a greenway trail at McGalliard Falls Park. Several participants said it would be nice to have a trail so people would not have to drive to the Morganton Greenway." An additional item to note also came from a focus group. Participants shared the need for a sidewalk from Laurel Street to Lovelady Road needs to be added to the sidewalk plan. When completed, this would give citizens a safe route from the wastewater treatment plant on the lake to downtown."

Zoning Ordinances of Rutherford College & Valdese

There are many similarities between the Rutherford College Zoning Ordinance and the Valdese Zoning Ordinance. They have a similar structure, districts, and requirements. Both have few standards and specifications related to the pedestrian environment. The most significant standards are those that require developers to install sidewalks or pedestrian facilities in the Planned Unit Development sections of each ordinance. Additionally, the ordinance requires public roads built in Rutherford College and Valdese must be built to NCDOT's specifications and should therefore incorporate NCDOT's compete streets design standards.

Exhibit 4-4 on the following page notes the primary items from the Ordinances that shape the town's pedestrian environment and provides some recommendations for improvement.

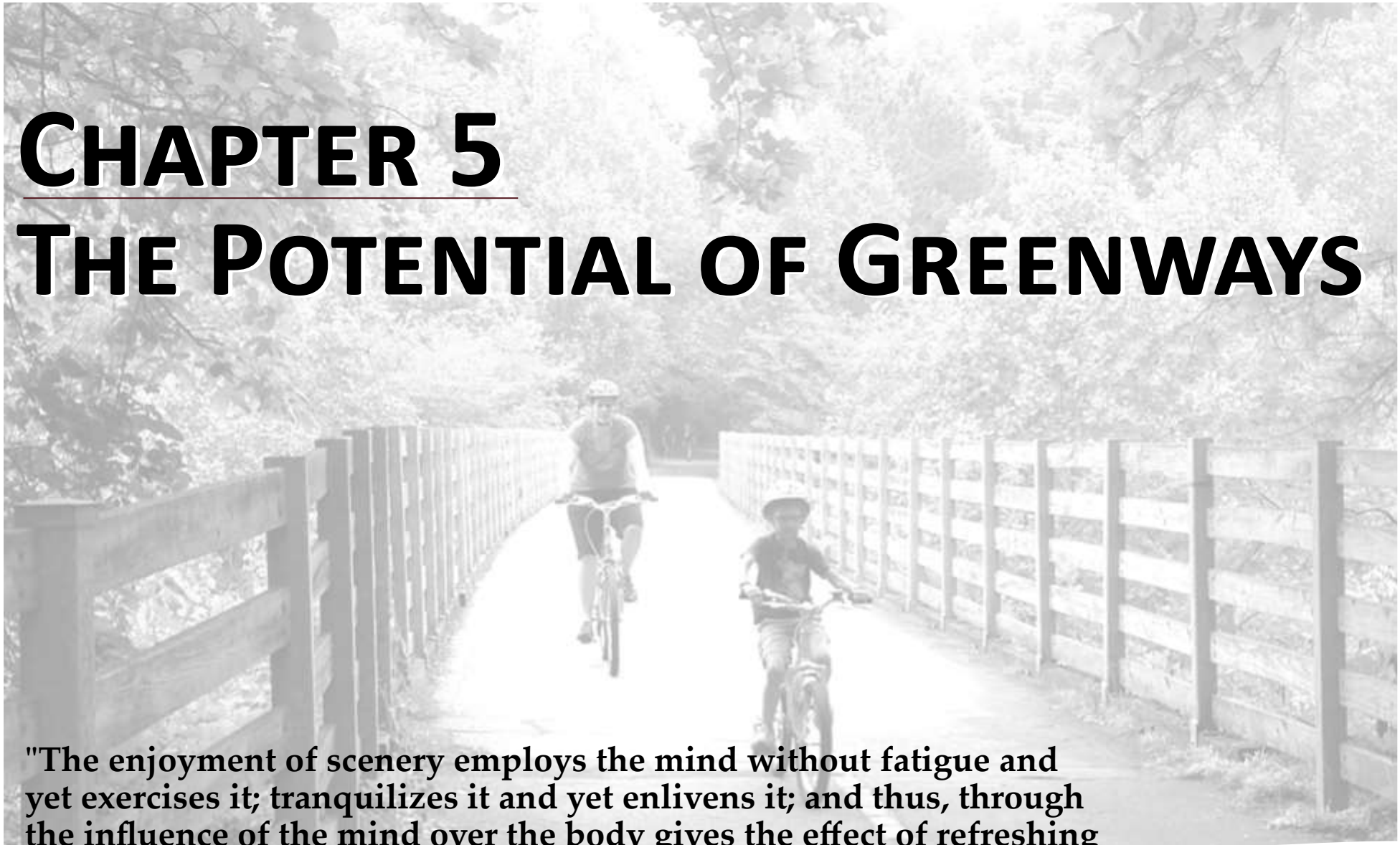
As traditional downtowns and neighborhood development patterns shifted from pedestrian- to auto-orientation, towns required buildings to be farther from the right-of-way. Traditional patterns foster interaction between pedestrians and the built-environment; with narrow setbacks, it is easy for the pedestrian to get from the sidewalk to store frontages and front porches.

Wider setback distances require pedestrians to walk longer distances, often through auto-oriented parking lots with little to no pedestrian facilities. A zoning district's setback should match the intent of the district. The districts intended to encourage walkability and connection should have a narrow setback of 25 feet or less. It should be tailored to the zoning district's purpose and the setback matched to the traditional development patterns that represent more walkable features. Exhibit 4-4 chart lists each town's zoning district, setback, and intent.

Exhibit 4-4: Zoning & Subdivision Ordinance Assessment

	Section of Ordinance	Assessment
Valdese	9-3044 Property Maintenance	Provides for clear and well-maintained sidewalks.
	9-3071 Parking Spaces to be Required and Permanent, (e)	Provides for a clear pedestrian pathway, unimpeded by parked vehicles.
	9-3095 Sign Types	Pedestrian oriented signs are visual attractive and add texture to the street.
	9-3111 Planned Unit Development – Residential (PUD-R)	While PUD-Rs call for "adequate pedestrian facilities", the requirements and standards are vague. Could be strengthened to reference a specific standard or need.
	9-3112 Planned Unit Development – Business (PUD-B)	Consider adding minimum amount standards.
	9-3076(a) Parking Lot Design Requirements	Does not provide standards on how to achieve or measure "safe and comfortable passage." Consider stipulating what this means or providing an illustration for pedestrian movement.
	9-2033.01 Information to be Contained or Depicted on the Preliminary and Final Plats	Neither the zoning ordinance nor the subdivision ordinance indicate the amount of open space required.
	9-2051.01 Public Streets	Street connectivity promotes pedestrian friendliness.
	9-2052.13 Easements	It is not clear when the planning board should (or can) require pedestrian paths.
	9-2052.13 Pedestrian Walkways	Section A states pedestrian facilities are "encouraged" but not required, consider requirement standards and state minimum dimension in the ordinance. Section B should more clearly stipulated when sidewalks are required, with all new and redevelopment (except construction on single family lots not part of larger development) requiring them.
	9-2053 Cluster Development and Planned Unit Development	Consider adding "New facilities shall connect to existing facilities if there are any present." to the purpose statement.
Rutherford College	67.8 Development Standards	Lighting promotes pedestrian friendliness
	Section 130.5 Off-Street Loading and Unloading Spaces.	Consider an illustration or additional text to strengthen "ensure the safety of pedestrians"
	Section 130.9 Landscaping Requirements.	Consider "pedestrian ways are required…." in section A instead of stating they are permitted. Consider changing "may" to "should" and develop standards to section B about sidewalk placement.
	Section 130.10 General Parking Requirements	Consider adding, "to NC DOT standards, including NC DOT's Compete Streets Policy to encourage…" to section L about vehicular access points.

Chapter 5
The Potential of Greenways



"The enjoyment of scenery employs the mind without fatigue and yet exercises it; tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body gives the effect of refreshing rest and reinvigoration to the whole system."

- Frederick Law Olmsted

The Potential of Greenways

Greenways are becoming a popular transportation and recreation feature in communities across North Carolina. Greenways close to Rutherford College and Valdese include the popular Catawba River Trail in Morganton, the Lenoir Greenway, the Hickory Greenway, and the Lake James Loop. The Rutherford College-Valdese Pedestrian Plan proposes six miles of greenways. The sidewalk system would ultimately connect to these greenway corridors providing a comprehensive pedestrian network throughout the two towns.

This will allow any Rutherford College or Valdese resident the ability to travel throughout to key destinations. Visitors will be attracted to the area and the system will be a key recruiting and retention tool to businesses and residents.

What is a greenway?

A greenway is defined as a linear corridor commonly built along a natural corridor such as a river or stream or along manmade corridors such as in utility easements, abandoned railroad beds, or adjacent to roads. Greenways connect people and places together such as neighborhoods, workplaces, schools, parks, natural areas, shopping areas, and cultural attractions. Greenway trails can be paved or unpaved, and designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, and wheelchair users.

Benefits of greenways

There are numerous benefits to greenways including positive health, economic, environmental social outcomes. Greenways encourage residents to go outside and enjoy nature, while providing a safe space to travel and recreate.

Promoting Healthy Living

By building greenways, communities make it easier for people to incorporate active living into their everyday life. A 2004 study concluded that for every dollar spent on trails nearly $3 of public health benefits is produced. Obesity has reached epidemic levels, especially among children. Greenways can provide safe places for kids to play, which is vital for physical health as well as brain development in children and can help with Attention Deficit Hyperactivity Disorder. In addition to physical health, numerous studies point to how contact with the natural world improves psychological health, and relieve feelings of anxiety and depression. Trails offer a safe place to engage with the community, increasing social cohesion. Greenways also provide safe routes for pedestrians and cyclists, reducing the number of collisions with vehicles. By making it easier for people to drive less, air quality will improve due to lower carbon dioxide levels resulting in fewer respiratory illnesses.

A 2004 study concluded that for every dollar spent on trails nearly $3 of public health benefits is produced.

Economic Impacts

Greenways attract new business, increases tourism, enhances property values, and helps promote a strong local economy. Many studies show increased property value and faster home sales near greenways. For example, homes near the Carolina Thread Trail were estimated to increase approximately 4% in value due to the trail. The Swamp Rabbit Trail in Greenville, SC, is an excellent example of the positive influence greenways can have on a community's and region's economy. A study of Greenville County's Swamp Rabbit Trail

shows that the trail has generated $6.7 million for area businesses in 2013. The Town of Travelers Rest attracted more than 500,000 walkers, joggers and bicyclists in 2013. The number of businesses in their three-block business district increased from four to 60 after the trail was constructed.

Environmental Protection

Greenways are beneficial to the environment by protecting linear natural buffers that connect fragmented habitats and improve water quality from agricultural and urban runoff. Greenways preserve floodplains in their natural state and providing opportunities for natural stormwater storage. Air quality is improved by providing enjoyable and safe alternatives to the automobile, which reduces the reliance on fossil fuel. In addition, education opportunities along greenways help citizens develop an awareness of the natural environment and a desire to protect it.

Community Identity

Stronger communities are created by offering recreation, exercise, and non-motorized transportation opportunities for all citizens. Greenways provide a safe place for people to enjoy nature and experience a sense of community and create stronger social and familial ties. Greenways can reinforce the identity of a community by incorporating public art and highlighting local history into the design.

Greenway Design

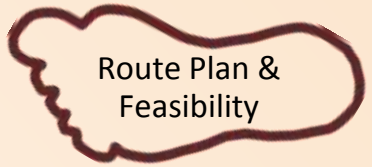
How we design greenways and trails impacts the experience and, ultimately, the safety of the diverse set of citizens who use greenways and trails for a variety of recreational, health and transportation purposes. Greenways should not be planned or built unless consideration is given to how they are designed, funded, operated, and maintained.

Exhibit 5-1: Planning for Greenways

Step-by-Step Planning for Greenways

Walk RCV contains a high-level evaluation of the corridor, design features, major constraints and termini. Corridors are not strictly linear as they may have various spurs, connections, or alternative routes emanating from the mainline greenway.

Corridor-specific studies include in-depth field work to define route constraints, cost estimates and guidance for design drawings in future analysis. Some designs may be generated through this analysis to help guide estimates or assist in preserving land.



Detailed surveying, location-specific analysis and evaluation of design options are conducted, resulting in design drawings to guide acquisition of property and construction. Alternatives may be conducted for locations where constraints require a deviation from previous findings. Amenities are identified at this step.

Some acquisition may occur prior to detailed analysis. Other land necessary for greenways will be obtained once design drawings and specific routes are established. Acquisition that occurs pre-design will likely dictate where the corridor can be routed and where it impacts adjacent properties.

Building the greenway occurs once design and acquisition are complete. Constraints and availability of land may determine if intermediate or temporary route options are part of initial route construction.

Maintenance of the greenway begins at ribbon-cutting for the new greenway and cannot be over-looked as a critical component in supporting the efforts that preceded construction to make the trail a reality.

The Virginia Creeper Trail is a natural surface trail that has a surface firm and stable enough to accommodate users of all ages and abilities, including those with disabilities.

Exhibit 5-2 contains some common features. Other guiding principles for greenways include:

- Think long-term and have a vision for a connected, paved system for transportation and recreation
- Use on-road and sidewalk connections until a complete system is built
- Try to avoid the use of eminent domain
- Be creative with the routing, don't get stuck on one route if barriers exist
- Always be building and have an active project each year until finished
- Consider using natural surface trails as an interim until more money is raised or in sensitive areas such as along a lake or a creek
- Incorporate Best Management Practices for storm-water management and sedimentation
- Maintain the system by building maintenance funding into the town budget and cultivating volunteers and adopt-a-greenway efforts

In addition to serving as a transportation function, greenways should include aesthetic and recreational amenities. Consider integrating cultural and historic themes in creative ways to reinforce a sense of place along the greenway.

Greenway Surfaces

One major design decision is the selection of the surface material. There are two general categories: hard and soft surfaces. While hard surfaces such as asphalt and concrete are more accessible and accommodating for wheeled vehicles and require less maintenance, the initial cost for installation can be high. Soft surfaces such as crushed stone, mulch, or natural earth are less expensive but are not as accessible, can require more maintenance, and can be impacted by adverse weather and drainage conditions. The cost of surfacing a trail with asphalt or concrete may be prohibitive in the beginning stages of trail building. However, you may be able to upgrade from a softer surface like dirt or crushed stone to a harder surface like asphalt or concrete once you have secured funding. When selecting a surface, the main factors to consider include cost to purchase and install materials, accessibility, cost of maintaining the surface, life expectancy and ease of use.

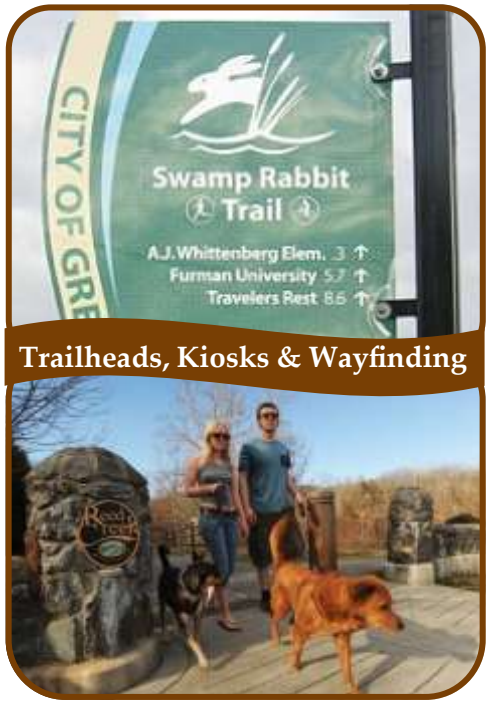
Maintenance

A greenway system is only as good as the condition of its surfaces and adjacent amenities. Our climate requires special consideration for design and maintenance practices to ensure four seasons of use per year as greenways are not only recreational facilities, but provide key transportation connections. The primary objectives of maintaining and operating a greenway system should be to:

- **Preserve Existing Investment:** Greenways are one of many visible public investments that should be viewed as an asset to the community. The outlay of resources for the initial construction of trails, pathways, amenities, access points, parking lots, signage and lighting also requires consideration of how investments are preserved and maintenance is funded.
- **Protect Habitat & Environment:** Greenways and trails are desired in areas that promote or enhance natural environments, even in their most urban settings. The degradation of a greenway or walking trail can adversely impact the quality of the surrounding habitat and envi-

Exhibit 5-2: Common Greenway Design Features

Beyond the Trail: What are some common greenway design elements & other features?



Trailheads, Kiosks & Wayfinding

Community Gardens

Benches & Picnic Facilities

Plantings with Native Species

Unique Paving Materials & Art

Decorative Features & Lighting

Water Access Points

Bicycle Parking & Fix-It Stations

Images by Mary Weber and Don Kostelec

ronment that it was meant to protect.

- **Keep it Safe:** Maintenance involves the trail infrastructure and the environment around it, both of which can greatly impact the safety and the perception of safety for users. Rapid growth of foliage can overtake trails, block safety-related signage, and create an "enclosed" feeling where users may not feel safe. The environment also impacts the trail surface as root heaves create tripping hazards for users while encroachment of trailside grasses and shrubs can degrade the edge of pavement or shorten the effective width of the trail and create user conflicts. Stormwater runoff can compromise the integrity of the trail base and natural surface trails can be washed away during major storms, both creating unexpected conditions for users.

Encouragement programs, such as bicycle rodeos, help teach children and adults about greenway etiquette and other safe riding skills.

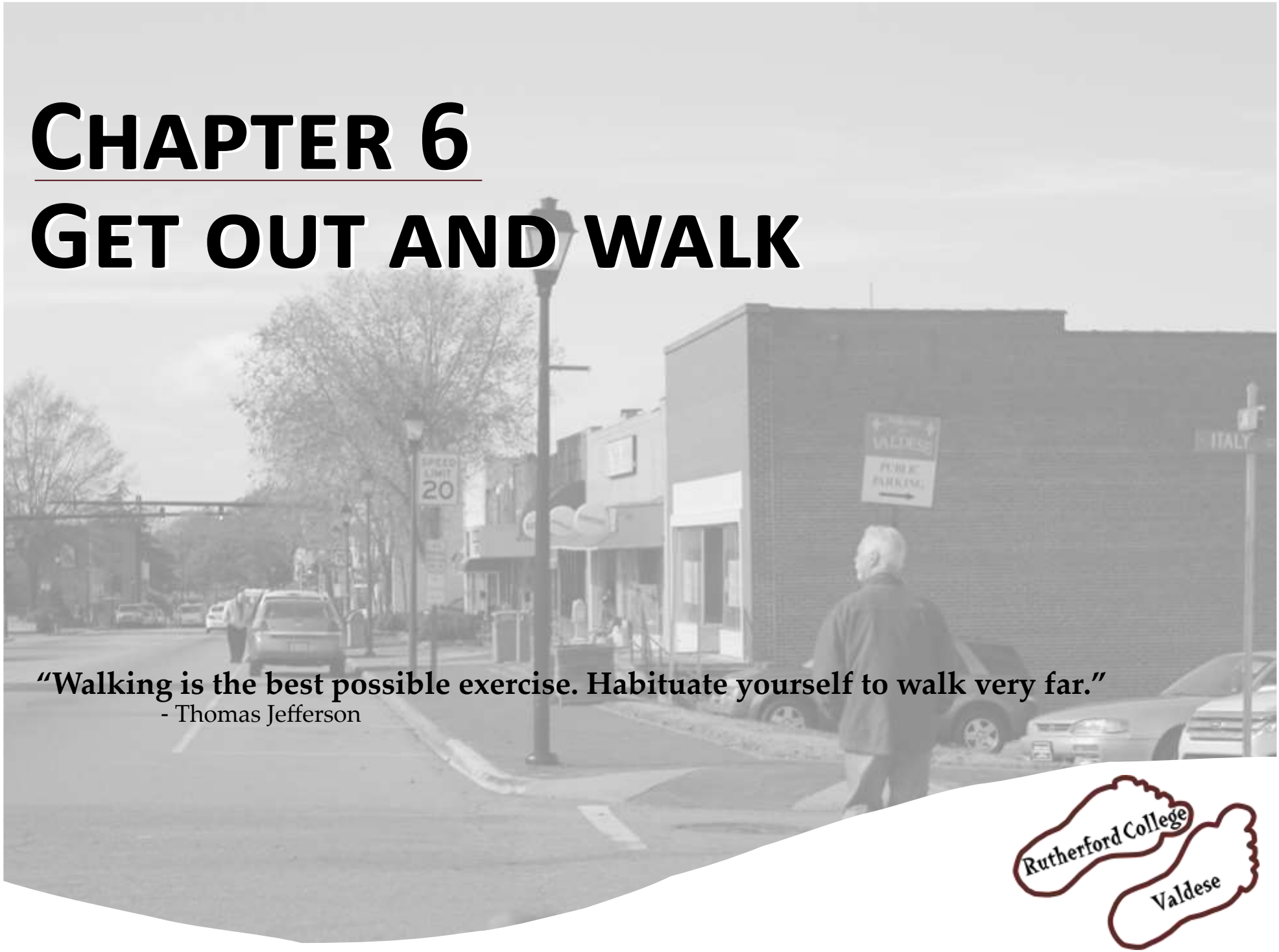
Some maintenance needs include mowing, trimming foliage on and around greenways, sweeping sediment from the trail, removing fallen limbs, and fixing cracks before they become safety hazards. Delaying action on any or all of them seriously compromises the integrity of the trail and sets forth a cycle of degradation that can quickly result in the need to completely repave or rebuild a trail. Some of these maintenance needs can be planned for while others require methods of reporting maintenance needs, response policies and clearly defined roles for maintenance participants.

Safety Considerations

People who are unfamiliar with greenways often fear that they will attract crime and lower adjacent property values. Numerous studies in the past couple of decades have refuted this, in fact, greenways are generally safer than the surrounding communities. Careful attention to the site planning and design of particular areas such as parking lots, trailheads, and restrooms is critical in planning for safety. There is a balance between retaining or creating a natural setting that is safe while also preserving the naturalness of an area. Design strategies include allowing clear visual access, having appropriate lighting in key areas, providing multiple access and egress points, and organizing activities to increase the number of users and "eyes on the path". Encouraging ownership of the greenway by involving the public in the planning process and educating them on the benefits of greenways, as well as presenting data illustrating the lack of crime and other problems is essential in gaining public support. Other safety-related initiatives can include:

- **Programming activities** for users of all ages and interests encourages increased greenway use and is especially effective when planned for times that may not get much use. The more people there are on a trail, the safer it will be.
- **Consistent maintenance** will help keep the greenway safer by eliminating potential hiding places through the use of regular landscape clearing and pruning.
- **Encouraging children to walk and bicycle** is part of the Safe Routes to Schools (SRTS) program, a school-based effort that involves young students, teachers, law enforcement officers and parents in the development of school safety and encouragement initiatives.
- **Offering instruction** on how to safely use the greenway is important for people to learn proper riding techniques, greenway etiquette, safety awareness, and how to avoid collisions.

Chapter 6
Get out and walk



"Walking is the best possible exercise. Habituate yourself to walk very far."
- Thomas Jefferson

Rutherford College
Valdese

Get Out and Walk

Pedestrian education efforts have two primary areas of focus: safety and rules of the road, and education about where, how, and why to walk. The latter is also encouragement. Safety education typically involves cooperation between planning and transportation staff, law enforcement, health departments, and schools, as well as non-profit community organizations.

The Watch for Me NC program is a source of outreach materials and potential funding for such campaigns, and nationally, the National Highway Traffic Safety Administration (NHTSA) funds many similar programs. All materials created with NHTSA funding are available in the public domain for use and adaptation by other agencies, although Watch for Me NC materials will contain specific information on North Carolina laws. (watchformenc.org)

Outreach can range from simply passing out printed materials created by other NHTSA campaigns, to a targeted media blitz combined with in-person outreach at community events or high traffic intersections and coordinated with enforcement actions. It is often said that the most effective education for drivers is "enforcement, enforcement, and education about the enforcement."

Children and schools play a key role in creating a safe, pedestrian-friendly culture. Safe Routes to School and related programs can not only make children more aware while walking to and from school, but also help them to become better future drivers and to positively influence their parents' driving by reminding them to slow down, avoid distractions, and watch for pedestrians and bicyclists.

Exhibit 6-1: Pedestrian Laws in North Carolina

Pedestrian Laws in North Carolina

⇒ When sidewalk is available, pedestrian must walk on the sidewalk.

⇒ Motorists shall yield right-of-way to pedestrians within any *marked or unmarked crosswalk* in residential and business areas except where there is a traffic or pedestrian signal regulating traffic movements.
(NC General Statutes, Chapter 20, Section 173a)

⇒ Pedestrians also have right of way when approaching an alley, building entrance, private road, or driveway from any sidewalk or walkway.
(NC General Statutes, Chapter 20, Section 173c)

⇒ At intersections, motorists must yield the right-of-way to pedestrians when making a right-on-red movement.

⇒ Where sidewalks are not provided, *any pedestrian walking along and upon a highway shall, when practicable, walk only on the extreme left of the roadway or its shoulder facing traffic which may approach from the opposite direction*. Such pedestrian shall yield the right-of-way to approaching traffic.
(NC General Statutes, Chapter 20, Section 174d)

Existing Activities and Programs

The following list shows some of the programs currently happening in Valdese and Rutherford College which could be adapted to greenway use. Examples include but are not limited to:

- The Sprint Triathlon began in 2004 and has grown in popularity. Between 100 and 200 athletes compete in this annual event. The running or part of the bicycling portion could be held on the future greenway
- Each year during the Waldensian Festival, a series of races is held—a 5K, 10K, and a one-mile fun run for children.
- Silver Sneakers is an active community to help individuals lose weight. Participants could use the greenway for walks and other activities.

- Rutherford College holds a "Take a Walk" Tuesday where the Town encourages the Community to walk toward a healthier future. This holds potential to make Tuesdays a community-wide walking day.

Context Sensitivity

In safety education campaigns, it is important to recognize that the majority of existing outreach materials were created in and for major metropolitan areas where pedestrian crashes make up the highest percentage of traffic fatalities and pedestrian traffic is relatively high. Some of their messages, like "always use crosswalks" may not be applicable or practical in less dense areas where roads do not have frequent intersections. The focus of a safety campaign should be on locally observed problems and responsive to local conditions, so messages such as walking facing traffic or watching for pedestrians on the shoulder while driving on roads without sidewalks are more relevant in areas with fewer sidewalks and more rural roads.

Reaching a Broad Audience

Messages in an education campaign should be clear and have a broad appeal, but also target those groups most likely to be at risk or to pose a risk to others. Since men and boys constitute a substantial majority of pedestrians hit by cars and also a majority of motorists who kill pedestrians, safety-related advertising may be targeted towards sporting events or other programming with an audience that skews male. Women and girls are more likely to be discouraged from active transportation due to safety concerns (especially parents) or harassment.

Media outlets and events that reach minority and low-income communities should be particularly targeted for pedestrian-focused messages, whereas messages aimed at making drivers more aware and respectful of pedestrians may be relevant in suburban or higher-income areas.

Materials should be provided in any foreign languages spoken within the community, particularly Spanish, and cultural differences should be considered. For example, recent immigrants from Latin America may work long hours, traveling to and from work on farms or construction sites when it is dark outside, and may walk or bike longer distances than the typical US-born resident will tolerate.

Watch for Me NC materials are available in English and Spanish to help communities reach a broader audience and be sensitive to local populations.

They may also walk with traffic, bicycle against traffic, be accustomed to drivers being more aware of their presence because they came from a place with higher walking levels, and be completely unaware of state and local "jaywalking" laws, as in many countries around the world, pedestrians are permitted to cross the street wherever they need to.

Watch for Me NC

Watch for Me NC is a program, developed by NCDOT and deployed in partnership with local communities, aimed at reducing the number of pedestrians and bicyclists hit and injured in crashes with vehicles. According to NCDOT, Watch for Me NC involves two key elements:

- Safety and educational messages directed toward drivers, pedestrians and bicyclists, and

- Enforcement efforts by area police to crack down on some of the violations of traffic safety laws.

Local programs are typically led by municipal, county, or regional government staff with the involvement of many others, including pedestrian and bicycle advocates, city planners, law enforcement agencies, engineers, public health professionals, elected officials, and others. NCDOT piloted the program in Wake, Durham, and Orange counties (Triangle Area) in 2012. In 2014 and 2015, communities were asked to apply for Watch for Me NC funding to become partner communities, including nearby Marion. Any community is allowed to use the materials developed for the program, which are available at ***www.watchformenc.org***.

The Let's Go NC! curriculum teaches children safe walking and bicycling tips. Rutherford College Elementary School is interested in integrating Let's Go NC into its existing curriculum.

Let's Go NC!

The Let's Go NC program is an educational curriculum intended for school-age children to teach them how to walk and bike safely. The program is intended to give children essential skills they need to enjoy a healthy and active lifestyle.

Let's Go NC! A Pedestrian and Bicycle Safety Skills Program for Healthy, Active Children provides teachers, parents and PTAs an all-in-one package of lesson plans, materials, activities and instructional videos that encourages children to learn about and practice fundamental skills that build safe habits. The information is free with materials and videos available online. The program materials can be accessed here: ***www.ncdot.gov/bikeped/safetyeducation/letsgonc/***

Active Routes to Schools

The North Carolina Department of Health and Human Services, in coordination with NCDOT to utilize Safe Routes to School funding, has deployed Active Routes to School (ARTS) coordinators to health districts statewide to work directly with schools and communities on education and encouragement campaigns. Schools in nearby Morganton and Marion are engaged in the program, which conducts school surveys, organizes events such as Walk/Bike-to-School Days and bicycle rodeos, and teaches a variety of stakeholders about Safe and Active Routes to Schools. The ARTS program was founded in 2014 and is funded through 2020. The area coordination will be working with Valdese and Rutherford College schools on the program.

Encouragement

Pedestrian outreach always needs to balance safety messages with reminders that walking is a healthy, beneficial activity. People should not be scared away from walking because the built environment isn't ideal or because crashes occur. It is helpful to provide signage to comfortable walking routes including greenways, main street shopping districts, and low-traffic neighborhood streets with optimal sidewalks is an important part of building pedestrian traffic in a community so that broad support can be built for improving the less walkable areas.

Encouragement should be available in multiple ways – through public signage, brochures, and web sites, and promoted through community newsletters and other similar forums. Particularly useful is information on physical and men-

tal health benefits of walking and the economic impact of walkability and foot traffic on local businesses. Environmental messages about reducing short car trips are a powerful motivating factor for some, but seen as a threat by others. Some individuals may need reassurance about the safety of walking, particularly senior citizens, parents of young children, residents of higher crime neighborhoods, people with disabilities, and women.

Attention should be paid to making sure messages are inclusive and do not reach only the groups of people who are most likely to walk anyway ("preaching to the choir"). While a health fair is a good place to start spreading a pro-walking message, efforts are also needed to reach people who may not be as aware or concerned about fitness. Messages and activities should be positive, fun, and accessible – focusing on the benefits of even a small amount of walking and the possibility of incremental change. Outreach to the business community and civic organizations can also build synergy toward raising the profile of walking in the community as multiple influencers relay related messages about the many benefits of walking to the community and take small steps to improve the pedestrian environment.

Giveaways

Education and encouragement programs frequently feature prizes such as t-shirts, bags, reflective items like zipper pulls, pins and badges, or small blinking lights. Low-cost pedometers can also be particularly useful for encouragement programs. Healthcare organizations are often sponsors of these items, and local businesses that benefit from foot traffic may also be interested in promotional opportunities. Local artists or students can be involved in developing creative materials to add interest to the campaign.

Reflective items can be particularly useful since people frequently need to walk home after dark from a destination where they can't wear reflective clothing, such as a job with a dark uniform, and for many people who need to walk in dark locations the most due to economic circumstances, buying reflective clothing could be a hardship. Small lights or reflective giveaway items can be kept in a purse or work bag and provide both a means of visibility and a reminder of the campaign's message. Each piece of education, enforcement, and encouragement campaigns should work together to make walking easier and safer and to support the engineering improvements being made as part of the pedestrian master plan.

Greenways and trails are ideal for events such as 5k/10k races and community events that integrate the area's history and culture into the greenway and its design features.

Programming for Greenways

When programming for greenways, it is important to be inclusive and provide specific age-related activities and activities for multiple generations as well as for other user groups, such as people with health issues. Greenway programs can be integrated with nearby facilities such as parks, schools, health care services, retirement homes, and other nodes by incorporating amenities and informational signage. The two towns could assist organizations who wish to sponsor events by providing information, calendar listings, and technical assistance.

Communication is critical for the success of the greenways and programs. A website could be created to show trails, activities, and safety information and linked to Parks Department websites. Brochures and maps for the greenways showing walking, bicycling, and other oppor-

tunities could be available at trailheads, as well as local libraries, community centers, schools, retirement centers, and other gathering places.

Trailhead brochure holder in Colchester, VT.

Recreation, Health & Wellness

In addition to holding some of the existing community events on the greenways as described earlier, there are other ways to encourage the use of greenways for recreation and health:

- Host events such as Rutherford College's Veterans' Event and Senior Citizens' Event on greenways;
- Host or support other organization efforts to promote walks, running, bicycle, canoe and kayak trips, fishing, yoga, and other activities;
- Partner with Carolinas HealthCare System Blue Ridge - Valdese - Rutherford College to hold public health programs and promotions, such as and Bike-to-Work and Walk-to-Work Days.
- Encourage support groups such as cancer, diabetes, rehabilitation groups, and others to do activities on the greenway;
- Host events for charity or awareness such as March of Dimes Walk, Crop Walk, and National Trails Day;
- Provide residents access to equipment such as bikes, in-line skates, canoes, and kayaks through rentals, bike share programs, or donations of new or recycled equipment.
- Support bicycling by providing bicycle storage and bicycle maintenance clinics;
- Organize dog-related activities and create dog parks near the greenways.

Other Resources

- **Pedestrian & Bicycle Information Center Education**
  http://www.pedbikeinfo.org/programs/education.cfm
- **WalkBikeNC Program Resources**
  http://www.walkbikenc.com/plan-resources/#program
- **North Carolina Bicyclist/Pedestrian Laws Guidebook**
  http://www.ncdot.gov/bikeped/lawspolicies/laws/

Environmental Education & Stewardship

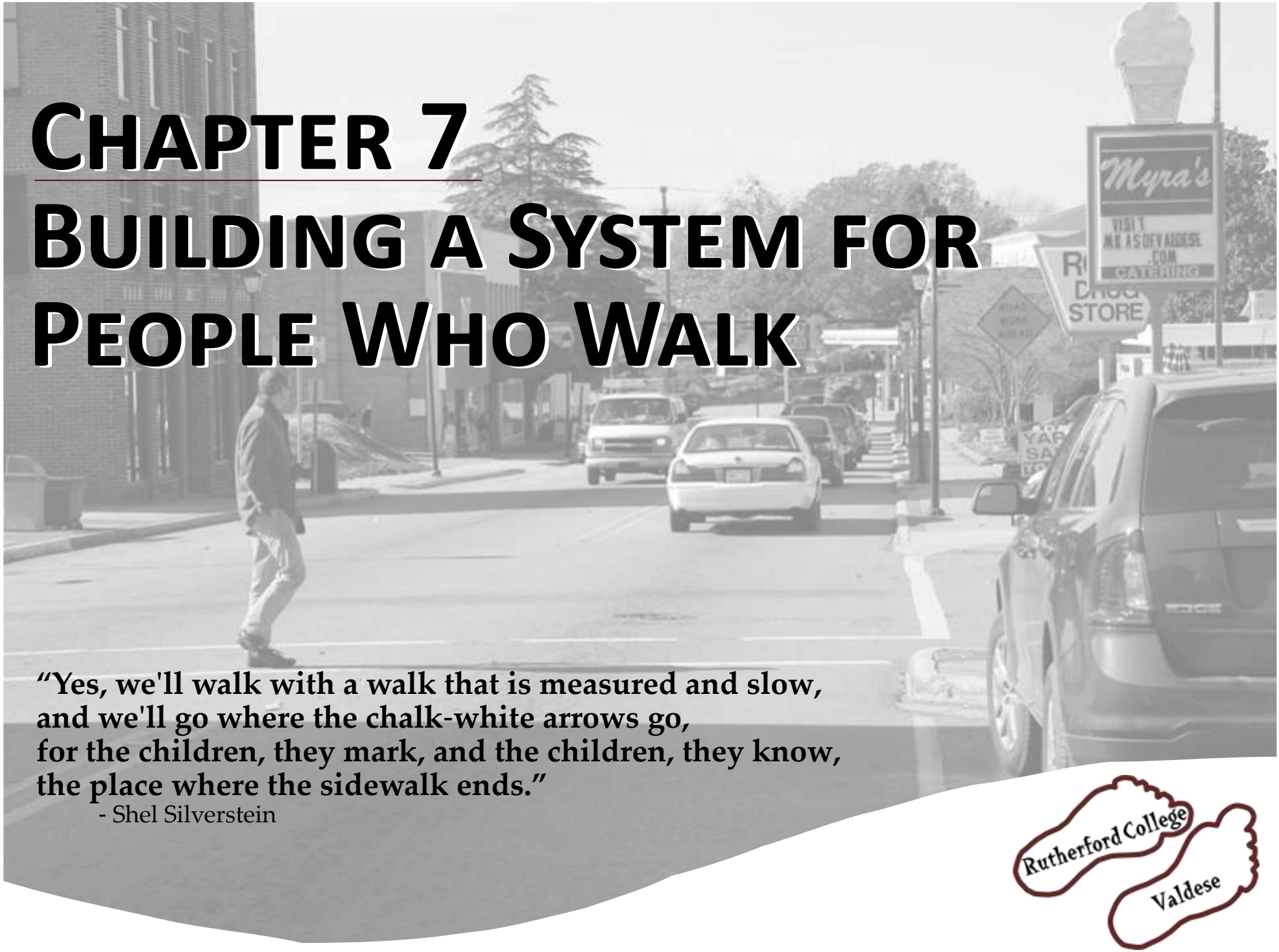
Greenways provide an easy way to connect people with the natural environment. The proximity of the proposed greenways to Lake Rhodhiss, streams, and natural wooded areas provide numerous opportunities for environmental education. The Catawba Riverkeeper Foundation may assist in these activities.

Providing outdoor classrooms with educational programs about the flora, fauna, geology, and hydrology is one popular program in many communities. The towns could develop partnerships with schools, such as Draughn High School, particularly with environmental studies classes and programs, to assist with water quality sampling, stream monitoring, and other activities. Hosting Earth Day and other environmental events on the greenways is also a common activity.

Cultural Resources

Incorporating cultural features along the greenways can provide opportunities for citizens to learn about their community heritage and strengthen community bonds. Local history and community identity can be conveyed through art and stories conveyed through sculpture, signage, murals, site furniture, paving patterns, and other design elements can be integrated with programs.

Chapter 7
Building a System for People Who Walk



**"Yes, we'll walk with a walk that is measured and slow,
and we'll go where the chalk-white arrows go,
for the children, they mark, and the children, they know,
the place where the sidewalk ends."**

- Shel Silverstein

Rutherford College
Valdese

Building a System for People Who Walk

Developing a list of projects to improve walkability in Rutherford College and Valdese is not as simple as identifying where sidewalks exist and where they are missing. Rather, it is necessary to identify destinations or land uses that are most likely to generate pedestrian trips if linked through a network of quality pedestrian facilities.

Overall, Valdese and Rutherford College have a network for walking where the main roads between major destinations have a sidewalk on at least one side. Each community's downtown area has a sidewalk network and there are very few places where people who walk are exposed to poor walking conditions along high speed, high volume traffic routes. Chapter 3 summarizes the conditions along major routes. The project recommendations in this chapter are intended to create a network inclusive of those routes, promote safer crossing treatments for major routes, and add a new set of greenways to the mix.

Some projects will require joint funding and grant pursuits from the two towns while others will be pursued exclusively by Valdese or Rutherford College.

Overall Recommendations

Identifying projects for WalkRCV consisted of:

- Reviewing project recommendations from any past planning efforts, most notably the Land Use Plans for the two towns and the Valdese Sidewalk Study;
- Gathering feedback at the Steering Committee meetings and public involvement efforts;
- Conducting field evaluation of walking conditions along streets and evaluating likely greenway routes where property access was available; and
- Identifying popular destinations and walking routes.

From this input, projects recommendations are developed at what is referred to as "planning level," meaning that they were examined for their relative value and evaluated based on field observations (Exhibit 7-1). Detailed right-of-way or design processes were not conducted as part of this Plan, rather those steps will follow as the Towns, NCDOT, and other partners work toward implementation.

The cost estimates contained in this Plan are based on this planning level evaluation and prevailing costs per mile of similar facilities at the time of Plan development. Costs will change, as they always do. It is best for Rutherford College and Valdese to work through the COG and NCDOT Division 13 at the time a project grant is being pursued so these estimates can be updated.

Project Development. To become reality, projects may go through up to four phases depending on level of complexity.

1. **Feasibility studies** may occur on projects like greenways or streetscape plans to gather more information. This could include a field review by Town staff or with the help of consultants, and review of available right-of-way;
2. Most projects begin with **Design**, which is the surveying, measuring and scoping of the project to produce a set of drawings to define the exact parameters of the projects and the manner in which it can be constructed;
3. **Acquisition of land** may then occur if the project design process indicates additional land is needed; in some cases there may be existing right-of-way to accommodate the project; and

4. **Construction** proceeds once a project is designed and land has been acquired and funding is available.

A majority of the projects identified in this Plan are at a point they can move into either a design phase or a joint feasibility study / design phase. Depending on the implementing agency, design may be done by in-house staff or can be contracted through a design consultant.

All pedestrian facility recommendations along NCDOT-maintained routes require review by NCDOT Highway Division 13 prior to implementation.

Ranking Projects

The projects identified through the early stages of the plan were mapped for consideration by the Steering Committee and review by the public at the second Open House meeting. The Steering Committee identified the criteria by which they wanted to evaluate the projects in order to develop a priority list.

The criteria shown in Exhibit 7-2 (next page) illustrate how projects were scored. The maximum number of points available for each criteria (ranging from 5 points to 20 points) was identified by the Steering Committee. Individual committee members were asked to identify how they would score projects on a matrix of criteria. Their inputs were averaged to then identify the relative weight (reflective in the maximum number of points available) of each criterion.

Projects were scored based on this weighting. At the final Steering Committee meeting, the group was then allowed to assign committee points to projects they saw as a priority or ones where they felt the criteria did not (and could not) address every factor for making it a priority. The consultant team used the outcomes of this ranking process to identify

Exhibit 7-1: How Projects Were Identified

Exhibit 7-2: Project Ranking Criteria

Project Measure	Max. Points Per Project
Proximity to Schools: Project will connect a school to neighborhoods & other destinations.	15
Ease of Implementation: Measures likelihood that project can be constructed given right-of-way, terrain, etc.	15
Safety: Project provides separation between traffic and pedestrians and speed of traffic creating the risk.	10
Proximity to Downtown: Project will connect town centers to neighborhoods & other destinations.	10
Proximity to Parks or Natural Areas: Project will connect parks and recreation sites to neighborhoods and other	10
Access to Food: Project will connect major food outlets to neighborhoods.	10
Traffic Exposure: Based on function of the roadway project is along.	10
Population in Need: Project is within a Census Block Group identified as having socioeconomic needs.	5
Identified in Past Plans: Project was identified in past local or regional plans.	5
Fills Gap in System: Project will connect to existing facilities by filling the gap between them.	5
Steering Committee Priority: Points assigned by the steering committee to account for intangibles.	5
Maximum Points Available Per Project	**100**

the top 10 projects that constitute short-term priorities for Rutherford College and Valdese. Full details on project scoring and detailed ranking are included in the Appendix.

Short-Term Project Priorities

The following pages contain more detailed project profiles for the top-10 projects identified through the project ranking. These top 10 projects are labeled as short-term investments because they are the ones the two towns and its partners should seek funding options to implement them over the next one to 10 years.

A shortcoming of any project ranking method is that it cannot assign factors to deal with all project influences. Implementation realities related to budgeting, grant availability and unknown factors can only be determined through project development or design. While the towns should begin pursuing these top priorities they should not overlook opportunities that arise to fund projects ranked lower on the list of short-term improvements.

It is also important to understand that opportunities for implementation may vary greatly for greenway projects and sidewalk projects. The use of sewer easements will be the major determinant in the feasibility of constructing many of the greenways identified in this plan. If this opportunity does not arise, it does not mean that the project should not be the towns' top priority; it simply means that other priorities may be more effectively addressed in the short-term.

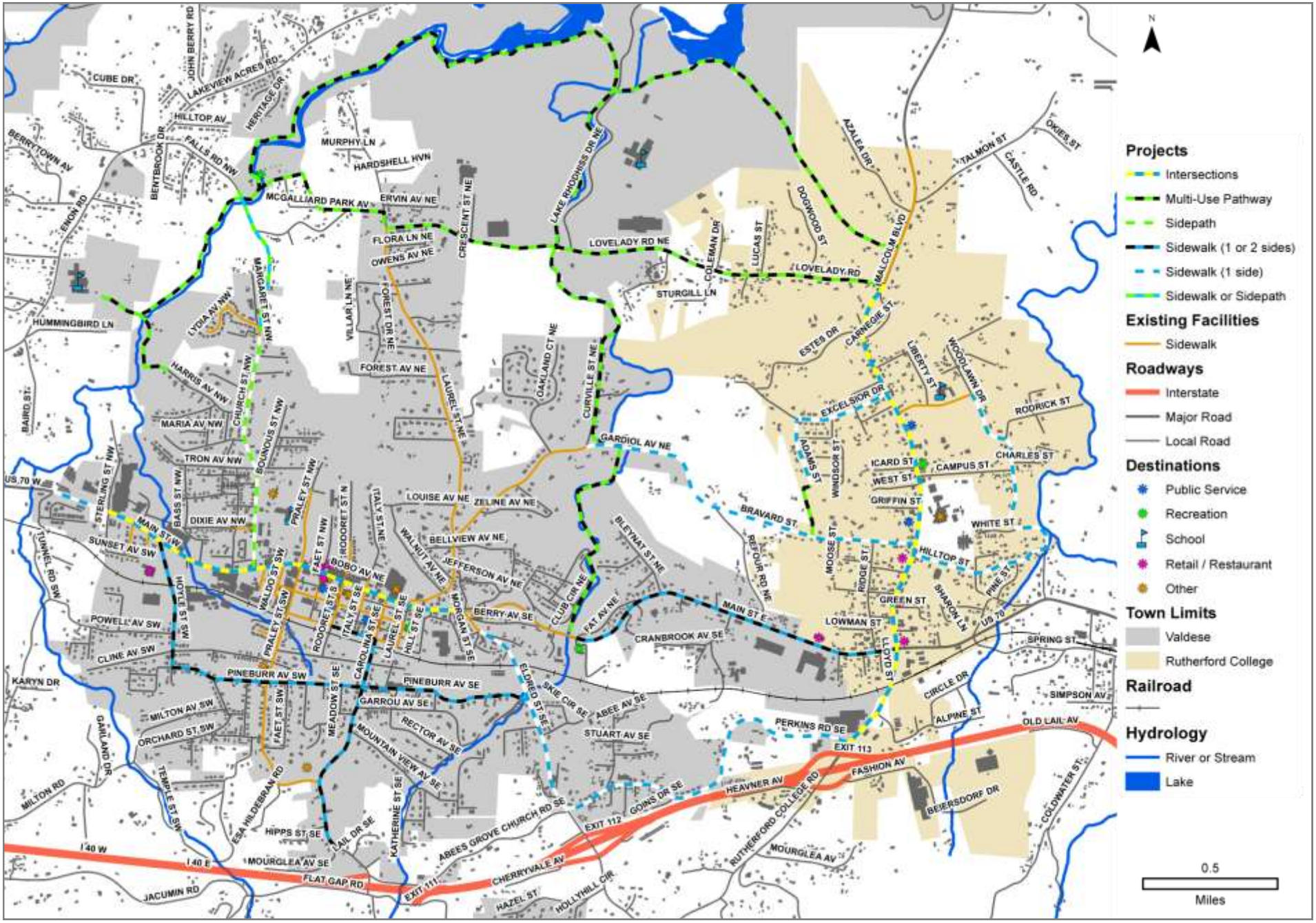
Estimates include full project estimates (sidewalks plus intersections). Exhibit 7-3 is a map of recommended projects, both short– and long-term. The following pages contain more detailed descriptions and cost estimates for short-term projects, which are inclusive of all known intersection improvements. Note that detailed intersection improvements are unknown due to planning-level evaluation of these projects.

Two Towns, Two Approaches

The intent of this plan is to identify opportunities for Rutherford College and Valdese to coordinate on improving walkability. The top-10 short-term priorities consist of one joint project (Lovelady Road) in addition to 7 projects specific to Valdese and 2 projects specific to Rutherford College. The 10 long-term projects include 2 joint projects, 6 Valdese-specific projects and 2 Rutherford College projects. Individual town budgets and grant pursuits will ultimately determine how town-specific improvements proceed.

Exhibit 7-3: Project Recommendations Map

Project Recommendations



Valdese

A. Main Street (US 70) from Sterling St to Eldred St

Construct pedestrian safety improvements at 16 intersections along Main Street from Sterling Street to Whisnant Street. The type of improvements include new curb ramps, high visibility crosswalk markings, countdown pedestrian signals, and installation of truncated domes where landings are flush with the roadway. US 70 is only a four-lane road for half a mile; consideration should be given to restriping to provide continuous two-way left turn sections, which would provide an opportunity to create a pedestrian buffer adjacent to the curb, increasing pedestrian comfort and safety. The Valdese Main Street Committee should be engaged to provide input the Town and NCDOT on prevailing pedestrian movements and business potential.

Intersections & Project Details

- **Sterling Street:** Should be considered for an actuated pedestrian beacon as it is the first crossing entering town from the west from a 45 m.p.h. speed zone.
- **Hoyle Street:** The signalized intersection needs pedestrian signal for crossing of Hoyle, and eastbound right turn lane needs reengineering to protect crossing pedestrians.
- **Roller Street:** Sidewalk on Main St switches from the south side westward to the north side eastward at this intersection. The crossing needs to be marked and could be made safer with a mid-crossing refuge, another benefit of the restriping to continuous two-way left turn operation mentioned above.
- **Central Downtown:** Some commercial driveways do not provide accessible paths behind the driveway apron or exceed 2% cross slope, and several curb ramps need upgrades to meet ADA requirements.
- **Eldred St NE:** The crosswalk across Eldred Street NE does not meet accessibility standards due to cross slope. Curb ramps at this intersection need reengineering to meet ADA requirements, as does a drainage inlet in the southwest radius.
- **Whisnant Street:** Should be considered for an actuated pedestrian beacon as it is the first crossing entering town from the east and is near the entrance to Children's Park.

Influences

- Downtown Valdese
- Area grocery stores & shopping
- Old Rock School
- Valdese Elementary School
- Churches
- Recreation Center

Challenges

- Constrained right-of-way
- Variability in needed upgrades for pedestrians as there should not be a standard, default approach; rather a menu of upgrades.
- Limited data on crossing demand/volumes

Cost Estimate: $ 375,000

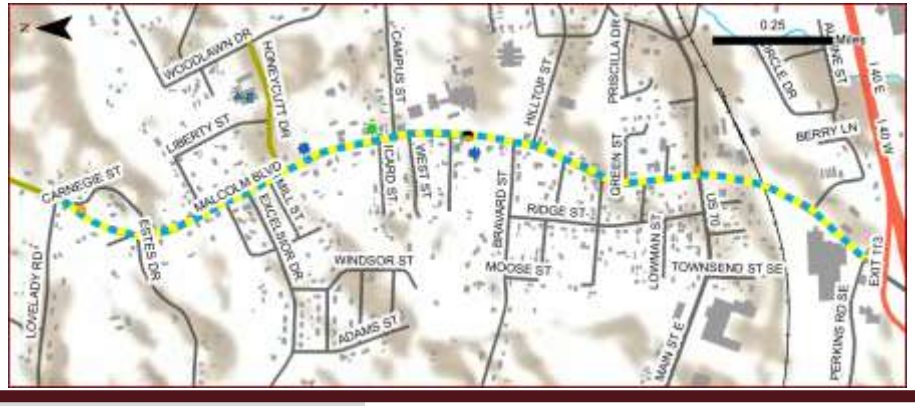
Project Length: 1.4 miles

Special signage, like shown above, can raise awareness of pedestrian crossings at unsignalized intersections or mid-block crossing.

B. Malcolm Blvd, from Perkins Rd to Lovelady Rd

Construct pedestrian safety improvements at intersections along Malcolm Boulevard from Perkins Road to Lovelady Road. The type of improvements include:

- New curb ramps, high visibility crosswalk markings, extensions of sidewalks, new sidewalk along the west side of Malcolm Boulevard from US 70 to Boyd Street; and
- Installation of detectable warning (truncated domes) where landings are flush with the roadway.



Intersections & Project Details

- **US 70:** Crosswalks with pedestrian countdown signals are needed at three remaining unsignalized legs intersection to provide access to the businesses in all quadrants. Sidewalk should extend to businesses.
- **Green St:** Curb ramps need to align with the unmarked crossing, and the crossing should be marked.
- **Boyd St:** Install high visibility crosswalk with accessible landings connecting existing sidewalk on east side of Malcolm Boulevard to new sidewalk on west side.
- **Western Piedmont Clinic driveway:** Install truncated domes at end of flush sidewalk.
- **Hilltop St:** Mark crosswalk across Hilltop St; reengineer driveway opening in the radius of Hilltop St, extend sidewalk behind new apron or mark in driveway opening.
- **Valdese Hospital southern driveway:** Mark crosswalk across driveway.
- **Valdese Hospital main driveway (existing traffic signal):** Install accessible ramps and landing on west side of intersection. Extend sidewalk on west side to nearby commercial businesses.
- **Valdese Hospital outpatient center driveway:** Mark crosswalk across driveway.
- **Honeycutt Dr:** Install advance warning of school signs on both approaches to this intersection. Mark crosswalk across Honeycutt Drive. Ensure landings are accessible.
- **Lovelady Rd:** Install pedestrian signals and crossing to proposed sidepath on Lovelady Road.

Influences

- Rutherford College Town Center
- Municipal Park
- Rutherford College Elementary School
- Churches
- Blue Ridge Healthcare/Valdese Hospital
- Future Lovelady Road Pathway

Challenges

- Traffic speeds
- Number of driveway crossings needing upgrades
- Variability in needed upgrades
- Limited data on crossing demand/volumes

Cost Estimate: $ 360,000

Project Length: 1.8 miles

Pedestrian crossing panels can be placed at legal marked crosswalks at unsignalized intersections or other crossings to alert motorists of their responsibility to yield to those who walk.

C. Carolina St, from Main St (US 70) to Praley St

Construct sidewalks on one or both sides of Carolina Street from Praley Street to Main Street (US 70) to provide connections for residential neighborhoods south of town to downtown facilities and especially to the popular Valdese Recreation Department. Carolina Street is only two lanes but the street is poorly defined, creating a road prism that encourages speeding. Grading behind the curb on either side to accommodate is relatively minor in most places. Marking parking spaces in the forty-foot width of Carolina Street could be an efficient way to create the needed buffer between the sidewalk and moving traffic.

Intersections & Project Details

- **Praley Street:** Sidewalk on Carolina should connect to the existing sidewalk on Praley Street. Sidewalk can be installed on the west side of Carolina due to less dense development and no connections to the east side of Carolina Street.
- **Mountain View Avenue:** Begin sidewalk on the east side of Carolina Street northward from this intersection to serve residences on that side of the street. Mark a crosswalk across Carolina Street, using curb extensions and a median refuge island together with high visibility markings and appropriate warning signs.
- **Piedmont & Garrou Avenues:** Continue sidewalk along both sides of Carolina Street, with appropriately-aligned curb ramps and markings across these side streets.
- **Pineburr & Ribet Avenues:** Install ramps and crossings in all four quadrants, using curb extensions and median refuge islands together with high visibility markings and appropriate warning signs. Cross the bridge over the railroad tracks on the east side on the sidewalk and on the west side using a plastic curb with delineators to create pedestrian space.
- **Massel Avenue:** Upgrade existing and install new ramps and crossings in all four quadrants, using curb extensions and median refuges as appropriate. Construct sidewalk from Massel Avenue to Arnaud Street on the west side of Carolina Street. Review the existing sidewalk northward for any needed curb ramp upgrades .

Influences

- Area neighborhoods
- Downtown Valdese
- Recreation Center
- Churches

Challenges

- High speed of traffic
- Exploring alternatives to traditional sidewalk given excessive road width

Cost Estimate: $ 375,000

Project Length: 0.8 miles

Excessive road width offers an opportunity for non-traditional (and less expensive) facilities. An option like shown above, with some type of vertical curbing between the walkway and travel lanes could be explored.

D. Lovelady Rd, from Laurel St to Malcomb Blvd

A paved 12' sidepath (e.g. streetside greenway or shared us path) along one side of Lovelady would link the two towns with Draughn High School, emerging recreational opportunities along Lake Rhodhiss, adjacent neighborhoods, and manufacturing plants. This off-road path along Lovelady would offer protection from the fast-moving vehicular traffic and provide shade if located near the edge of woods on the south side of Lovelady. The existing right-of-way width ranges from 55' to 115' with an average width of 80', allowing flexibility in constructing the path.

Intersections & Project Details

- **Malcomb Blvd:** Upgrade existing pedestrian facilities for multi-use trail width, including 10-foot wide curb ramps with linkages to the sidewalks along Malcomb. Install pedestrian signals and crosswalks.
- **Kathy Drive/High School Entrance:** Upgrade roundabout for pedestrian and bicyclist access via multi-use pathway around the intersection, as well as crosswalks and ramps that match the width of the pathway.
- **Laurel Street:** Upgrade existing pedestrian facilities for multi-use trail width, including 10-foot wide curb ramps with linkages to the sidewalks along Laurel.
- **Driveway Crossings:** Residential driveway crossings are prevalent along the proposed pathway. They should be constructed to have no more than a 2% cross slope to meet ADA requirements when pathway is installed. Warning signs for motorists should be installed to warn of crossing pedestrians and bicyclist.
- **Other Street Intersections:** All street intersections should be upgraded with the pathway to include curb ramps and crosswalks that are consistent with the width of the pathway.
- **Other Features**: Pedestrian-scale lighting should be included with the pathway, as well as benches for resting at intervals. Colored markings or other treatments can be used to raise the visibility of the crossings.

Influences

- Draughn High School
- Lake Rhodhiss
- Potential for a loop route for walking, running & biking within Rutherford College & Valdese
- Sidewalks along Malcomb Blvd and Laurel Street
- Proposed pathway west of Laurel to Heritage MS

Challenges

- Project length to connect all the destinations and streets
- Designing a sidepath that maximizes safety for people of all ages and abilities
- Upgrading roundabout for multi-use pathway access and crossing

Cost Estimate: $ 2,400,000

Project Length: 1.9 miles

The sidepath recommended along Lovelady Road is a common treatment for multi-use trails. The example above has a drainage swale between the roadway and pathway.

E. Church St, from Main St (US 70) to Margaret St

Widen the existing sidewalk to shared use path width of at least 10' linking downtown Valdese to the future greenway corridor along McGalliard Creek. This would encourage greater bicycle and pedestrian connections between the downtown and residential neighborhoods to the north, as well as Valdese Elementary School and the Trail of Faith. This would be a relatively simple project since the route has already been graded and the expanded sidewalk would most likely lie within the existing right of way. The condition of the existing sidewalk indicates it may need to be replaced. A pathway along the east side is also an option.

Intersections & Project Details

- **Main St (US 70):** Upgrade pedestrian facilities for multi-use trail width, including 10-foot wide curb ramps with linkages to the sidewalks along Main Street. Install pedestrian signals and crosswalks.
- **Valdese Elementary School:** Provide crossing of Church Street via a protected pedestrian signal. Construct pathway connection from Church Street to the front door of the school.
- **Trail of Faith:** Provide crossing of Church Street via a protected pedestrian signal. Construct pathway connection from Church Street to Trail of Faith exhibits.
- **Driveway Crossings:** Residential driveway crossings are prevalent along the proposed pathway. They should be re-constructed to have no more than a 2% cross slope to meet ADA requirements when pathway is installed.
- **Other Street Intersections:** All street intersections should be upgraded with the pathway to include curb ramps and crosswalks that are consistent with the width of the pathway.
- **Amenities & Wayfinding**: Include wayfinding to pathway from downtown Valdese and to destinations, including mile markers. Consider appropriate level of amenities in consideration of constraints with upgrading existing sidewalk in front of residential properties.

Cost Estimate: $ 1,400,000

Project Length: 0.9 miles

Influences

- Lake Rhodhiss
- Valdese Elem School & Heritage Middle School
- Trail of Faith
- Downtown Valdese
- Creating a loop in combination with other pathways identified in this plan

Challenges

- Constrained right-of-way
- Variability in needed upgrades
- Existing residential property and potential concerns of property impacts
- Safely measures to warn of and lessen potential movement conflicts at driveways

Sidepaths take many forms, from sections with curb and gutter (like above) to others with natural drainage areas between the road and pathway. The 10-foot width is key to account for diverse users. 8-foot wide pathways can be used in constrained areas.

Valdese

F. Lake Rhodhiss Greenway, from McGalliard Falls to Wastewater Treatment Plant

Construct a 12' pathway along McGalliard Creek and the lakeshore, following an existing sewer easement. Providing parking and trailheads at McGalliard Falls Park and the Wastewater Treatment Plant. A bridge would be required to cross McGalliard Creek. The greenway would create a lengthy trail in a natural environment, provide the only access to Lake Rhodhiss in the two towns, connect to a proposed 300-acre park near the WWTP, and link to the high school. Project estimate is for a paved greenway, but a natural surface trail may be explored.

Intersections & Project Details

- **Natural Surface Trails:** There are many great natural surface greenway trails across the United States. They can be designed to accommodate the needs of those with disabilities. Some communities use stabilizing treatments for aggregate pathways to promote a firm and stable surface. Paved pathways may be needed to connect to major destinations along the route (e.g. an overlook of the lake).
- **Lovelady Road:** Include connecting facilities to proposed Lovelady Road pathway and signage.
- **High School Connection:** Provide a connection to the High School with a crosswalk of Lake Rhodhiss Drive.

Cost Estimate: $ 1,400,000

Project Length: 1.2 miles

The Virginia Creeper Trail is considered the premiere multi-use pathway in the Southeast. None of the 36-mile trail is paved but is accessible to users in towns and along much of its length.

Influences

- Lake Rhodhiss
- McGalliard Falls
- Draughn High School
- Future pathway linkages to Heritage Middle School, Downtown Valdese and Lovelady Road.

Challenges

- Terrain and natural conditions, which impact stormwater management practices along the route
- Timing/funding to coordinate with development of the park

G. US 70, from Children's Park to Malcomb Blvd

Construct sidewalks along one or both sides (estimate is for one side) of US 70 from the Children's Park in Valdese to Malcolm Boulevard in Rutherford College. This project would provide a pedestrian connection between the two towns and along the major traffic route. Initially sidewalk should be considered along the southern side of US 70 to match the existing sidewalk to the west. Include street trees where possible. Due to traffic speed a buffer of 4 feet should be considered minimum and 6 feet desirable. Some extensive earthwork and probably right-of-way acquisition would be needed to complete this project.

Intersections & Project Details

- **Torre Pellice/Children's Park:** Sign and mark a pedestrian crosswalk across US 70 (Main Street) between this side street and the Park to serve the residences on the north side of US 70, and across the park's entrance between existing and this proposed sidewalk. Construct sidewalk along the southern side of US 70 to the east.
- **Bleynat Street:** Sign and mark a pedestrian crosswalk across US 70 (Main St) between Bleynat Street and the sidewalk to serve the residences on Bleynat Street. Construct curbs, ramps and landings as appropriate to connect to the project sidewalk on the south side of US 70.
- **Robinson Street:** Continue sidewalk along the south side of US 70, providing a marked crosswalk across Robinson Street. Appropriately channelize the continuous access between the roadway and open paved parking areas if possible by delineating driveways and adding curbs, as needed. If not, provide sidewalk behind a new driveway apron to emphasize the pedestrian facility.
- **Refour Road:** Continue sidewalk along the south side of US 70. Sign and mark a pedestrian crosswalk to Refour Road if a curbside landing can be provided in the northwest quadrant.
- **Malcolm Boulevard:** Crosswalks with pedestrian countdown signals are needed at the three remaining unsignalized legs of this intersection to provide access to the businesses in all four quadrants. In addition to the project sidewalk, new sidewalk should extend from the intersection to businesses on the north side of US 70 .

Influences

- Linking Rutherford College to Valdese
- Children's Park
- Employment and shopping along US 70 and in each community's downtown

Challenges

- Terrain and sight distance
- Possible right-of-way constraints
- Open (unchallenlized) access from road edge to parking areas

Cost Estimate: $ 1,100,000

Project Length: 1.3 miles

Attached sidewalks should be used in limited circumstances to fill a gap and deal with constraints such as right-of-way or terrain. The sidewalk should transition to a buffered sidewalk once it reaches an area where conditions allow.

Valdese

H. Massel Ave, from Rodoret St to Carolina St

Construct sidewalks on one or both sides of Massel Street from Rodoret Street to Carolina Street. This project connects the Town of Valdese offices and residential areas to the Valdese Recreation Department while increasing the pedestrian network grid in town. Constructing a sidewalk on the north side of Massel Avenue should be the priority due to the presence of more homes on this side. A two-foot buffer between the curb and sidewalk is desirable.

Intersections & Project Details

- **Carolina Street:** Upgrade existing and install new ramps and crossings in all four quadrants, using curb extensions and median refuges as appropriate. Construct sidewalk from Carolina Street to at least the frontage of the Boy Scout's building if not the entire southern side of the street.
- **Italy Street:** Construct new ramps and a crossing of the northern leg of the intersection. If sidewalk is being constructed along the south side of Massel Avenue, provide at least one crossing of Massel Avenue to one side of Italy Street. Consider curb extensions to narrow the width of the crossings.
- **Rodoret Street:** Construct new ramps and crossings for the eastern and northern legs of the intersection. Consider curb extensions to narrow the width of the crossings

Cost Estimate: $ 160,000

Project Length: 0.2 miles

Non-traditional sidewalks, such as an extruded curb treatment (shown above), can be as effective as sidewalks while providing a lower cost option stretch limited funds while addressing basic needs.

Influences

- Town Hall
- Downtown Valdese
- Recreation Center

Challenges

- No major challenges identified.

I. Heritage Middle School Greenway, from McGalliard Falls to the school

Construct a paved or natural surface 12' greenway along McGalliard Creek connecting Heritage Middle School to McGalliard Falls Park. This greenway would link into the longer greenway along Lake Rhodhiss and provide recreational and educational opportunities to the school children. It would also connect to the extended sidewalk at Church Street and adjacent neighborhoods. Easements through private property would need to be obtained. The greenway could also connect to Harris Avenue NW through a parcel owned by the Town of Valdese. Estimate is for a paved trail but natural surface may be considered.

Intersections & Project Details

- **Natural Surface Trails:** There are many great natural surface greenway trails across the United States. They can be designed to accommodate the needs of those with disabilities.
- **Church Street:** Include connecting facilities to proposed Church Street pathway (project E) and signage.
- **Middle School Connection:** Provide connections to the pathway within the school complex and to destinations on campus. May include a locked gate for use during school hours
- **Harris Avenue**: No upgrades are proposed for Harris Avenue due to low traffic volumes. The Town may consider signage along the route to alert motorists of the presence of pedestrians and bicyclists. Upgrades to Harris to include sidewalks could be considered a long-term investment if demand arises.

Cost Estimate: $ 1,800,000

Project Length: 0.8 miles

Signage along pathways helps users identify destinations and understand where they are in relation to the rest of the community. This is important in natural settings where viewsheds are limited and nearby destinations are not as obvious as they can be when driving.

Influences

- Heritage Middle School
- Lake Rhodhiss
- McGalliard Falls

Challenges

- Natural terrain and stormwater management
- Property impacts/right-of-way

Valdese

J. US 70 (Main Street) from Tunnel Rd to Sterling St

Construct a sidewalk along the south side of Main Street (US 70) from Tunnel Road to Sterling Street. Although there is some existing sidewalk along the north side at Sterling Street, most foot traffic would originate in development off of Tunnel Road, south of Main Street. Earthwork for grading for sidewalk will be slightly more extensive on the south side, but this would avoid two unnecessary crossings of Main Street. Explore the alternate path of connecting the cul-de-sac of Morgan Trace with Sterling Street, a distance of less than four hundred feet.

Intersections & Project Details

- **Tunnel Road:** Sidewalk needs to wrap around the radius of this intersection from the south side of Main Street to the east side of Tunnel Road, and extend along Tunnel Road to the first subdivision. No pedestrian crossings are necessary until the sidewalk is extended westward from this intersection or until a sidewalk is also constructed along the north side of Main Street.
- **ABC Store Driveway:** Mark a crosswalk between this newly constructed sidewalk on the south side of Main Street to the western end of the existing sidewalk on the north side of Main Street, which ends at this driveway. Crosswalk should be high visibility and appropriately signed.
- **Sterling Street:** Install (or relocate if already installed) an actuated pedestrian beacon at the ABC Store driveway as it will become the first crossing entering town from the west and is in a 45 m.p.h. speed zone.

Cost Estimate: $ 200,000

Project Length: 0.2 miles

Rectangular Rapid Flashing Beacons (RRFBs) are becoming popular for unsignalized crossings. In places with a higher percentage of older adults, RRFBs offer greater visibility and safer conditions to alert motorists of the presence of pedestrians.

Influences

- Downtown Valdese
- Area grocery stores & shopping
- Senior housing
- Churches

Challenges

- Constrained right-of-way
- Variability in needed upgrades; consider a variety of treatments rather than defaulting to minimum standards and applications
- Crossing of US 70

Long-Term Projects

Ten (10) long-term projects were identified through planning process in addition to the 10 short-term projects. These were identified as long-term due to their ranking. It is generally anticipated these projects could be constructed beyond a 10-year timeframe. The project profiles include a brief summary of these projects and cost estimates. The timeframe may vary based on individual town actions and new opportunities. The Towns should continue to seek opportunities to construct these projects. Meanwhile, the Town should require any new development along these routes, designed consistent with each project description, in anticipation of a future full-length projects. The construction of the greenway or other street changes (e.g. widening) may influence these projects. In general these projects ranked lower because they were along routes with fewer influences or destinations, or they were more complex.

K. Lake Rhodhiss Greenway, Wastewater Plant to Lovelady Rd — Length: 1.0 miles — Estimate: $1,200,000

VALDESE—Construct a paved greenway along Hoyle Creek, linking the Rhodhiss Lake area near the Wastewater Treatment Plant to Lovelady Road. This will provide a critical connection between the path along Lovelady as well as the Lake Rhodhiss Greenway. It will connect to Draughn High School, providing recreational and educational opportunities for the students. The trail will follow the west side of the creek within the proposed 300-acre Lake Rhodhiss Park. Pedestrian crossing facilities will be needed to safely cross Lovelady.

L. Eldred St, from Berry/Pons Ave to Perkins Ave — Length: 0.8 miles — Estimate: $725,000

VALDESE—Construct sidewalks on one or both sides of Eldred Street from Berry Avenue / Pons Street to Perkins Avenue / Hauss Street. This project connects residential areas, some high density, to downtown. A four-foot buffer between the street and sidewalk is recommended due to volume and speed of traffic on Eldred Street.

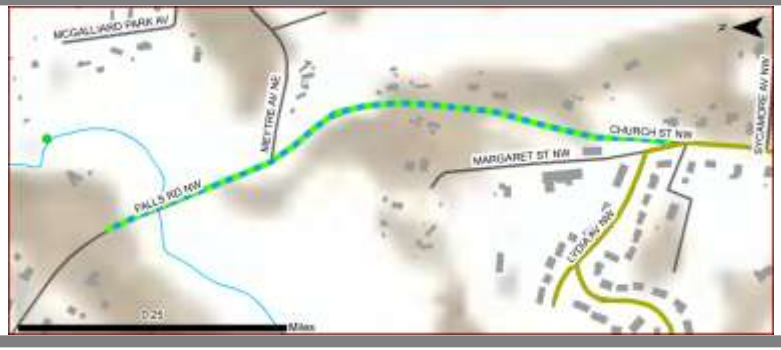
Long-Term Projects (continued)

M. Woodlawn Dr/Hilltop St, from Honeycutt St to Malcolm Blvd — Length: 1.3 miles — Estimate: $850,000

RUTHERFORD COLLEGE—Construct sidewalks on one side of Woodlawn and Hilltop from Malcolm to Honeycutt to provide a pedestrian linkage between Rutherford College Elementary School and neighborhoods east of Malcolm Boulevard. The west side of Woodlawn Drive and the north side of Hilltop Street comprise the recommended paths to require fewer street crossings to reach the elementary school. A sidewalk on Campus Street between Malcolm and Woodlawn would also serve this network connection. A four-foot buffer is desirable and two-foot should be considered minimum.

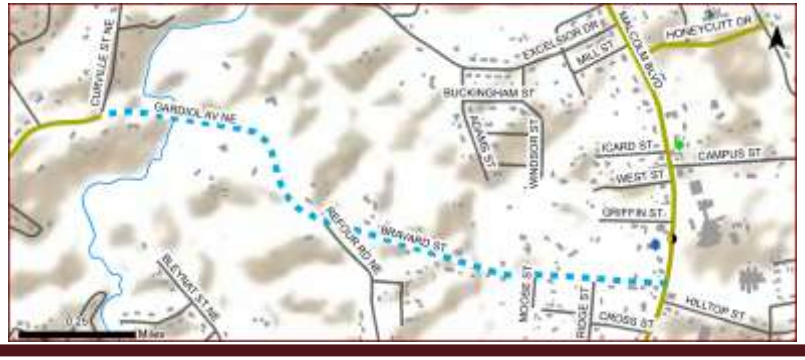
N. Church Street, from Margaret St to McGalliard Creek — Length: 0.5 miles — Estimate: $650,000

VALDESE—Extend the sidepath from the end of the existing sidewalk on Church Street at Margaret Street to link to the future greenway corridor along McGalliard Creek. A safe crossing would need to be provided to traverse Church Street and either the existing bridge over McGalliard Creek would need to be widened or a new one constructed to accommodate pedestrians and bicyclists. This sidepath would be a critical linkage in the comprehensive bicycle and pedestrian system.



O. Gardiol/Bravard St, from Curville St to Malcolm Blvd — Length: 1.3 miles — Estimate: $700,000

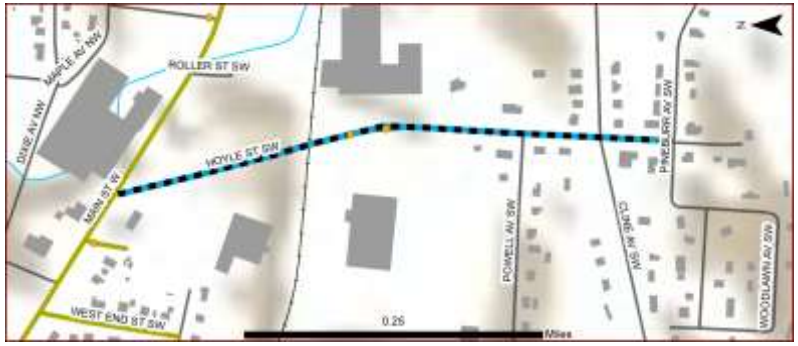
RUTHERFORD COLLEGE & VALDESE—Construct sidewalks on one side of Gardiol Avenue / Bravard Street to complete linkage to existing sidewalks on Gardiol Avenue in Valdese and provide a pedestrian connection between Rutherford College and Valdese. Sidewalk could be continued along the north side of Gardiol Avenue, or placed along the south side to take advantage of several hundred feet of existing curb & gutter. A two-foot buffer is minimal; four foot desirable, due to the speed, curvature, and rural character of the road.



Long-Term Projects (continued)

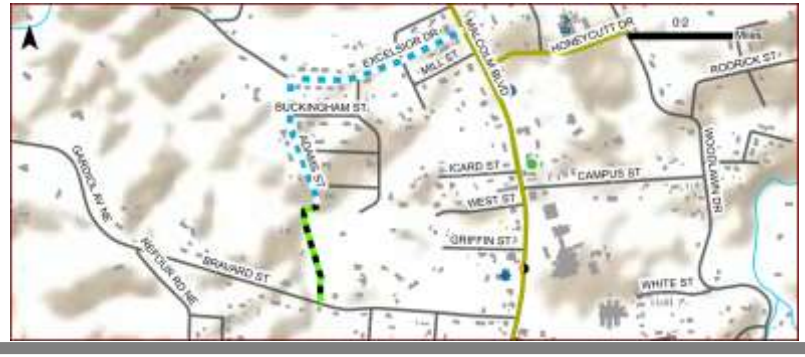
P. Hoyle St, from US 70 (Main St) to Pineburr Ave — Length: 0.5 miles — Estimate: $525,000

VALDESE—Construct sidewalks on one or both sides of Hoyle Street from Main Street (US 70) to Pineburr Avenue. This project would connect residential areas to a grocery store at the intersection of Hoyle Street and Main Street, as well as expand the pedestrian network on the west side of town. The street bridge over the railroad would need a major retrofit or replacement to accommodate pedestrians; or, a separate parallel pedestrian bridge would be needed.



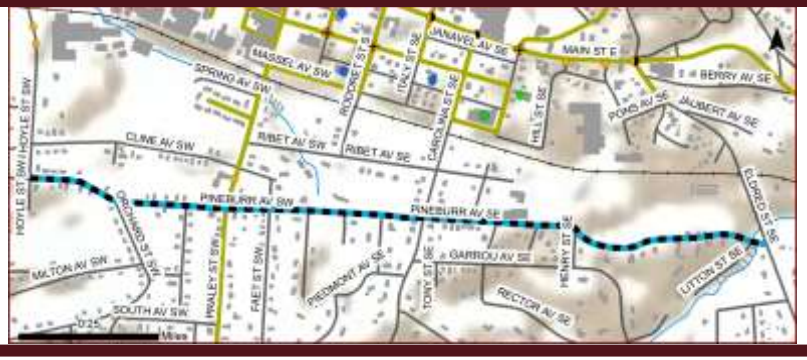
Q. Excelsior Dr/Adams St, from Malcolm Blvd to Bravard St — Length: 0.9 miles — Estimate: $460,000

RUTHERFORD COLLEGE—Construct sidewalks on one side to connect neighborhood to Malcolm Blvd. This also includes a sidewalk on one side of Adam Street (east side due to sewer easement placement in that location) to connect to a pathway along the sewer easement from Adams to Bravard St. This will help create a walking loop within Rutherford College when combined with other proposed improvements along Bravard St.



R. Pineburr Ave, from Hoyle St to Eldred St — Length: 1.4 miles — Estimate: $950,000

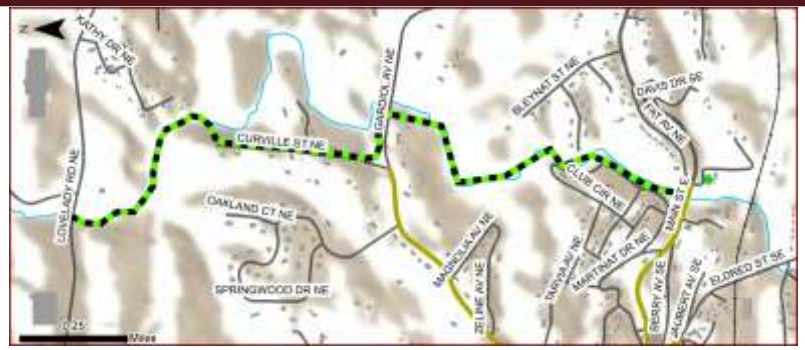
VALDESE—Construct sidewalks on one or both sides of Pineburr Avenue from Hoyle Street to Eldred Street to provide connections for residential neighborhoods on the south side of town. Using the south side of Pineburr Avenue to connect to Hoyle Street is recommended to avoid marking a crossing on the inside of the curve where Hoyle Street turns into Pineburr Avenue. Grading, whether behind the curb or in shoulder sections will have some difficult places due to topography and private property encroachment.



Long-Term Projects (continued)

S. Hoyle Creek Greenway, US 70 (Main St) to Lovelady Rd — Length: 2.0 miles — Estimate: $2,300,000

VALDESE—A greenway along Hoyle Creek could provide a north to south greenway link between Lake Rhodhiss Greenway and Children's Park. There are complex feasibility issues due to private property concerns (expressed during public meetings) and easements that would have to be obtained. This should be a long-range vision project and the town can look for opportunities if they arise. South of Lovelady, the trail could connect to Curville Rd, following it to Gardiol AVe. At Gardiol, the route could follow a short section of sidewalk until it reaches Micol Creek, then run parallel to the creek at Children's Park.



T. Perkins/Hauss Ridge Rd, from Eldred St to Malcolm Blvd — Length: 1.3 miles — Estimate: $900,000

RUTHERFORD COLLEGE & VALDESE—Construct sidewalks on one side of Perkins Rd as a south of the railroad tracks connection between the two towns. This is a long-range project as it is on the fringe of each community. The towns can be mindful of this long-term goal to improve the pedestrian linkages as this area develops.

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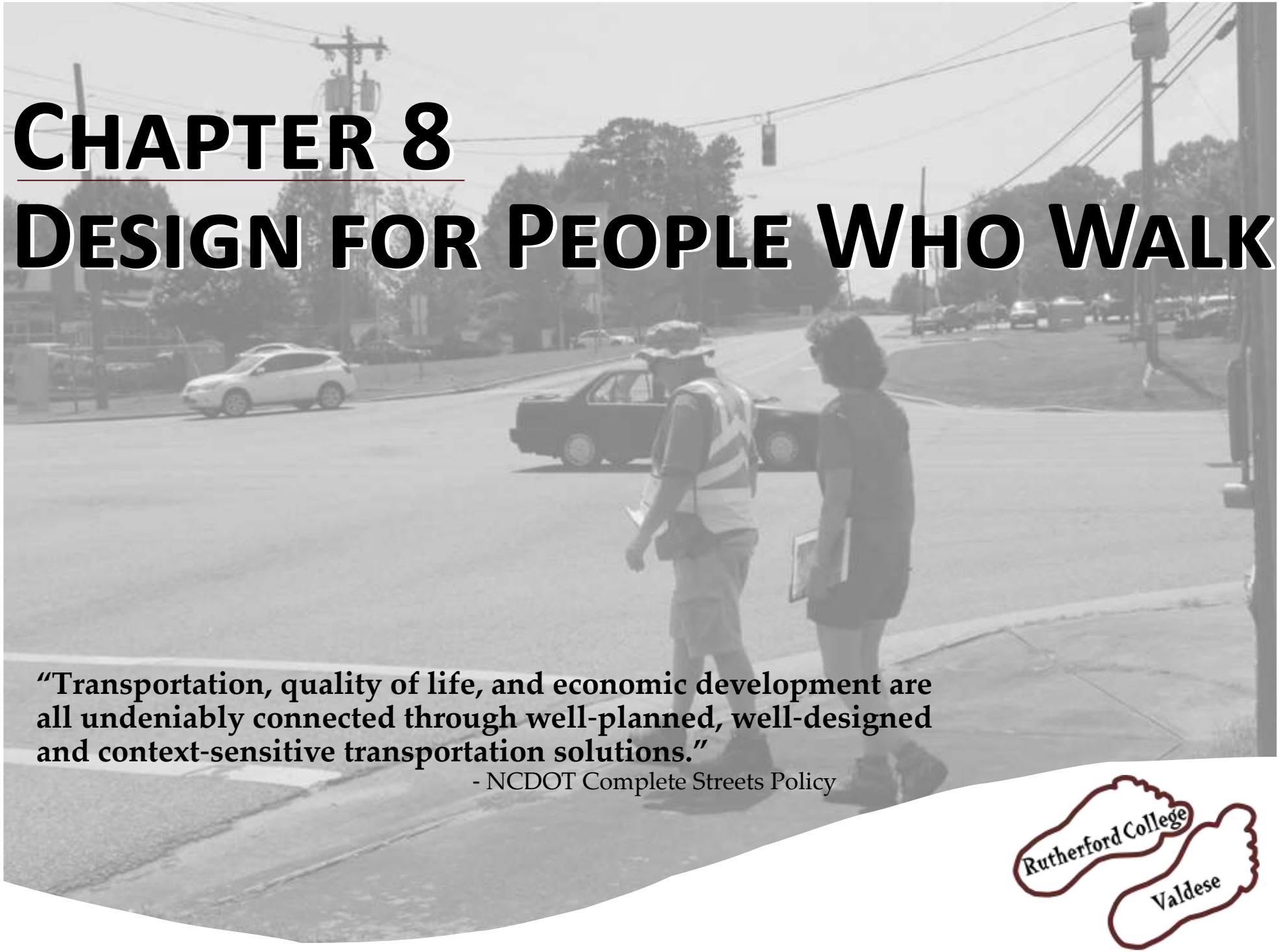
Chapter 8
Design for People Who Walk



"Transportation, quality of life, and economic development are all undeniably connected through well-planned, well-designed and context-sensitive transportation solutions."

- NCDOT Complete Streets Policy

Design for People who Walk

Pedestrian facility use is a function of a variety of factors, including the connectivity of the facilities, their safety, their convenience, and their comfort. For this reason, pedestrian facility design should be thoughtful and sensitive to the needs of its users. By following the guidelines provided in this section for sidewalk, crossing, and trail design, as well as other items associated with pedestrian facilities, Rutherford College and Valdese should be able to create a built environment that will promote walking and increase the number of pedestrians in the area.

This section is intended to be a general reference for sidewalk and pedestrian facilities as well as a guide for various "Best Practices" that apply to special pedestrian situations. This section is not exhaustive but rather it refers to various national and state guidelines to respond to specific situations that may arise.

Currently, the Towns have few standards for pedestrian facilities – sidewalks, crosswalks, and other pedestrian-related amenities are constructed on an ad-hoc, as-needed basis. This section of the Plan is important because it provides a consistent set of guidelines to help ensure that safety and accessibility goals are realized and clear expectations are set for drivers and pedestrians.

Design standards are constantly changing and evolving, so it is recommended that the Town confer with NCDOT and various national resources guides (included on the final page of this chapter) whenever embarking on new facilities.

Design Guidance

There are a variety of sources for design guidance for pedestrian facilities, including the following:

- NCDOT Roadway Standard Drawings (2012);
- NCDOT Complete Streets Planning and Design Guidelines (2012);
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004);
- Manual on Uniform Traffic Control Devices (MUTCD);
- US Access Board Guidelines for Pedestrians Facilities in Public Right-of-Way (2011); and
- Numerous Federal Highway Administration publications.

It is best to refer to these design publications when special conditions arise in the design of projects. Every effort should be made to address the requirements, particularly those concerning ADA, to maximum extent possible even if it means additional right-of-way or construction is needed. State and local governments are required to comply with ADA in the construction or retrofit of projects in public rights-of-way.

Sidewalks

The typical sidewalk is least five feet in width, made of concrete, and placed along roadways at least three feet behind the curbline (a 5' buffer is preferable). In general, the width of sidewalks should accommodate two persons walking past one another, a width generally perceived to be five feet, at a minimum. Other circumstances that may require additional sidewalk width are to accommodate:

1. High pedestrian volumes and places where sidewalks serve functions in addition to pedestrian travel, such as in a central business district;
2. The overhang of parked vehicles from off-street or angled on-street parking areas; and

3. Additional buffer from traffic when a planting strip cannot be installed.

Exhibit 8-1 shows the operating characteristics of a pedestrian. The downside of a typical 5-foot sidewalk is that it barely allows for enough width for two people to walk side by side or comfortably pass when considering clearance width. Sidewalks should fit the design characteristics of the area in which they are constructed and designers should recognize when more width is required.

Additional considerations for sidewalk facilities are:

- Eliminating both high and low contact points with tree branches, mast-arm signs, overhanging edges of amenities or furniture, and
- Providing clear space between walls on one side of the walkway and amenities, parking overhang, or plantings on the curb side of the walkway.

In general, concrete is the preferred surface because it is more durable than asphalt. A more flexible material, such as rubberized paving, can also be considered in situations in which there is the potential for tree roots to crack and lift the concrete. Using these types of materials can reduce the risk of a tripping hazard, and also lower maintenance costs. More permeable materials, such as porous pavers, can be considered for all pedestrian-ways, and in particular for greenways near streams, in order to reduce run-off.

Cross-Slopes

Cross-slopes, or a slope along the travelway surface which is perpendicular to the direction of travel, can make wheelchair travel difficult and impact those with other mobility challenges. In addition, it can also make for treacherous walking conditions for individuals with problems with their balance and coordination.

Cross-sloping most frequently occurs in conditions in which a driveway meets a sidewalk, but can also occur in other situations. In order to avoid dangerous and difficult travel condition, ADA requires that cross-slopes shall not exceed 2 percent, and preferably not exceed 1.5 percent where possible.

Exhibit 8-1: Operational width & Clearance Requirements

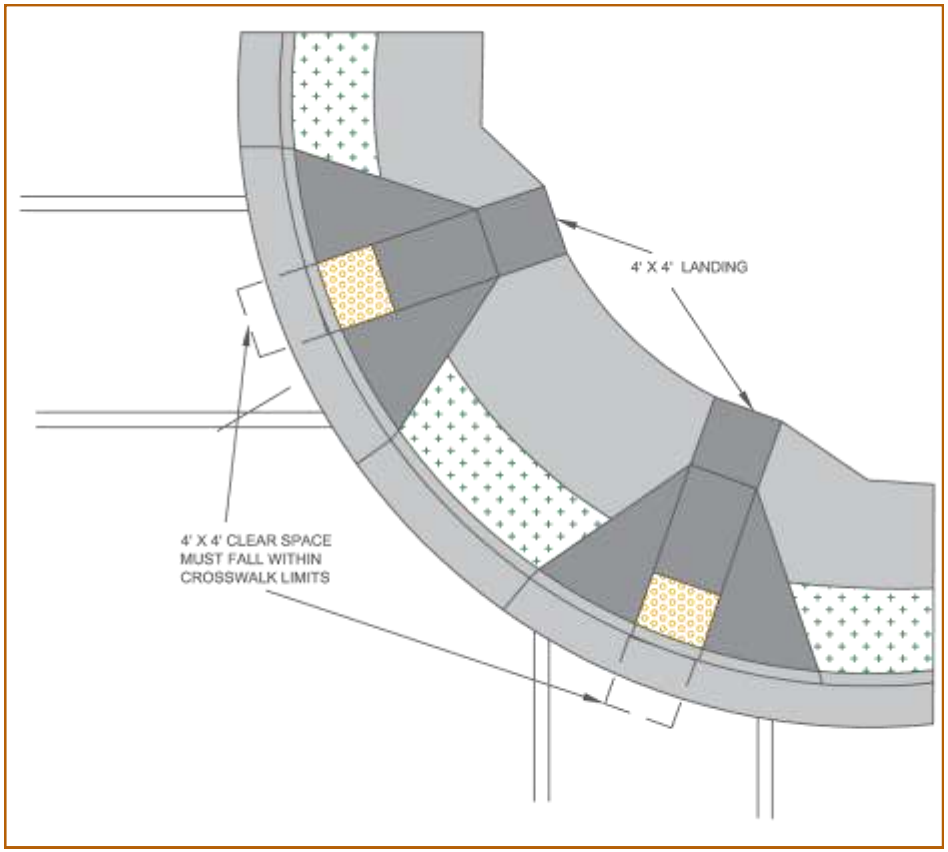
User Type	Surface Width (feet)	Clearance Required (feet)
Pedestrian using a walker	3	4
Tourist with wheeled luggage	3	4
Wheelchair user	3	4
Jogger	3	5
Parent walking with child in hand	4	6
Romantic couple walking arm-in-arm	4	5
Business colleagues walking side-by-side	5	6
Wheelchair user with assistance dog or pet	5	7
Two parents side-by-side with strollers	6	7
Wheelchair user walking with somebody using a walker	6	8

Curb Ramps

Curb ramps are a significant and required feature of accessible pedestrian transportation systems, and must be designed carefully to fulfill their function and the requirements of the Americans with Disabilities Act. Ramps must comply with the technical specifications of standard NCDOT drawings, including requirements concerning slope, landing area, and detectable warnings. Push buttons (which are lacking in NCDOT standard drawings but are diagrammed in MUTCD) must also be accessible from the flat area of a ramp.

Curb ramps should not have a running slope greater than 1:12, meaning that for every foot of travel, the slope should not rise more than one inch. To provide a tactile

Exhibit 8-2: Standard Drawing for Curb Ramp (NCDOT 848.05)



The presence of a 4'x4' flat landing and ADA-compliant entry slopes within the footprint of a curb ramp are the most critical element of designing for people of all ages and abilities. This is where the sidewalk meets the street and where pedestrians must orient themselves to the street crossing.

Rendering: J.M. Teague Engineering

warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete) must be used. The ADA Accessibility Guidelines for Buildings and Facilities has an easy-to-use format for locating specific design criteria related to curb ramps, rise/run restrictions on ramps, and figures illustrating basic concepts.

Curb ramps are also required to have a 4-foot by 4-foot flat landing (no greater than 2 percent cross slope in either direction) area at the top of the ramp to allow people who walk to orient themselves. In some cases, the 4x4 landing may be accommodated at the bottom throat of the ramp.

This is a design requirement that is noted in NCDOT's design standards for wheelchair ramps, 2012 Roadway Standards Drawings 848.05 and 848.06 (Exhibit 8-2). NCDOT's website for Roadway Standard Drawings also includes four different alternative curb ramp designs intended to help communities meet ADA requirements in a variety of constrained situations (Exhibit 8-3).

Curb ramps should be placed entirely within the area of a marked crosswalk, so that the ramp space is perpendicular to the direction of travel of the pedestrian. Generally, the standard is to have separate curb ramps on each corner; if a shared (sometimes called corner or diagonal) curb ramp is constructed, then its width and radius should accommodate the user so that entry onto the ramp is parallel to the direction of travel.

Crossings

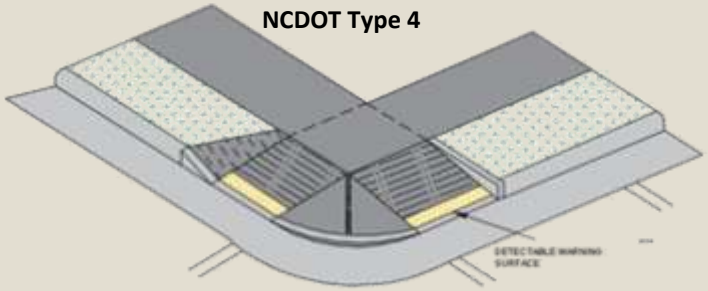
Pedestrian-friendly crossings are a critical feature in a well-connected pedestrian system because they provide the linkages between one segment of sidewalk to another as a pedestrian may cross a street, connect to another existing piece of sidewalk, or pass to a new development. A well-placed crossing can dramatically reduce pedestrian travel time and improve pedestrian safety, greatly increasing the convenience of walking as a mode of travel. Crossings can be either signalized or unsignalized, and located at intersections or, in special circumstances, at mid-block locations.

Exhibit 8-3: Best Practices for Curb Ramps

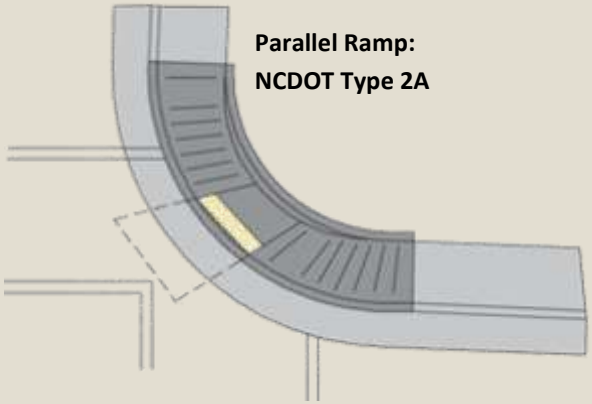
Best Practices for Curb Ramps

Curb ramps are the most difficult element of ADA-compliant pedestrian facility design to address. Building ADA-compliant slopes and flat landings is critical to the function of a person in a wheelchair or someone on crutches as they prepare to enter or leave the street. Across North Carolina, curb ramps are the most commonly misapplied elements in street design as many do not meet ADA requirements due to lack of the flat landing. The landing allows a space for a person in a wheelchair or other mobility device to orient themselves to cross the street or turn to go in their desired direction on the sidewalk.

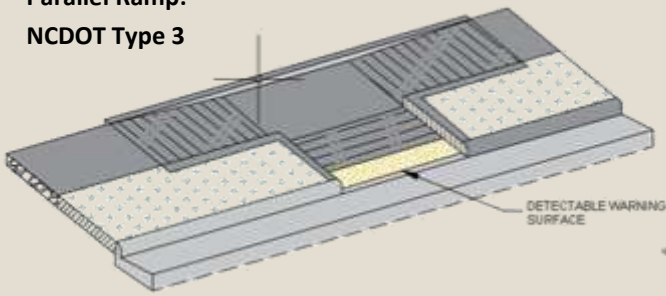
Shared Landing
NCDOT Type 4



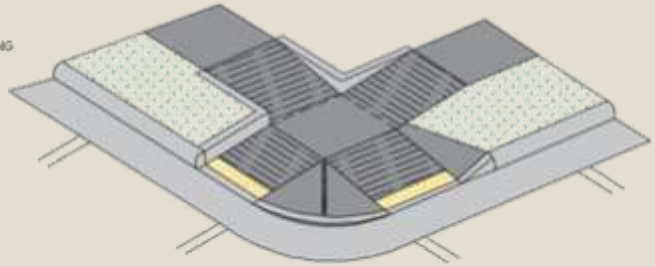
Parallel Ramp:
NCDOT Type 2A



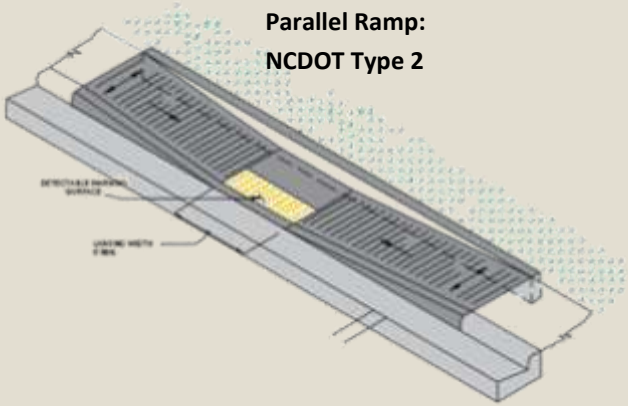
Parallel Ramp:
NCDOT Type 3



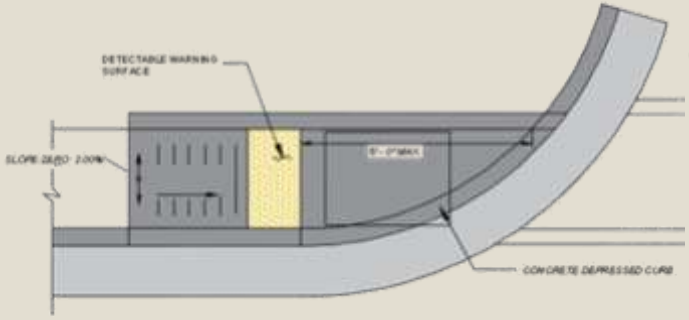
Shared Landing
NCDOT Type 5



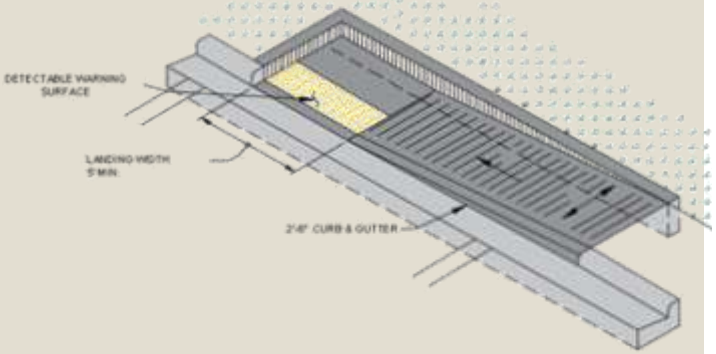
Parallel Ramp:
NCDOT Type 2



Directional Ramp: NCDOT Type 1

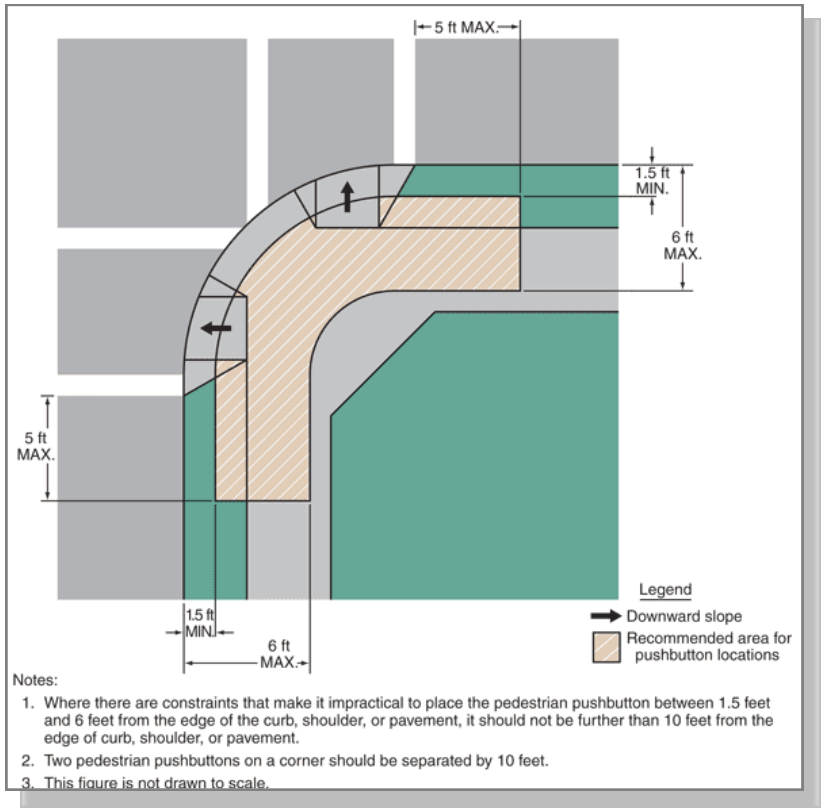


Directional Ramp:
NCDOT Type 1A



Renderings: J.M. Teague Engineering

Exhibit 8-4: Pushbutton Location Area (MUTCD; Figure 4E-3)



Special care must be given to the placement of push buttons so they are accessible to all users. An all-too-common application is attaching them to traffic signal poles in a location that is not within reaching distance for wheelchair users.

Rendering: MUTCD, Figure 4E-3

The most basic crossing is an unsignalized intersection with standard, continental or zebra crosswalk markings. Other potential treatments for unsignalized crossings include raised crosswalks and/or signage. In-street or overhead "yield to pedestrian" signs are a treatment for unsignalized intersections, encouraging motorists to stop for pedestrians as they cross the street.

These signs offer a visual cue and instill some friction in the roadway, as they are typically placed in the middle of a bi-directional, two-lane road. Additional treatments can be added for crosswalk visibility at unsignalized and signalized locations, including decorative brick, textured crosswalks or experimental paint colors.

All signalized intersections should be outfitted with countdown pedestrian signals and crosswalks, per NCDOT and MUTCD standards. MUTCD standards dictate that timing must allow for a pedestrian to safely cross the street at a speed of 3.5 feet per second. In some cases, the built environment or user context may require more crossing time or more specialized treatments to alert motorists to the presence of pedestrians. MUTCD notes that 3.0 feet per second can be used to allow sufficient time for slower pedestrians, such as older adults, those in wheelchairs or who are visually disabled.

Marked crosswalks (at signalized and unsignalized locations) should not be less than six feet in width, with 10 feet or greater for downtown areas and locations of high pedestrian traffic. Advance stop bars should be placed 4 to 10 feet from the pedestrian crosswalk (with 6 to 15 feet recommended in uncontrolled locations or multilane roads). Pedestrian push buttons should accompany pedestrian signals that are not phased into the regular traffic signal cycle; push buttons must follow ADA guidelines (Exhibit 8-4).

Pedestrian-activated signals should be used for roadways with long traffic signal cycles where pedestrians are to be given preference when present, and/or for signals where the pedestrian cue is not phased into the traffic cycle unless a button is activated. Pedestrian-activated signalization can also be used to provide lead pedestrian intervals in high-conflict areas, in order to give pedestrians a few seconds of full use of the intersection or crosswalk prior to allowing right or left turning movements for motorists. These options reinforce pedestrian safety at high-conflict intersection locations with significant crash history. Push buttons should not be used in central business districts

or high traffic locations as the only means of providing a walk signal. Though NCDOT does not have established guidelines for the placement of pedestrian signals, they generally use MUTCD and AASHTO warrants for the installation of traffic signals. It is advisable to follow this same guidance or confer with NCDOT Division 13 before making changes.

Crossings for Multi-Use Trails

Where multi-use trails meet the street is one of the most critical, yet overlooked, design elements. These locations are where a diverse set of users must cross a street or intersection and they travel at varying speeds. The illustrations (Exhibits 8-5 and 8-6) produced for this Plan are intended to show common treatments for multi-use trail crossings based on common conditions.

Places where pathways cross at a mid-block location requires design treatments that are very different than a common crosswalk/sidewalk/ramp combination. Crossings and curb ramps must be as wide as the trail. Exhibit 8-5 shows best practice treatments for these conditions.

It is important to work with designers and DOT on these crossings, as multi-use trail design standards are not included in current NCDOT standard drawings.

Signage

In addition to sidewalks and crossings, pedestrian facilities also include signage along major pedestrian routes. Regulatory and warning signs serve primarily to reinforce traffic laws and rules of the road, and notify motorists and others of the presence of pedestrians. Often, the intended effect is to instruct motorists to drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area.

Regulatory and warning signs can be used in a variety of places, including at crosswalks, at intersections, in-street, and near schools. National standards for sign placement and use can be found in the MUTCD. The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway.

Accommodation During Construction

For residents to be comfortable using walking as a primary mode of transportation in their town and neighborhood, they need to be confident that the facilities they count on will be available consistently. Therefore it is of high importance to adhere to guidelines laid out in

Exhibit 8-5: Typical Crossing Treatment for Multi-Use Trail at a Two-lane Road

Exhibit 8-6: Typical Crossing Treatment for Multi-Use Trail at a four-lane highway

Future multi-use trails identified in this plan will likely have to cross existing highways. This image illustrates common best practices for getting trail users across large and sometimes confusing intersections. It showcases some best practices to improve conditions for pedestrians crossing at intersections with sidewalks.

Rendering: JM Teague Engineering

Chapter 6D of MUTCD regarding Temporary Traffic Control to ensure pedestrian access when construction or special events obstruct the usual pedestrian route. The Towns are responsible for ensuring both municipal construction crews and contractors comply with these guidelines when pedestrian paths are impacted by construction.

Parking Lots

Pedestrian circulation through parking lots is an essential element of walkability and can make the difference between a resident walking to a store or getting into a car for a short trip. Zoning should include requirements for pedestrian-friendly circulation to and from the front doors of places of business. Development review should include an assessment of pedestrian access and safety through vehicular areas in private developments, including attention to the standards described in this chapter for curb ramps, crosswalks, and driveways.

New Construction and Redevelopment

The town's zoning ordinance should be as specific as possible regarding pedestrian facility requirements for new construction and redevelopment. Developers should be told up front about expectations for pedestrian facilities that not only meet minimum requirements but enhance the pedestrian experience. Requirements may vary by zoning district, size of development, and functional classification and design features of the road the development abuts.

Traffic Calming

Traffic calming is the term used to describe a toolbox of improvements that can be used to "calm", or slow, traffic along a street, usually in a neighborhood or similar area with low traffic speeds and relatively lower traffic volumes. Traffic calming efforts can help to create a safer, more comfortable pedestrian environment by reducing vehicle speeding. Traffic calming comes in a variety of forms. Some of the most common techniques are described in the following paragraphs.

Curb Extensions (Bulb-Outs) and Curb Radii. The primary purpose of bulb-outs is to shorten the distance that pedestrians must travel to cross a street. In addition, they may encourage motorists to drive slower by narrowing the travel lane and reducing vehicular speeds during turning movements at intersections.

Motorists travel more at lower speeds around corners with smaller curb radii even without the use of curb extensions. Landscaping and other aesthetic treatments such as special paving textures should be carefully designed to avoid hazards to drivers and visually-impaired citizens while minimizing maintenance costs. The type of vehicles (especially trucks) using the route should be considered in the design of curb extensions.

It is common practice to sign and designate a detour route for motorists when there is a lane closure. The same is required, per MUTCD, for pedestrians. Sidewalk closures should be carefully evaluated and contractors should be required to design and sign proper detour routes. Sidewalk closures in downtown should be limited in terms of duration and extent.

Photo: Don Kostelec

Medians and Refuge Islands. One approach where wide, high volume and/or high speed roadways create an obstacle to pedestrian mobility is to provide refuge islands to shorten the length of the crossing and give pedestrians who are not able to cross the entire street in one signal cycle the opportunity to split their crossing. These islands, along with medians, also enclose the visu-

al space for motorists and therefore encourage compliance with speed limits and other traffic laws.

Sensitivity to large vehicles (buses, trucks and fire equipment) dictates some elements of the median design, curb style, and placement. Median-controlled roadways reduce the number of turning conflicts and are generally considered safer for all road users than a two-way, left-turn lane (TWLTL) roadway.

Many conflicts can arise on downtown sidewalks as merchants want to market their stores and have sidewalk sales while towns want to plant trees, place benches and other amenities. The illustration above notes the clear route that should be maintained at all times. The Pedestrian Access Route is an ADA requirement so there is both a consistent and clear space available for people using the sidewalk.

Photo: Don Kostelec

Pedestrian Access Routes

A retail establishment may display merchandise on the sidewalk and outdoor seating is permitted immediately in front of a restaurant. This type of street activity should be encouraged as both the display of merchandise and outdoor dining contribute to a business district's vibrancy and visual attractiveness. In other words, these activities engage the pedestrian.

Four feet of sidewalk should be maintained unobstructed by permanent or temporary obstacles and protruding objects such as benches, bike racks, fire hydrants, planers, utilities, etc. The minimum acceptable ADA sidewalk width is five feet (four feet if a five-foot wide pathway is placed at least every 200 feet).

Alternative Pedestrian Facilities

Given budget limitations, Rutherford College, Valdese, and NCDOT may find opportunities to explore other options for accommodating people who walk in a manner that addresses required technical elements of design but is cost-effective from a budgetary perspective. The common design manuals provide for the perfect solution and the traditional curb, gutter and sidewalk approach to building pedestrian facilities has been around since the 1800s. But this is not always possible given an area's context.

Exhibit 8-7 highlights approaches by North Carolina communities and others to provide for effective but low-cost transportation facilities. A community should not pursue these improvements lightly as they still need to comply with ADA requirements for slopes, access at intersections and other treatments. But they have been proven to be effective in providing a space for pedestrians along various types of roadways, including state and US highways in North Carolina.

These improvements can sometimes be constructed at 1/10th the cost of traditional curb, gutter and sidewalk, which is why it is important to consider these options before embarking on more costly improvements. People are already walking along many streets and that requires them to walk in the roadway at times. These alternative facilities simply allow for that use to continue while giving those who walk some space that is clearly delineated from the vehicular realm.

Painted pedestrian lanes or simple markings (images A and B) are suitable for low speed, low volume residential streets where motorists and pedestrians are already sharing the road space. Alternatives such as image C could be an interim measure before full-scale pedestrian improvements or a linkage between greenways alongside a street.

Exhibit 8-7: Alternative pedestrian facilities

Low-Cost and Interim Active Transportation Facilities for Neighborhood & Constrained Streets

These images illustrate a variety of improvements that can be made along roadways, under certain conditions, to promote pedestrian and bicycle travel in a low-cost manner. Considerations such as traffic interaction, compliance with ADA, and maintenance practices may impact whether such investments can be applied.

A: On-street pedestrian lane in Boone, NC.

C: Shoulder turned multi-use trail in Talkeetna, Alaska.

E: Gravel sidewalk along the NC Highway 9 near Black Mountain, NC.

B: Pedestrian shared street markings in Olympia, WA.

D: Curbless sidewalks along US 64 in Lake Lure, NC.

F: Shoulder/extruded curb pathway in Ada County, Idaho (constructed with federal Safe Routes to School funds)

Photos: Don Kostelec

Exhibit 8-8: Design Resources

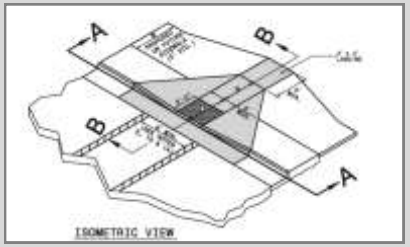
Design Resources for Pedestrian Facilities

The various publications and design guidelines for pedestrian facilities are continually being reviewed and revised. Below are some of the common resources that can be referenced. Links are provided for each resources with a footnote if they are free for download.

NCDOT Roadway Standard Drawings

These are kept current on NCDOT's website and updated as other design manuals or design standards such as ADA are modified. Pedestrian facilities are included in Division 08 - Incidentals. DOT also provides several Alternative Curb Ramp Designs on this page.

https://connect.ncdot.gov/resources/specifications/pages/2012-roadway-drawings.aspx



NCDOT Complete Streets Policy & Design Guidelines

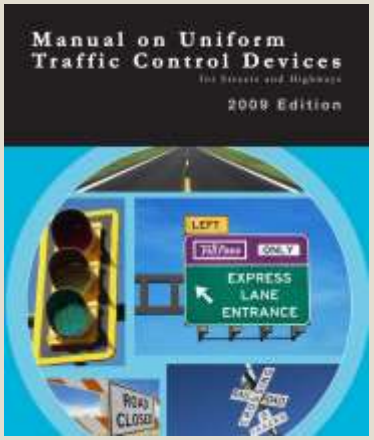
This reference document outlines several aspects of the state's policies and design guidelines. There are sections that address specific elements of complete streets and general guidelines that serve as a starting point for design of major facilities.

http://www.completestreetsnc.org/

Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)

The guidelines are the specific implementation of the Americans with Disabilities Act for pedestrian facilities in the public right-of-way. The guidelines define the public right-of-way to mean "public land or property, usually in interconnected corridors, that is acquired for or dedicated to transportation purposes." It provides many elements not addressed in other design guides.

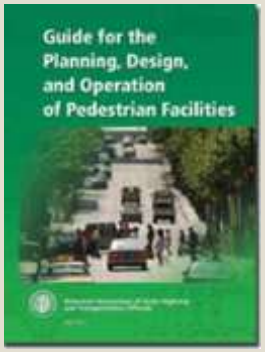
http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way



Manual on Uniform Traffic Control Devices (MUTCD, 2009)

MUTCD provides specifications for the design and placement of various traffic control devices. For people who walk, this manual impacts design and placement of signage, timing of pedestrian signals, the design of crosswalks and many other features.

http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm

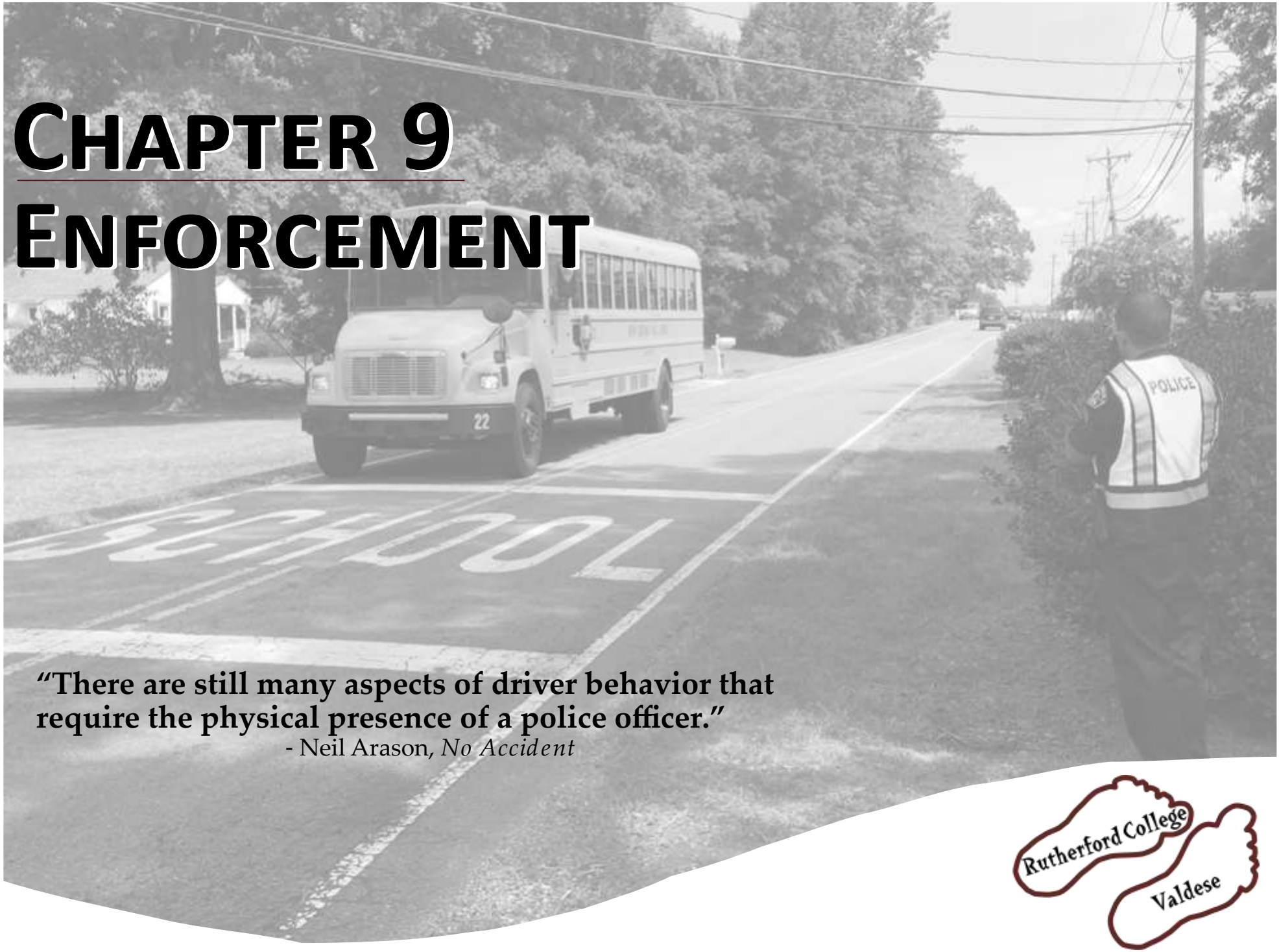


AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)

This design manual published by AASHTO is becoming dated, but it includes many of the foundational elements of pedestrian facility design. NCDOT's design publications do not address all aspects of pedestrian facility design, so this manual is useful for referencing other features.

https://bookstore.transportation.org/item_details.aspx?id=1334

Chapter 9
Enforcement



"There are still many aspects of driver behavior that require the physical presence of a police officer."

- Neil Arason, *No Accident*

Rutherford College
Valdese

Enforcement for Pedestrian Safety

There are a number of documented approaches to law enforcement that enhance the safety of pedestrians. With only one documented crash available to map based on NCDOT's data, it is difficult to identify any specific locations in Rutherford College and Valdese that have a documented safety concern.

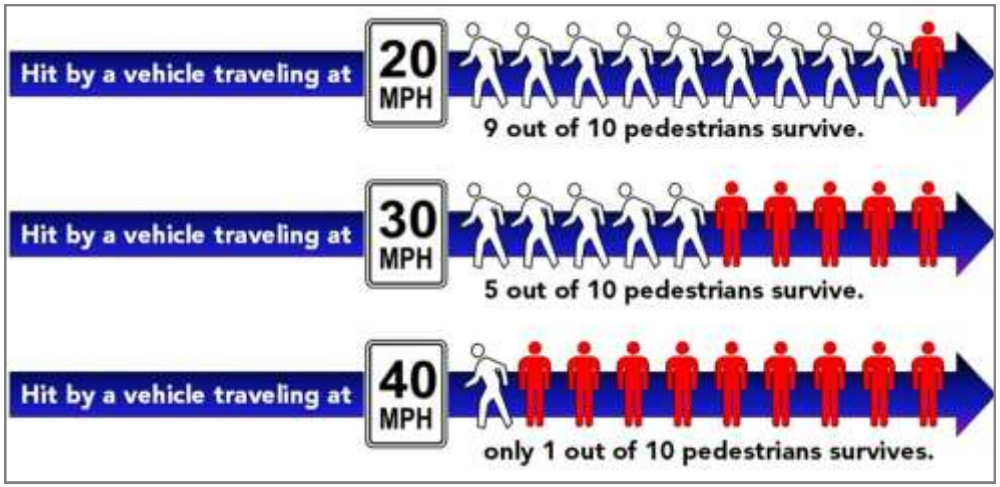
Therefore, beyond the project, approaches to addressing safety involve simply targeting enforcement of existing traffic laws at locations where there is high pedestrian traffic or what enforcement officers believe are locations that have potential for crashes (e.g. schools, parks, downtown areas). Speed enforcement is particularly important in areas of high pedestrian traffic, as small differences in vehicle speed make dramatic differences in survivability for the pedestrian.

Officers patrolling areas of high pedestrian activity can step up enforcement for distracted driving violations, unsafe lane changes, failure to signal, aggressive driving, DUI, and other unsafe motorist behaviors that create a particularly grave danger for vulnerable road users.

These actions by motorists can discourage individuals from choosing walking as their mode of transportation for short trips because a car gives them more protection from dangerous drivers. Officers patrolling near unprotected crosswalks, intersections with unmarked crosswalks, or signalized intersections where there is heavy turning traffic should pay particular attention to the crosswalks and ticket or warn motorists who fail to yield the right-of-way.

In addition, crosswalk enforcement actions, often referred to as "stings," provide a targeted way to increase public awareness of the requirement to yield to pedestrians in crosswalks. They are discussed in the next section.

Exhibit 9-1: The impact of vehicle speed



The speed of the motor vehicle at the time of impact with a pedestrian is major influence on the likelihood of death.

Crosswalk Enforcement Actions

Police departments in jurisdictions participating in the Watch for Me NC campaign have received specialized training in conducting crosswalk enforcement actions. It is advisable that Rutherford College and Valdese, observe Morganton's 2016 Watch for Me NC efforts and consider partnering with them in the future.

In these targeted operations, officers set up around a marked, unsignalized crosswalk and have an officer, usually wearing highly visible clothing but not a police uniform, cross the street. The decoy officer is trained to begin crossing when an approaching vehicle is far enough away to easily stop but

close enough to see him/her. Other officers intercept drivers who fail to yield and issue citations or warnings, along with educational material. When these actions are held, they are typically accompanied by press releases to maximize educational impact.

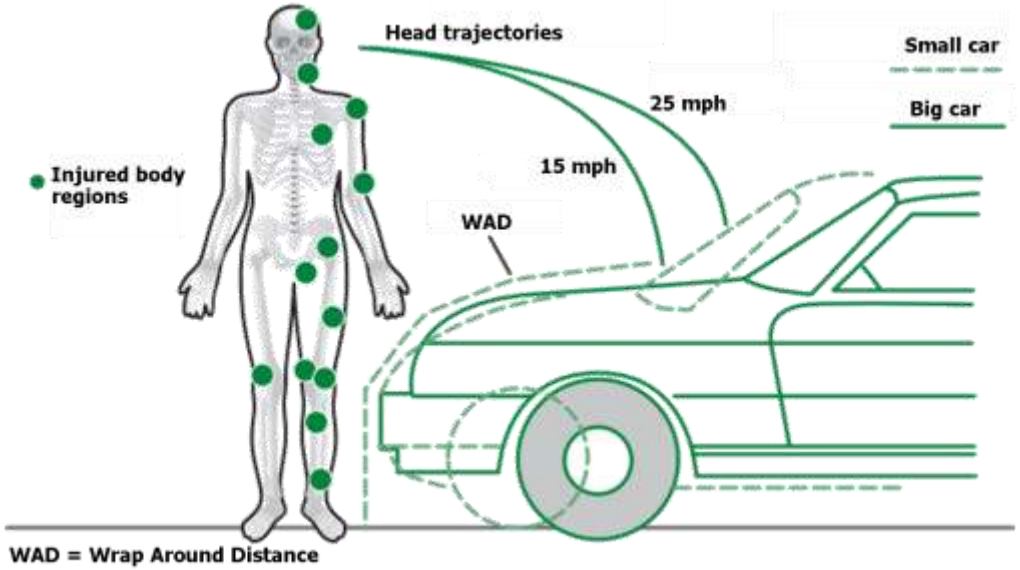
Campaigns usually begin less aggressively, issuing warnings to all but the most egregious violators or those who are committing multiple traffic violations, and move toward issuing tickets instead of warnings after the campaign has received news coverage. In some jurisdictions nationally, creative decoys are used to further attract public attention. For example, Asheville has had the plainclothes officers serving as decoys dress up as McGruff the Crime dog and in the small town of Mechanicsburg, PA, the mayor has gone through training with the police department and frequently serves as the decoy instead of a police officer. Support for planning crosswalk enforcement actions, including accompanying educational handouts, is available through the Watch for Me NC program.

What about enforcement for pedestrians?

While motorists ticketed for failure to yield to pedestrians often demand "equal treatment," it is important to remember that motorists and pedestrians are not equal in their vulnerability, their potential to cause harm to others, or their requirements for being on the road.

Whereas all legal motorists are licensed, theoretically responsible adults operating machines that have the potential to kill or maim, pedestrians include the very young and very old and people incapacitated by illness or disability who may not be able to fully understand the rules of the road. Pedestrians are not required to have a license to simply walk.

Exhibit 9-2: Injured body regions of a pedestrian when hit by a motorist



Source: World Health Organization / Yang J. *Review of injury biomechanics in car-pedestrian collisions. 2001.*

This diagram, modified from a World Health Organization image, illustrates the injured body regions of a pedestrian being hit by a car and where contact will occur based on the size and speed of the vehicle.

Educational efforts to reduce problematic pedestrian behaviors have value, but enforcement focus is most effectively used on ensuring that licensed road users are prepared to respond to obstacles and control their vehicles even in adverse circumstances.

Practically speaking, because most people have a survival instinct, the majority of "jaywalking" or technically illegal street crossings by pedestrians take place in circumstances where a crash is not likely to occur. Therefore, issuing tickets to pedestrians who disobey signals or cross between adjacent signalized intersections typically does not have significant impact on pedestrian crash rates.

School departure time can be chaotic, which leads to actions by motorists that can endanger pedestrians. Schools can find ways to frame enforcement message in a positive light to reward good behavior.

As documented by the DC area's *Street Smart Pedestrian and Bicycle Safety Enforcement Training Manual* (2007), they found that cities that conducted an aggressive "jaywalking" enforcement campaign in the late 1900s found that it had no impact on the city's rate of pedestrian crashes. Upon this finding, they changed the focus of their pedestrian safety programs and undertaking other efforts to make the city more walkable.

Officers who witness dangerous pedestrian law violations can issue tickets, but a concentrated effort of forcing pedestrians to wait for signals or go out of their way to use crosswalks is of limited safety value, particularly if drivers are not fully compliant with laws at crosswalks.

Education for Law Enforcement

As pedestrian and bicyclist volumes increase across the country, many jurisdictions are realizing that training of law enforcement officers related to non-motorized road users needs to be updated and augmented. Officers must not only enforce the laws, but also set a positive example for other drivers by complying with crosswalk laws and operating their cruisers safely. Officer training should include a refresher course on state laws relating to pedestrians, including the definition of an unmarked crosswalk and driver responsibilities at all crosswalks and under what circumstances it is legal for a pedestrian to cross at mid-block.

In areas with new pedestrian enforcement programs, it is not uncommon for police to issue tickets to pedestrians for crossing at mid-block even though the pedestrian was not between two adjacent signalized intersections, for example. Officers, along with other municipal employees, can also benefit from education about the physical and mental health benefits of walking.

Enforcement & Safe Routes to School

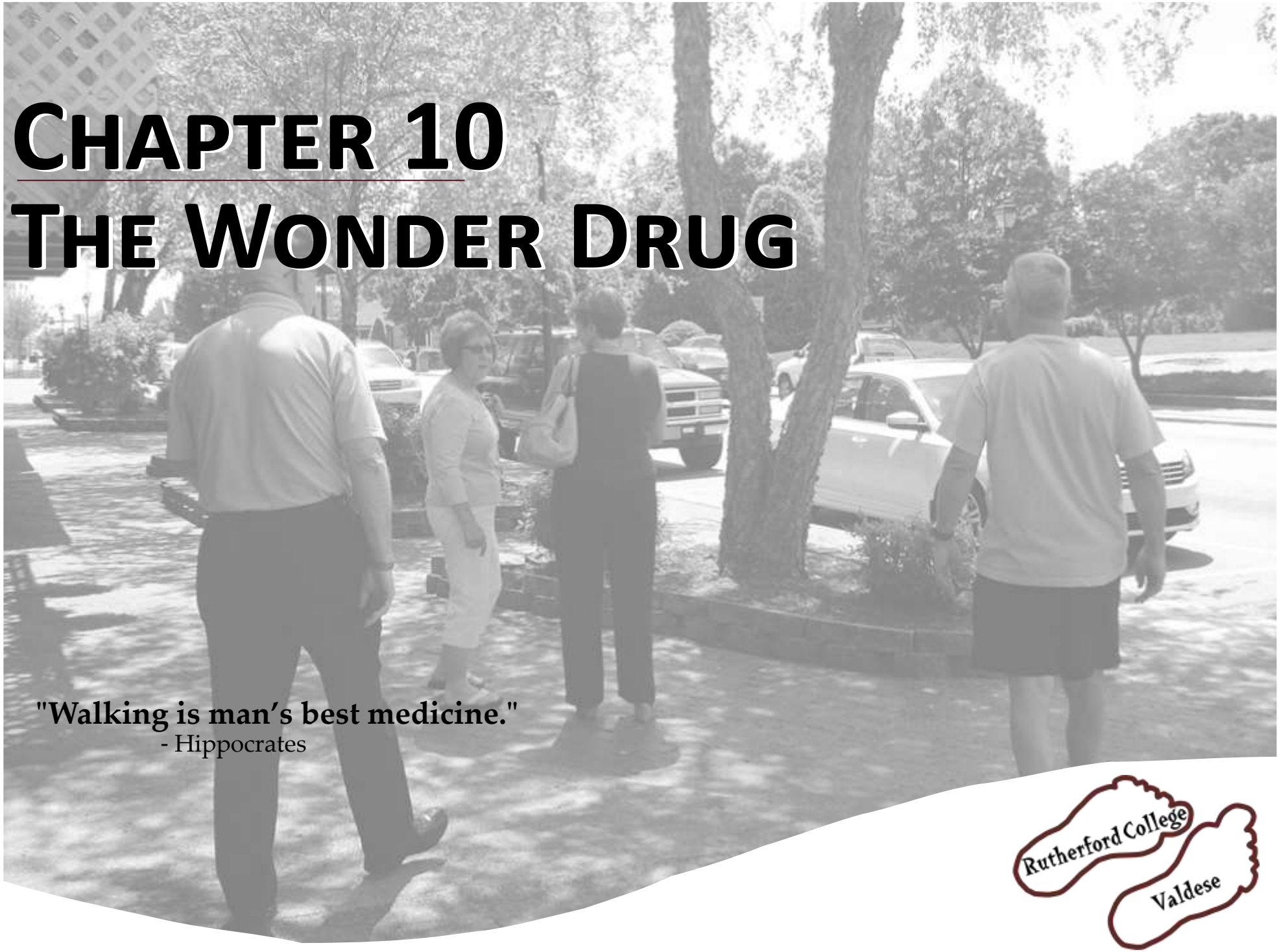
Often thought only as traffic violation ticketing, enforcement is a communitywide effort and one of the key strategies of a Safe Routes to Schools program. Students, parents, school staff, police officers, members of the media, and other participants are all important stakeholders that help ensure traffic laws are obeyed and roads are safely shared. When properly equipped, each group can spread awareness and hold members of the school's community accountable through a unique contribution.

Such programs are not common in Rutherford College and Valdese. Kids at Valdese Elementary School are discouraged from walking and biking to school due to safety concerns. Elements of this plan will help address those concerns and a coordinated Safe Routes to School program would help alleviate common safety perceptions.

Bad driving behaviors around schools are discouraged through targeted community enforcement, including:

- Crossing guards for ingress/egress at school access points and crosswalks during arrival and departure times.
- Police conducting more speed enforcement in the school zone & provide information to parents.
- Schools developing special messaging for parents in the form of flyers to handout during arrival and departure time to remind them of the school zone and safe motoring practices.
- Offering small rewards for good and safe behaviors. Information campaigns can be combined with a rewards program to "catch" motorists behaving properly in the school zone and at arrival/departure times.

Chapter 10
The Wonder Drug

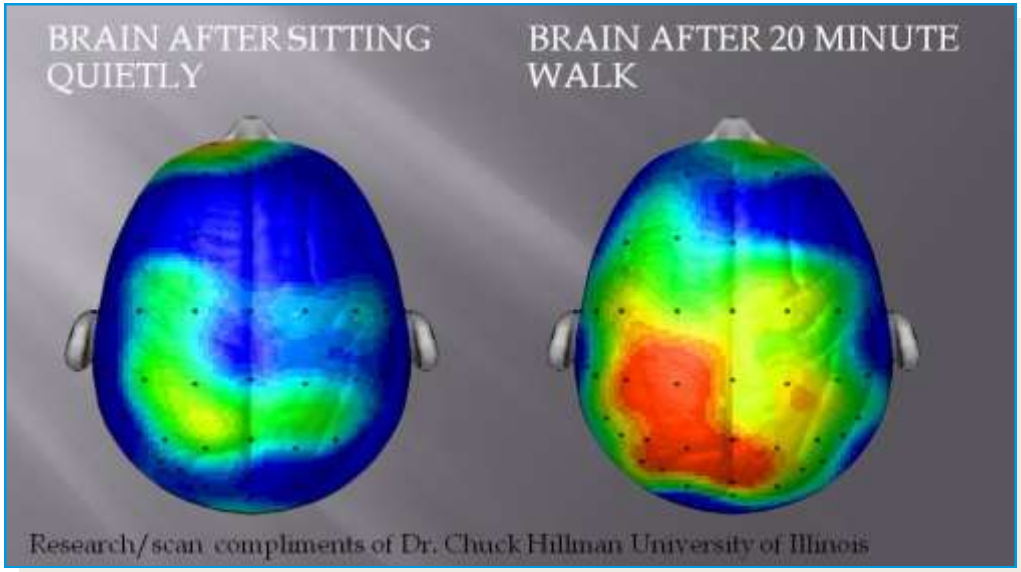


"Walking is man's best medicine."
- Hippocrates

The Wonder Drug

The World Health Organization defines *health* as "a state of complete physical, mental and social well-being and not merely the absences of disease or infirmity." Using this holistic definition of health implies that to improve the health of a population, the social determinants of health (the conditions in which people are born, grow, live, work and age, shaped by the distribution of money, power and resources at global, national and local levels) must be considered and addressed to promote health and wellness for all. These same factors should be considered with regard to walkability.

Exhibit 10-1: This is your brain on walking



Walking may be seen as having a direct physical outcomes, but it also impacts emotional health. This image illustrates the brain after sitting versus the brain after 20 minutes of walking.

Wellness is much more than physical health, exercise or nutrition. It is the full integration of states of physical, mental, and spiritual well-being.

Walkability and associated programs to promote walking play a significant role in creating a quality of life that promotes the health of residents. The Towns should invest in programs and facilities that attempt to maximize the health benefits. The communities identified physical activity rates, cardiovascular disease and diabetes as local concerns that can be addressed through creating a more walkable community.

The model for health used in *WalkRCV* includes physical, environmental, emotional, intellectual, social, spiritual, and occupational wellness. These dimensions act and interact in a way that contributes to our own quality of life.

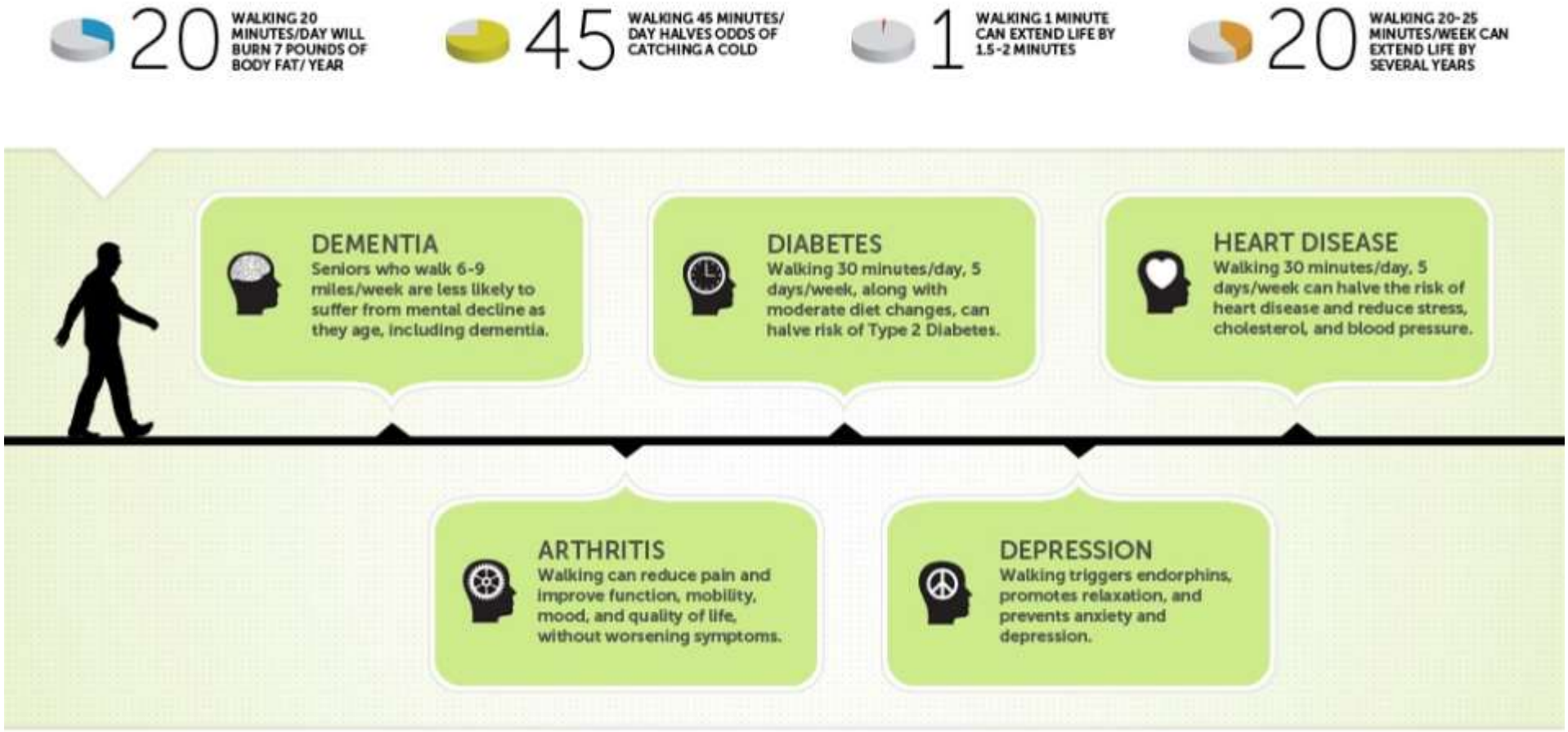
Physical Health & Wellness

Physical wellness involves aspects of life that are necessary to keep the body in top condition and capable of doing daily activities without undue fatigue or physical stress. Optimal physical wellness is developed through the combination of beneficial physical activity/ exercise and healthy eating habits. Elemental components of physical wellness include building muscular strength and endurance, cardiovascular strength and endurance and flexibility. Creating a walkable neighborhood with destinations within walking distance promote physical wellness. Additionally:

- Walking is a low-impact and easy way to improve physical health that can be enjoyed by people of all ages.
- Walking gives the heart, blood vessels and lungs a workout, as well as increased cardiovascular fitness; increased strength and flexibility; improved joint mobility; improved posture; and decreased body fat.

Exhibit 10-2: The Health Benefits of Walking

The Health Benefits of Walking



- It is one of the best ways to reduce the risk of health problems such as stroke, heart disease, some cancers, diabetes and arthritis.
- 30 minutes of moderate walking per day five days a week can help ensure a longer, healthier and happier life.
- One hour of walking may increase your life expectancy by two hours.

Emotional Health & Wellness

Emotional Wellness is the ability to understand ourselves and cope with the challenges life can bring. The ability to acknowledge and share feelings of anger, fear, sadness or stress; hope, love, joy and happiness in a productive manner contributes to our Emotional Wellness. It also involves being attentive to your thoughts, feelings, and behaviors, whether positive or negative. Walking can improve our mood and help flush toxins out of our body that can negatively effect our mental health. The brain after just 20 minutes of walking is invigorated and ready to respond to challenges.

One hour of walking may increase your life expectancy by two hours.

Social Health & Wellness

Social Wellness is the ability to relate to, interact with, and connect with other people in our world. It involves using good communication skills, having meaningful relationships, respecting yourself and others, and creating a support system that includes family members and friends.

Our ability to establish and maintain positive relationships with family, friends, and co-workers contributes to our Social Wellness. Walking can and should be a social endeavor. When given a quiet and safe place to walk, families and friends can enjoy time together and explore a neighborhood, share a meal or run errands together. Unlike vehicular travel, walking can influence and motivate people to take more care of the community.

Environmental Health & Wellness

Environmental Wellness is the realization of our innate connection to nature and our ability to recognize our own responsibility for the quality of the air, the water, and the land that surrounds us. The ability to make a positive impact on the quality of the environment--be it our homes, our communities or our planet-- contributes to our Environmental Wellness. Protecting yourself from environmental hazards and minimizing the negative impact of your behavior on the environment are also central elements.

If we ask that pedestrians walk in an area that is filled with noise pollution or high traffic volumes, special accommodations should be made to mitigate the negative influences of that environment.

Intellectual Health & Wellness

Intellectual Wellness is the ability to open our minds to new ideas and experiences that can be applied to personal decisions, group interaction and community betterment. The desire to learn new concepts, improve skills and seek challenges in pursuit of lifelong learning contributes to our Intellectual Wellness. Historic walking tours or designated routes can help community member and visitors gain greater appreciation, in an active way. Safe walking areas can be enjoyed by school classes, Sunday school classes and other types of in-

struction-based endeavors. Children who walk to school perform better in school, and exercise such as walking improves cognitive abilities for all ages.

Spiritual Health & Wellness

Spiritual Wellness is the ability to establish peace and harmony in our lives. It is a personal matter involving values and beliefs that provide a purpose in our lives. While different individuals may have different views of what spiritualism is, it is generally considered to be the search for meaning and purpose in human existence, leading one to strive for a state of harmony with oneself and others while working to balance inner needs with the rest of the world.

Having a quiet place to walk and reflect on life can be a spiritual experience. Places of workshop are now providing walking tracks on their property or provide a space for community gardens, which can link the spiritual realm to the physical realm.

Occupational Health & Wellness

Occupational Wellness is the ability to get personal fulfillment from our jobs or our chosen career fields while still maintaining balance between work and leisure time in our lives. It focuses on our search for a calling and involves exploring various career options and finding where we fit. It also involves addressing workplace stress and building relationships with co-workers. Because what we do for a living encompasses so much of our time, it is important for our overall well-being to do what we love and love what we do. Being able to walk while on a lunch break or making it convenient to walk to a bus stop can improve overall occupational health by providing a place to recreate or reducing the cost burden by allowing a person to access a cheaper mode

Exhibit 10-3: Behavior change resulting from a mile of new sidewalks/greenways

Days per Month (% of users)	Increase in Duration in Minutes	Additional Impacted Users	Increased Minutes per Month Max Duration x Days per Month
4-6 (17%)	20-30	105	120-180
	31-40		160-240
7-10 (49%)	20-30	310	210-300
	31-40		280-400
11-14 (17%)	20-30	105	330-420
	31-40		440-560
15+ (17%)	20-30	105	450+
	31-40		600+

Will people walk more if facilities are built? The answer is: Yes! This table illustrates the results of research through Health Impact Assessment and related modeling to identify how many days per month individuals will walk and likely impact to user per mile of facility constructed.

Source: Buncombe Co. Greenways & Trails Plan Health Impact Assessment

of transportation.

Health-based Investments

The multi-criteria evaluation for pedestrian projects for this plan included several categories that relate to improve health conditions as a result of the project. These factors were safety, proximity to parks, schools and employment, access to food and populations in need. In a review of the recommended projects as well as prevailing research related to health impacts and project evaluation criteria, the following projects appear to have the most potential to positively impact the health of the community (Exhibit 10-4):

- **Pathway Network:** The planned pathway network, once complete, provides the greatest potential positive impact for all 7 dimensions of health due to proximity to nature and connections to the schools.
- **Main Street—Valdese:** Upgrading these crossings and completing the sidewalk network to the west encourages walking for many purposes to many destinations, and by people of all ages and abilities.
- **Malcolm Boulevard—Rutherford College:** This route is the spine of the town and links neighborhoods, churches, businesses, parks, the hospital and the walking trail.

It is recommended that the Towns engage health-based organizations to seek funding for these high priority health projects.

"NCDOT may have opportunities to support positive health outcomes by considering public health implications in our decision-making across all transportation modes, programs, policies, projects, and services, and through all stages of the life of a transportation project from planning to project development, construction, operations, and maintenance. "

- NCDOT's Transportation & Public Health Policy, adopted 2012

Health Impacts of Pedestrian Facility Investments

Exhibit 10-3 (previous page) outlines the likely impacts of people's behavior for each mile of sidewalk or greenway constructed. Exhibit 10-5 indicates several types of pedestrian facility investments and the likely health impacts, both positive and negative, of those investments. It is hard to find negative impacts of investing in pedestrian facilities as many have the potential, based on research by academics, health professionals and transportation researchers, to greatly impact a community's health and an individual's health in many ways. Some of these positive impacts include:

- Providing a place for people of all ages and abilities to safely walk for transportation, recreation and socializing;
- Connecting destinations by facilities that encourage walking rather than driving, which saves money and increases physical activity;
- Eliminating the need for pedestrians to walk in the roadway;
- Places pedestrians in more predictable locations along roadways; and
- Provides a space that is more resilient to the impacts flooding and other episodic hazards.

The negative health impacts that can arise with pedestrian facility investment are primarily related to episodic incidents, construction impacts and a mix of users (e.g. bicyclists). Incorrect placement of pedestrian facilities or poorly

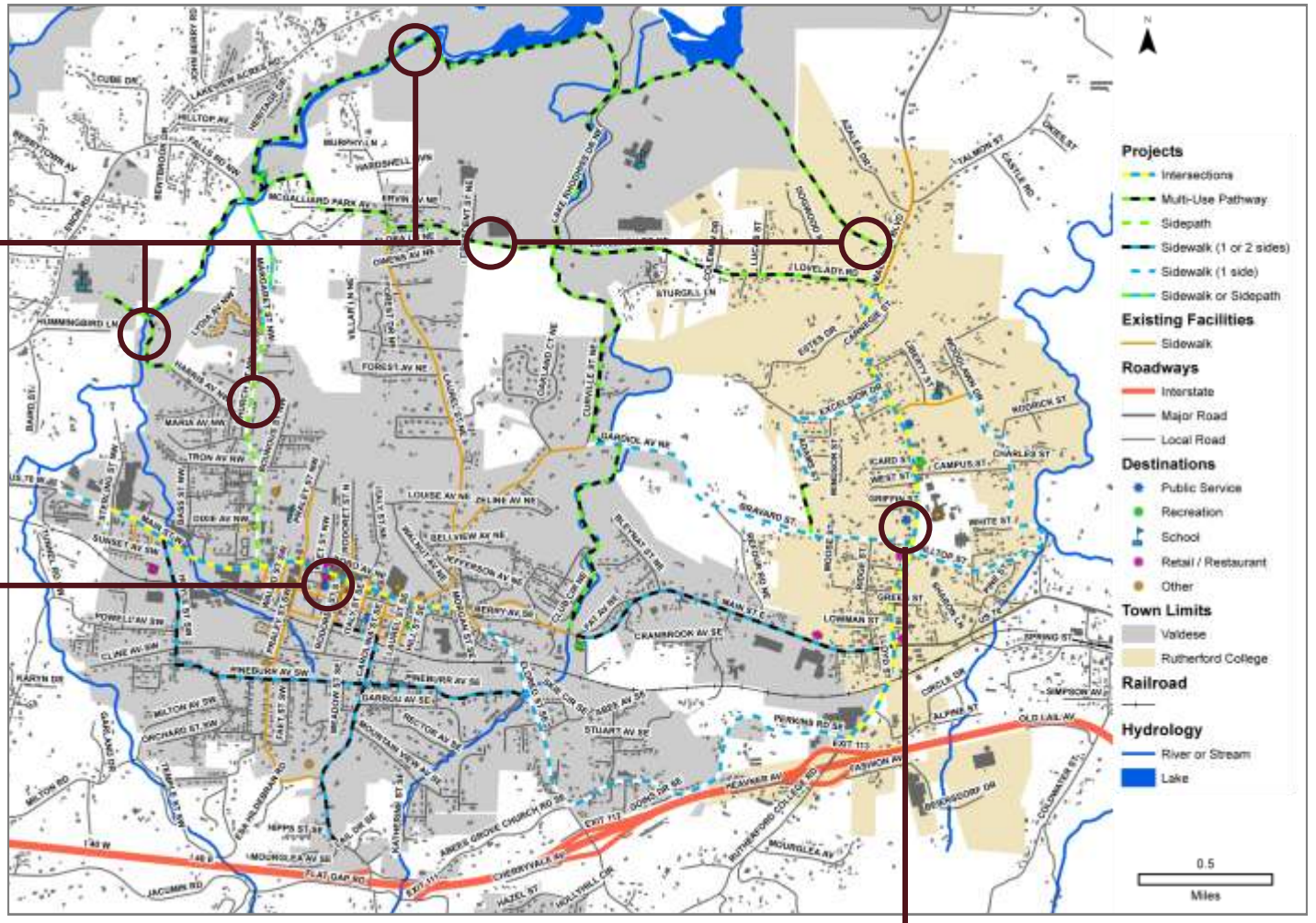
Exhibit 10-4: The 7 Dimensions of Health in Rutherford College and Valdese

7 Dimensions of Health & Wellness in Rutherford College & Valdese

The project identified through *WalkRCV* that offer the greatest promise to improve overall community health are highlighted below with illustrations identifying which of the 7 Dimensions of Health and Wellness they embody and which dimensions are likely to be improved through implementation of the project.

Pathway Network

Main St. Crossing Upgrades

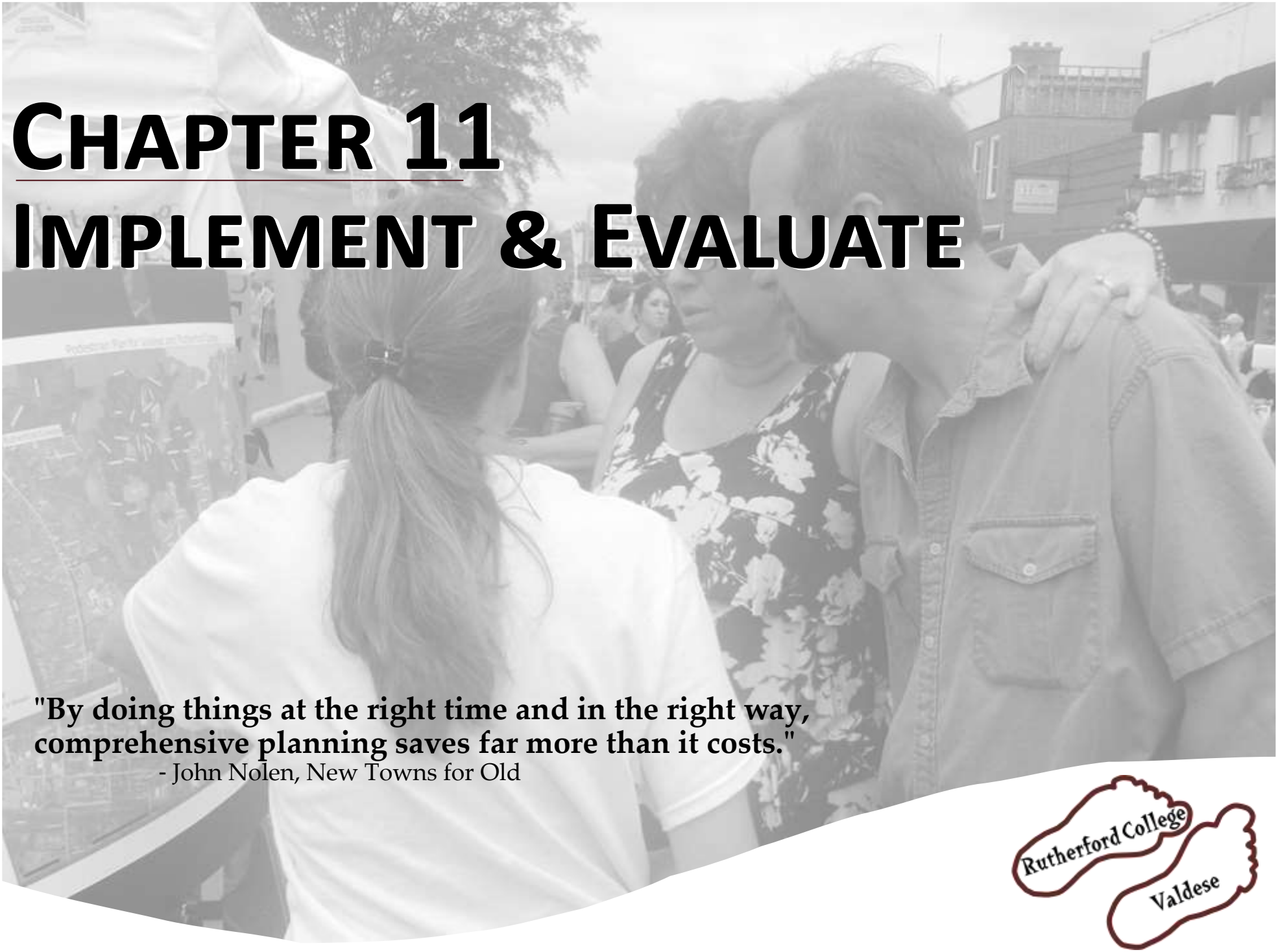


Malcomb Blvd. Crossing Upgrades

Exhibit 10-5: Broad Health Benefits of Walking-related Facility Investments

Facility:	Description	Broad Health Benefits (↑ = Positive; ↓ = Negative)
Complete Streets	A "complete street" is one designed to provide appropriate space for the safe movement of all users including motorists, bicyclists and pedestrians. In addition, a street is deemed "complete" if it adequately considers and optimizes adjacent land uses, is designed for a context sensitive travel speed, and provides ample buffer space between uses.	↑ Gives ample space for pedestrians and bicyclists, fostering and promoting active modes. ↑ An attractive and vibrant street can attract more use and users ↑ Buffer space and design helps limit high vehicle speeds and reduces conflicts with pedestrians and other vulnerable road users ↓ All elements of the street need to be maintained and cleared periodically to ensure continued usefulness and accessibility
New Sidewalks	Constructing new sidewalks compliant with ADA standards where they currently do not exist is a cornerstone of a walkable and active community. New sidewalk will vary in width where pedestrian use is higher and should be built with adequate roadway buffer space where warranted.	↑ Provides stable and predictable walking surface ↑ Heightens profile and presence of pedestrians to motorists ↑ Can be usable space for providing street furniture, signage, vegetation ↑ Is not prone to flooding, roadway debris, or rutting like gravel or dirt surfaces ↓ Initial construction can generate noise, dust, and potential stress
Crosswalks	Providing a designated space for pedestrians to cross a street either at an intersection or mid-block is the intended use for crosswalks. Crosswalk design can range from simple paint schemes, to more complex design including the use of pedestrian or traffic signals, pedestrian countdown signals, auditory devices and refuge islands.	↑ Fosters pedestrian movement at predictable locations ↑ Allows accessibility to particular land uses ↑ Heightens awareness for pedestrian presence to drivers ↑ If used with an elevated platform, can calm traffic and reduce severity of possible crash ↓ Without maintenance, crosswalks can lose both reflective properties and visual prominence ↓ Crosswalks generally put pedestrians in direct line with motorists. Use is principally dependent on driver compliance.
Separated Pathway/ Greenway	Greenway routes are constructed to ADA standards, are generally outside of roadway right of ways and span through open space, riverways, or through designated easements. Greenways are free of vehicle traffic, but can intersect roads and accommodate all user types both pedestrian and bicyclists.	↑ Removes vulnerable road user from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Connects land uses other than by roadway ↑ Provides stable walking surface ↓ If isolated, perception of danger heightened ↓ User type variability could lead to bike/pedestrian, or bike/bike crashes ↓ If outside of peripheral vision of motorists, crash rates increase at intersections
Natural Path	A natural path is one that is without a paved or artificial surface and can be used by pedestrians and bicyclists. Natural paths are generally built with minimal enhancements, and can be near roads or streets or in natural landscape settings like hills, or river or lake shorelines. Ensuring ADA compliance can be a challenge.	↑ Removes vulnerable road users from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Immerses users in a natural setting ↑ Lower cost to construct ↓ Surface can become unpredictable or unstable without normal maintenance ↓ Can be limited due to weather events such as flooding or soiling

Chapter 11
Implement & Evaluate



"By doing things at the right time and in the right way, comprehensive planning saves far more than it costs."
- John Nolen, New Towns for Old

Implement & Evaluate

Completion of *WalkRCV* is one step in creating a community that is accommodating to people who walk. The implementation of the Plan requires a coordinated effort amongst officials of the two towns, leaders, and citizen volunteers. Follow-up plans and studies, particularly for greenways, are required for more specific improvements.

Participants at the December 2015 Open House gave feedback on Action Steps for Implementation. There was widespread support for the pathway system near Lake Rhodhiss and the connecting Lovelady Road Pathway.

This chapter identifies action steps for moving forward with the recommendations of the Plan, as well as potential funding sources and partners for proposed projects.

The implementation strategies of *WalkRCV* are closely aligned with areas the state of North Carolina identified for Bicycle and Pedestrian Safety Strategies through a series of summits in early 2011 and through NCDOT's Complete Streets efforts.

The major action initiatives identified through those summits to help guide NCDOT and other state agencies through the next decade were:

- Fully implement Complete Streets;
- Address multi-modal funding;
- Retrofit existing facilities;
- Require more from all road users;
- Increase public awareness through education;
- Connect transportation and land use; and
- Improve law and strengthen enforcement.

Each of these themes are addressed to some degree within the Plan. This can help stakeholders within Rutherford College, Valdese, Burke County and the greater Unifour Region articulate to local, regional and state leaders that the implementation of this Plan is consistent with what has been identified at the state level.

These actions also help support the vision and goals of NCDOT as well as making a case to the state and its leaders that pedestrian needs are important. It will take the energy of the communities and many stakeholders, as well as many advocates, for walking and bicycling to once again become a priority for North Carolina.

10 Action Steps for Implementation

Completing the 10 Action Steps (Exhibit 11-1) on the next two pages helps guide development of the proposed walking network and creates a supportive program and policy environment for a walk-friendly Rutherford College and Valdese. These steps will be crucial in moving forward with the overall recommendations of the Pedestrian Plan.

The 10 Action Steps for Implementation are intended to serve as a barometer for short-term accomplishments related to this plan. The Towns should review these steps each year to determine the best approach to achieving them.

State and federal policies related to transportation funding and design have been in flux in recent year. It is important for the Towns to work through Western Piedmont Council of Governments to track these changes as they could greatly influence funding opportunities. The next round of requests to WPCOG for funding is in summer 2016 through the MPO's Direct Allocation source (STP-DA). The NCDOT request period (SPOT) will likely re-open in mid-2017.

Exhibit 11-1: Action Steps for Implementation

Action	Partners	Timeframe
1 Adopt the Plan		
Adopting the plan via resolution shows commitment to implementing it. Share it with the county and other partners in the area. NCDOT's endorsement means they work to incorporate recommendations into their projects.	Rutherford College, Valdese, NCDOT, Western Piedmont COG	Immediately
2 Pursue funding for Lovelady Pathway		
Fulfill the expectations of this plan for Rutherford College & Valdese by jointly pursuing a greenway link connecting the towns on Lovelady (project D). Confirm commitments and apply via MPO for funding.	Rutherford College, Valdese, NCDOT, Western Piedmont COG	2016: WPCOG STP-DA call for projects; or 2017: SPOT Request Process
3 Complete Walk-Friendly Community Application		
Use the momentum from the plan to complete the Walk Friendly Communities application for the two towns to showcase the towns' safety record for walking.	Rutherford College, Valdese, Health Department, Western Piedmont COG	2016 or 2017

Action	Partners	Timeframe
4 Emphasize Complete Streets Practices & Amend Zoning Ordinances		
Work in a more focused manner to implement Complete Streets in all projects, including town– and NCDOT-led efforts. This includes investments. development policies and maintenance. Adopt a Complete Streets policy and pursue policy changes as recommended in Chapter 4 (Exhibit 4-4, page 28).	Rutherford College, Valdese, NCDOT, County, Health Department, Western Piedmont COG	Ongoing
5 Organize a Pathways Committee		
Organizing a standing committee to annually (or more frequently) discuss progress on the plan and other pathways. This continues the culture of collaboration associated with WalkRCV and helps the two towns jointly pursue a network of greenways and trails along the Lake and between the towns. This will be beneficial if efforts such as the Lovelady Road Pathway are to succeed.	Rutherford College, Valdese, Western Piedmont COG	2016

Exhibit 11-1, continued: Action Steps for Implementation

Action	Partners	Timeframe
6 Develop Supportive Education & Enforcement Programs		
Complement investment in sidewalks and greenways with safety and other campaigns to promote safe and increased use. These could include walking clubs, Safe Routes to School outreach, and Watch for Me NC.	Rutherford College, Valdese, NCDOT, Western Piedmont COG, Schools, Health Department	1-3 years
7 Evaluate 20 mph Residential Speed Limit		
Streets without sidewalks require people to walk in the street, which is common on residential streets. Speed limits should maximize safety for pedestrians. A crash at 20 mph reduces the likelihood of a pedestrian death to 10%	Rutherford College, Valdese, NCDOT, Police Departments	1-3 years
8 Engage Youth/Seniors to Raise Awareness		
Youth and senior populations are the most vulnerable pedestrians who use the system. The Education, Encouragement and Engineering sections address methods to make it safer for them.	Rutherford College, Valdese, Health Department, Schools, County	As projects are designed & programs implemented
9 Incorporate Walkability into Economic Development & Health Messaging		
Brochures, strategies and plans for economic development and health should include messages about the need for increased walkability. Surveys of businesses and residents should include questions on walking.	Rutherford College, Valdese, Health Department, Economic Development	Ongoing
10 Measure Performance		
Conduct surveys on sidewalks and greenways, count users along popular routes, and track participation in Safe Routes to School. See details in Exhibit 11-2.	Rutherford College, Valdese, Active Routes to School, Western Piedmont COG	Beginning in 2017

Evaluation

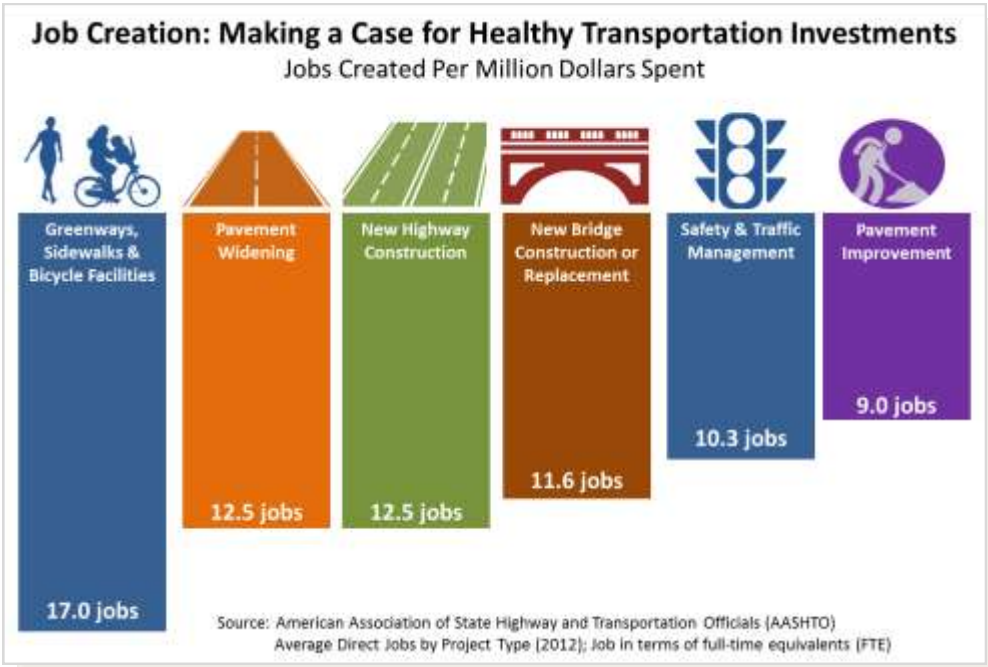
When towns invest in infrastructure, carry out programs, and make changes to policies, a better walking environment will result. This progress can be measured, and it's important that towns do so. Exhibit 11-2 depicts several performance areas the Towns should consider to measure and document performance of themselves and outreach efforts related to walkability.

Given the economic uncertainty in many communities and within funding sources, non-profits, cities, the MPO, and DOT are finding value in tracking the performance of a variety of actions. For towns, methods of tracking the performance of projects, programs and policies can greatly help in justifying need for additional projects as grants are pursued. Communities that show measurable progress in the implementation of their plans find themselves in a more strategic position to receive funding from grants and other pursuits.

Exhibit 11-2: Evaluation Measures

Evaluation Measure	How frequently (in years)?	Evaluation Measure	How frequently (in years)?
Engineering		**Education**	
• Projects pursued in Pedestrian Plan	1	• Children taught safe walking skills in school	1
• Miles of Sidewalks	2	• Senior citizens taught safe walking skills	1
• Miles of Multi-Use Trails/Greenways	2		
• Signage Added along Routes	2	**Evaluation**	
		• Pedestrian Counts along Broadway Street, Oak Street, downtown, and at parks	2
Encouragement		• Total Volunteer Hours	1
• Participants in Walk to School Day	1	• Economic Impact Survey	5
• Participants in Safe Routes to School Program	1	• BMI Rates at Schools	1
• Outreach opportunities to businesses, visitors	1	• Meetings with Town Officials	1 to 2
		• Funding allocated to pedestrian-related expenditures	1 to 2
		• Interaction with municipal, corridor & regional Plans	Ongoing
Enforcement			
• Number of Crashes (by level / total)	2	• Number of presentations to civic groups, others	1
• Meetings with Law Enforcement	1	• Number of grants pursued	1
• Public Service Announcements	1	• Participation in seminars, webinars & training	1
• Number of Walking Route Maps Distributed	1		

Exhibit 11-3: Job Creation Potential of Walking Facilities



A study conducted by AASHTO—the federal organization representing state DOTs—found that transportation investments such as greenways, sidewalks and bicycling facilities produce more jobs per million dollars spent than any other type of traditional transportation investment.

Illustration: Don Kostelec

Performance should not be confused with prioritization, as performance is measured as a change over a period of time, not a ranking of strategies. Performance for walkability and related endeavors can fall into many categories, each of which is in turn measured by some criterion.

Rutherford College, Valdese, and its partners should track performance of the pedestrian system on an annual basis and promote this performance through an annual report and presentation to the Town, County and other organizations.

Funding

Facilities for people who walk are constructed – and therefore funded – through a number of avenues and there are even more funding sources to pursue for programmatic implementation measures. Funding is generally divided into five categories of sources: local, state, federal, non-profit and private funding. The following section describe some of the more prominent sources for implementation of this plan.

Local Funding. The Towns can establish an annual budget line item specifically for pedestrian improvements, particularly for match of federal funds. A specific budget item is the most direct way to ensure that funding for pedestrian facilities is available, but sometimes a municipality's budget may be too limited to finance this work. Pedestrian facilities can also be built through "incidental" projects, by ensuring that pedestrian-related features (e.g. sidewalk upgrades, curb ramps) are constructed with any new projects or improvements, such as parks and recreation facilities, libraries, schools, and new roads. In addition, future private development should be reviewed for adequate pedestrian access, connections and parking.

Municipalities often plan for the funding of pedestrian and greenway facilities or improvements through development of Capital Improvement Programs (CIP). Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds.

This section highlights common sources of funding; however, transportation funding sources and laws pertaining to them change periodically at both the state and federal levels. The MPO/COG and NCDOT are able to provide the latest information on these funding options.

State and Federal Funding. The State Transportation Improvement Program is based on the Strategic Transportation Investments Bill (2013). The law introduces the Strategic Mobility Formula to prioritize projects funding. With this law, state transportation funds cannot be used to match federally-funded bike and pedestrian projects. Greater Hickory MPO evaluates projects to forward to the state for inclusion in the annual program. The Strategic Mobility Formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs. Pedestrian projects are in the Division Needs category. It is important to track changes or adjustments in these programs through Isothermal RPO as funding allocations and programs are in flux on a regular basis.

NCDOT's Complete Streets Policy, and similar preceding policies, allows the Department to partner with local governments during the design and construction of roadway and bridge projects to accommodate bicycle and pedestrian improvements. Local governments should consider how planned road resurfacing, widening and safety projects can include bicycle and pedestrian facilities. Cost sharing construction of a sidewalk as part of a roadway project is far less costly to local governments than funding those improvements independently. It is crucial that NCDOT knows the interests of the local government well in advance of project design and construction.

It is crucial that NCDOT knows the interests of the local government in advance of design and construction.

Local officials should spend time with Division 13 staff reviewing expectations for accommodating bicycle and pedestrian travel as part of TIP or other roadway and bridge projects. Each town should designate a contact who can communicate with the Division about upcoming projects and other planned work that could impact pedestrian facilities and provide opportunities to make improvements. Checking in at least quarterly is recommended.

Transportation Alternative Program (TAP). North Carolina receives an annual allocation of TAP funds from the federal government. Sidewalks and greenways are eligible expenses under this program. Due to state restrictions, the full 20% match required on these funds must be borne by the municipality. North Carolina may have additional TAP funds that were not allocated through the Statewide Transportation Improvement Program and related prioritization processes. The Towns should work through the MPO and with other regional municipalities to develop strategies to help the state utilize these funds.

Powell Bill Funds. Annually, state street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a allocation of gas tax revenues to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local

streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks. Construction of sidewalks or replacement of existing sidewalks are an eligible expense.

Recreational Trails Program. The Recreational Trails Program (RTP) is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan.

Volunteers are used by many communities to patrol and conduct light maintenance along greenways. Above, a volunteer patrol in Boise, Idaho, sweeps leaves off the greenway and provides a presence on the trail, which creates a greater sense of safety for users.

Photo Credit: Don Kostelec

North Carolina Parks and Recreation Trust Fund (PARTF). The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. PARTF funds are allocated through the North Carolina Trails Program to help fund beach accesses, state trail systems, and local trail construction efforts. The projects in this plan that create connections to parks are a good match for PARTF funds, such as the greenways identified in this plan.

Non-Profit / Private Funding

Another method of funding sidewalks and greenways is to partner with public agencies, private companies, the hospital or hospital foundation, and/or not-for-profit organizations. Most private funding sources offer limited grants and public-private partnerships engender a spirit of cooperation, civic pride and community participation.

The key to the involvement of non-profit and private partners is to make a compelling argument for their participation. Major employers and developers could be identified and provided with a “Benefits of Walking, Bicycling and Greenways” handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners’ monetary support following a successful master planning effort.

Potential partners include major employers which are located along or accessible to sidewalks, bicycle routes or greenways. Name recognition for corporate partnerships could be accomplished through trailhead signage or interpretive signage along greenway systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. For utility easements, it is important to have legal counsel review the agreement and verify ownership, surface and air rights in order to enter into an agreement.

Volunteer Work

It is expected that many citizens will be excited about the development of a greenway system and this is already evident in the energy level of those involved with the Plan. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on route and greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

Appendix

Appendix A. Survey Input & Detailed Responses

Public Input Survey for Rutherford College & Valdese Pedestrian Plan

1. WALKING HABITS AND BARRIERS

1. How often do you walk for the following purposes?

	3 or more days a week	Once or twice a week	Once or twice a month	Rarely	Never
For transportation	○	○	○	○	○
Recreation or exercise	○	○	○	○	○
Shopping	○	○	○	○	○
To walk the dog	○	○	○	○	○
Other	○	○	○	○	○

Other (please specify)

2. How often do you walk to the following destinations from home or elsewhere in town?

	3 or more days a week	Once or twice a week	Once or twice a month	Rarely	Never
Work	○	○	○	○	○
School or school of child	○	○	○	○	○
Park or recreation center	○	○	○	○	○
Grocery store, shop or pharmacy	○	○	○	○	○
Restaurant or cafe	○	○	○	○	○
Social event or entertainment	○	○	○	○	○
House of friend or family	○	○	○	○	○
Church or civic meeting	○	○	○	○	○
Multiple destinations in downtown Valdese	○	○	○	○	○
Multiple destinations on Malcolm Blvd	○	○	○	○	○
Other	○	○	○	○	○

Other (please specify)

3. Which factors discourage you from walking in Valdese and Rutherford College?

	Major factor	Minor factor	Not a significant factor
Lack of sidewalks	○	○	○
Unsafe street crossings	○	○	○
Lack of greenways or trails	○	○	○
Few destinations within walking distance	○	○	○
Indirect route to destination	○	○	○
Poor sidewalk condition	○	○	○
Lack of curb ramps or other ADA features	○	○	○
Dangerous motorist behavior	○	○	○
Heavy or high speed traffic	○	○	○
Lack of street lighting	○	○	○
Lack of shade or street trees	○	○	○
Bad weather	○	○	○
Other	○	○	○

4. Which of the following improvements would encourage you to walk more often?

	Major improvement	Minor improvement	Not a significant improvement
More sidewalks to places I want to walk	○	○	○
Better maintenance of existing sidewalks	○	○	○
Wider sidewalks	○	○	○
Planting strip or other buffer between sidewalk and road	○	○	○
Pedestrian improvements at crosswalks and intersections	○	○	○
More greenways and trails	○	○	○
Traffic calming street designs	○	○	○
Improved ADA access on sidewalks	○	○	○
Pedestrian amenities (*e.g. street trees, benches, awnings*)	○	○	○
Convenient bus service	○	○	○
Other improvement	○	○	○

Other (please specify)

5. Where would you walk more often if it were safer and more convenient to do so? (*Select all that apply*)

- ☐ Work
- ☐ School or with children to school
- ☐ Park or recreation center
- ☐ Grocery store or shop
- ☐ Restaurant or cafe
- ☐ Social event or entertainment
- ☐ House of friend or family
- ☐ Church or civic meeting
- ☐ Downtown Valdese
- ☐ Destinations on Malcolm Blvd
- ☐ Other (please specify)

6. Which measures would make walking safer for children in Valdese and Rutherford College?

	Major improvement	Minor improvement	Not a significant improvement
Safe Routes to School program	○	○	○
Traffic calming street designs near schools and parks	○	○	○
More opportunities to walk to school with other children & parents	○	○	○
More crossing guards near schools	○	○	○
Pedestrian safety training at schools	○	○	○
Better education & enforcement of existing traffic laws	○	○	○
Intersection improvements and narrower crossings	○	○	○
Expand sidewalk network	○	○	○
Build more trails and greenways	○	○	○

* 7. Which three destinations would most significantly benefit your health if they were easier to walk to from home or elsewhere in town? (*Select up to 3 choices*)

- ☐ A place to recreate within walking, jogging or biking distance
- ☐ Fresh local foods (*e.g. farmer's market, community garden, etc.*)
- ☐ Health care (*e.g. hospital, urgent care, doctor's office*)
- ☐ A place for people of all ages to gather and socialize
- ☐ Other (please specify)
- ☐ A peaceful natural setting to relax
- ☐ A spiritual place
- ☐ A gym or fitness center for exercise, sports or classes

8. Which roadway corridors in Valdese and Rutherford College are most in need ofsidewalks or sidewalk improvements? (*Example: Main St. from First St to Second St*)

Roadway 1

Roadway 2

Roadway 3

Roadway 4

9. Which intersections in Valdese and Rutherford College are most in need ofimprovements for pedestrians? (*Example: Main St & Church St*)

Intersection 1

Intersection 2

Intersection 3

Intersection 4

10. Are there specific destinations in Valdese and Rutherford College that you believe should be connected by greenways or trails?

Destination 1

Destination 2

Destination 3

Destination 4

11. Are there any specific locations in Valdese or Rutherford College where there arepedestrian hazards or barriers that make walking unsafe or inconvenient? (*Example: Entrance to Elementary School*)

Hazard / Barrier 1

Hazard / Barrier 2

Hazard / Barrier 3

Hazard / Barrier 4

12. Please rate the importance of developing the following pedestrian connections between Valdese & Rutherford College.

	Very Important	Important	Somewhat Important	Not Important
A sidewalk on US 70 (E Main St)	○	○	○	○
A sidewalk on Bravard Rd (Gardiol)	○	○	○	○
A sidewalk on Lovelady Rd	○	○	○	○
A greenway / shared use path for walking and bicycling	○	○	○	○
Other connection (*e.g. bike lane, hiking trail*)	○	○	○	○

Other (please specify)

13. Do you have any additional ideas about how to make walking in Valdese and Rutherford College safer and more convenient?

14. Which category describes your relationship to Valdese and Rutherford College? *Select all that apply*

- ☐ I live in Valdese
- ☐ I work in Valdese
- ☐ I live within 5 miles of Valdese or Rutherford College
- ☐ I live in Rutherford College
- ☐ I work in Rutherford College
- ☐ I live elsewhere in Burke County
- ☐ Other (please specify)

15. What is the street intersection closest to your residence?

Street 1

Street 2

16. Please provide your name and email to stay informed about Pedestrian Plan events and opportunities for input.

Name

Email Address

17. How many people currently live in your household?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 or more

18. How many members of your household are under the age of 18?

○ None ○ 1 ○ 2 ○ 3 ○ 4 or more

19. What is your age?

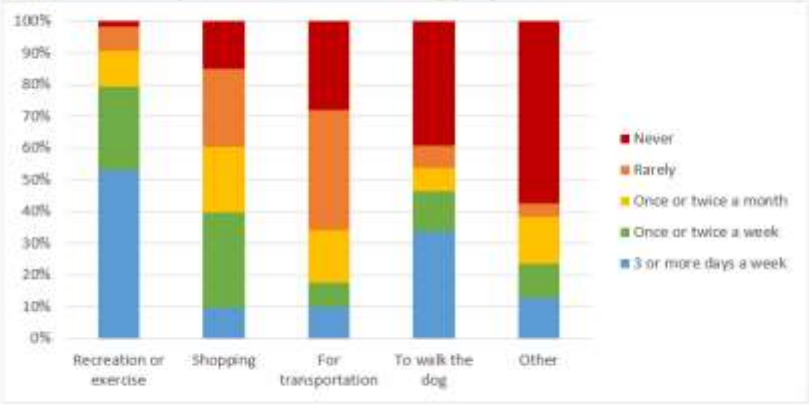
○ Under 18 ○ 18 to 24 ○ 25 to 34 ○ 35 to 44 ○ 45 to 54 ○ 55 to 64 ○ 65 to 74 ○ 75 or older

20. What is your gender?

○ Female ○ Male

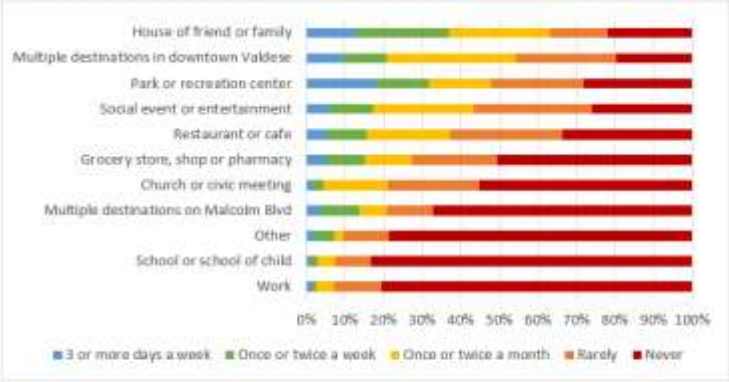
Survey Results

1. How often do you walk for the following purposes?



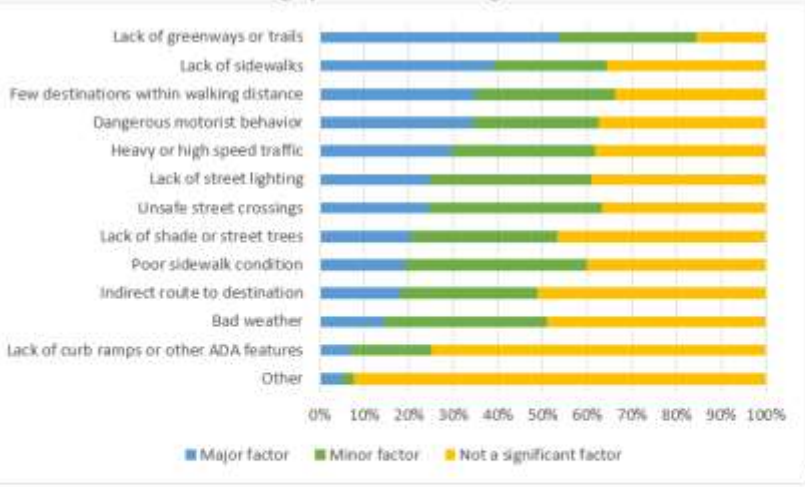
- While over 90% of respondents walk at least once a month for recreation or exercise, only a third walk for the purpose of transportation.

2. How often do you walk to the following destinations from home or elsewhere in town?



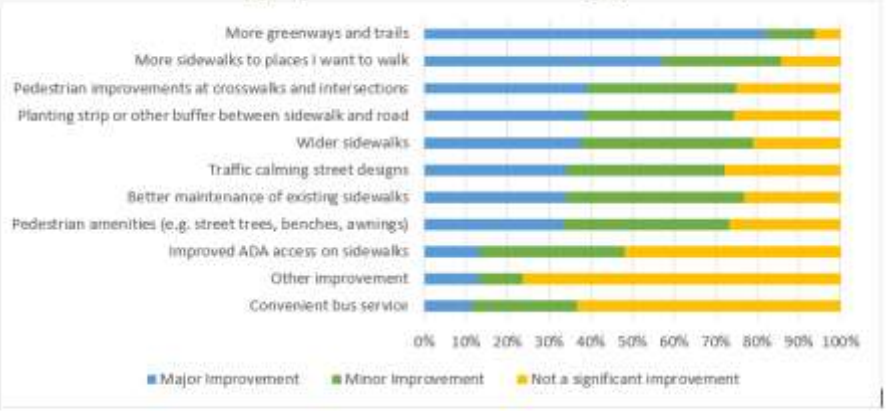
- The most popular walking destination is the house of a friend or family member.
- Over half of respondents walk to or around downtown Valdese at least once a month; A fifth walk to destinations on Malcolm Blvd in Rutherford College.
- Just under half of respondents walk to parks or recreation centers at least once a month, and a third do so once or twice a week.

3. Which factors discourage you from walking in Valdese and Rutherford College?



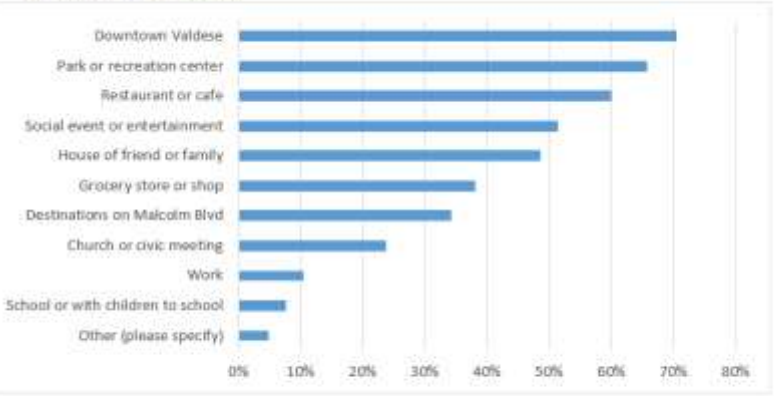
- The lack of greenways or trails is cited by 54% of respondents as a major factor that discourages them from walking.
- Comparatively, the lack of sidewalks is cited by just 39% of respondents as a major factor.
- A similar proportion of respondents (35%) cited a lack of destinations within walking distance as a major factor.
- Lack of street lighting is a major factor for 25% of respondents.

4. Which of the following improvements would encourage you to walk more often?



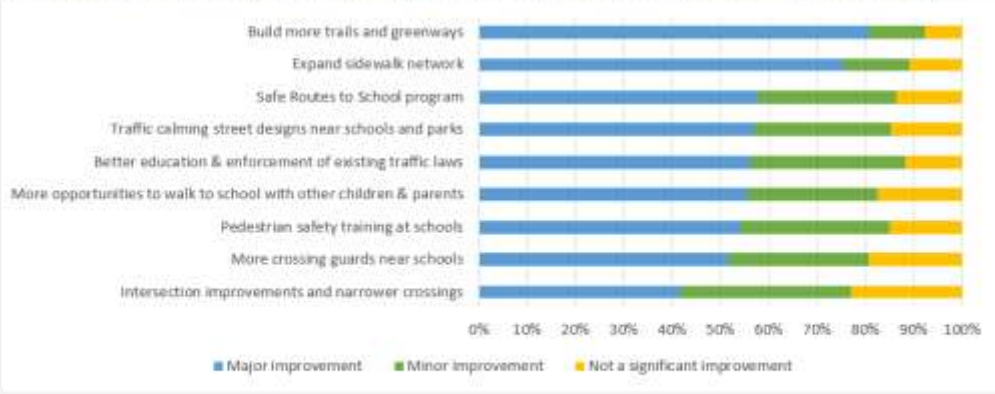
- Over 80% of respondents rated greenways and trails as a major improvement that would encourage them to walk more often.
- More sidewalks was cited by 54% of respondents as a major improvement.

5. Where would you walk more often if it were safer and more convenient to do so? (Select all that apply)



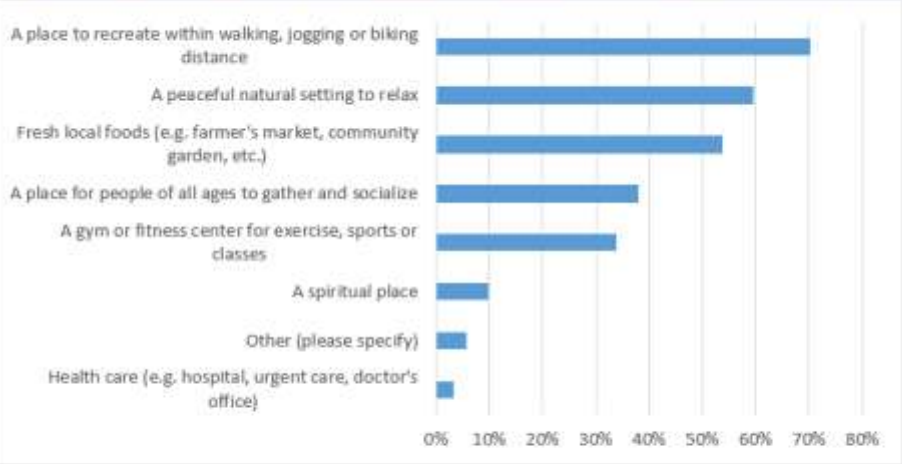
- Over 70% of respondents would walk to Downtown Valdese more often if walking were safer and more convenient.
- Two thirds would walk more often to parks or recreation centers.
- Other popular walking destinations included restaurants or café and social event or entertainment.
- A third of respondents would walk more often to destinations on Malcolm Blvd.

6. Which measures would make walking safer for children in Valdese and Rutherford College?



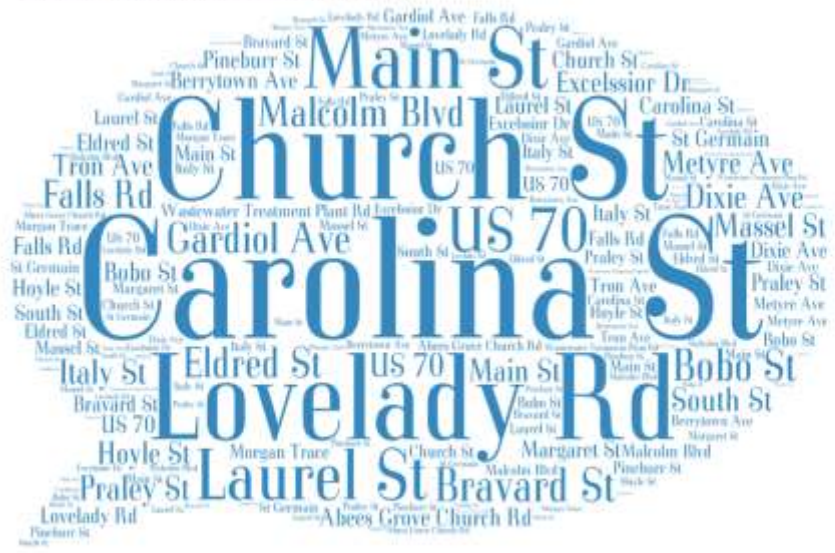
- New facilities, including greenways and sidewalks were cited by 81% of 75% of respondents, respectively, as major improvements for the walking safety of children.
- All program and policy actions were cited by over half of respondents as major improvements.

7. Which three destinations would most significantly benefit your health if they were easier to walk to from home or elsewhere in town? (Select up to 3 choices)



- 70% of respondents felt that places to recreate within walking distance would significantly benefit their health.
- A majority of respondents also felt that convenient access to a peaceful natural setting and to fresh local food would benefit their health.

8. Which roadway corridors in Valdese and Rutherford College are most in need of sidewalks or sidewalk improvements? (Example: Main St. from First St to Second St)

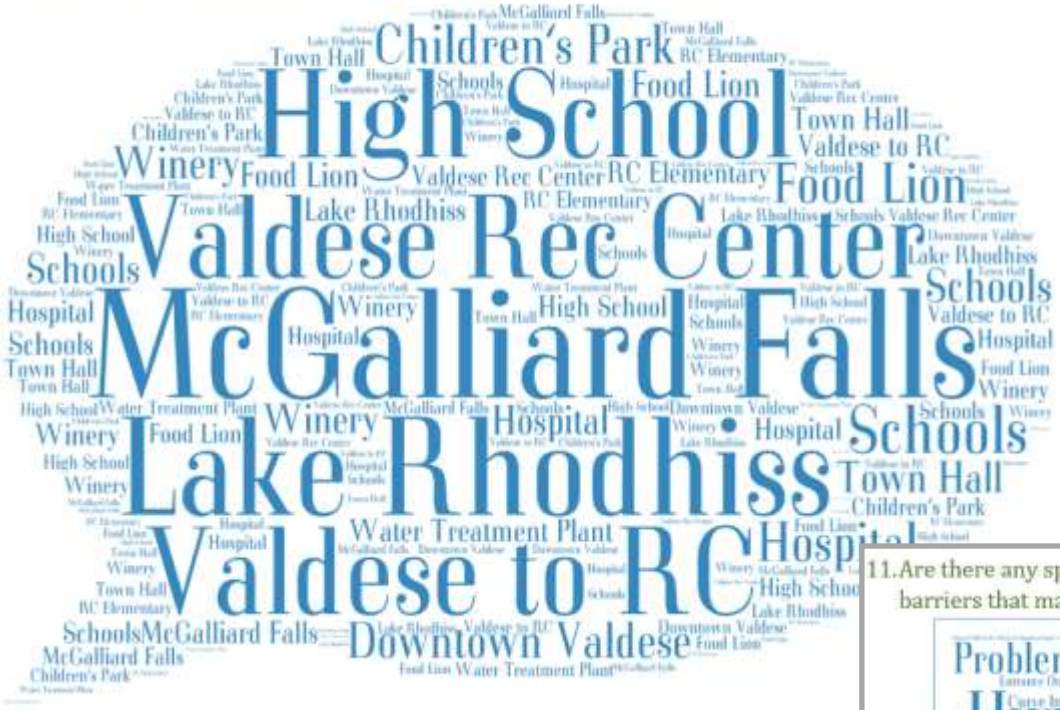


- The most popular roads for new sidewalks were Carolina St. , Lovelady Rd. , Church St. and Bravard St. / Gardiol Ave.
- The most popular road identified for sidewalk improvements was Main St in Valdese.

9. Which intersections in Valdese and Rutherford College are most in need of improvements for pedestrians? (Example: Main St & Church St)

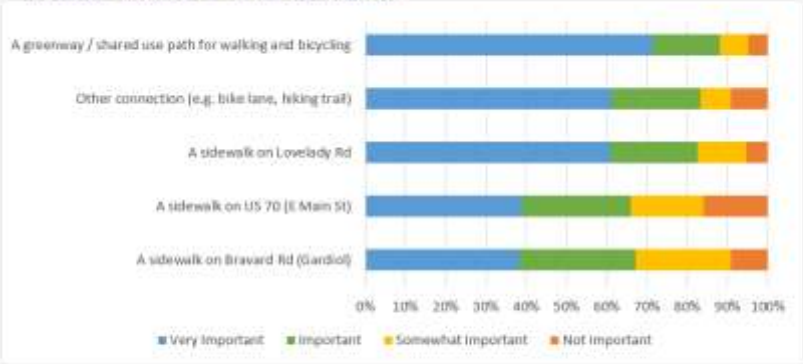
- Most intersections identified for improvements were located on Main St. / Hwy US 70.
- The most commonly listed intersections in Valdese included Main St & Laurel, Main St & Carolina, and Main St & Church St.
- Hwy US 70 & Malcolm Blvd was the most commonly listed intersection in Rutherford College.

10. Are there specific destinations in Valdese and Rutherford College that you believe should be connected by greenways or trails?



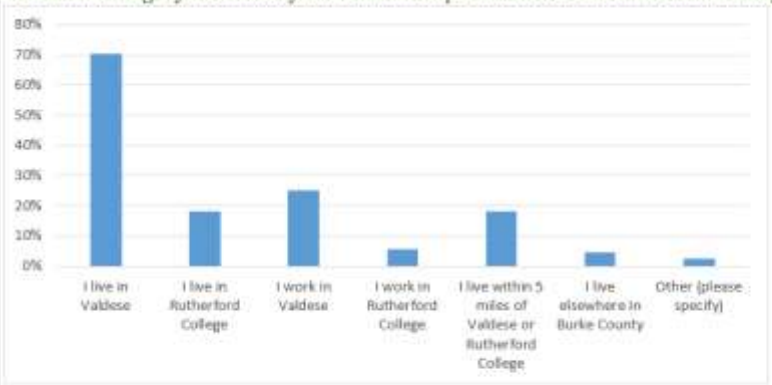
11. Are there any specific locations in Valdese or Rutherford College where there are pedestrian hazards or barriers that make walking unsafe or inconvenient? (Example: Entrance to Elementary School)?

12. Please rate the importance of developing the following pedestrian connections between Valdese & Rutherford College.



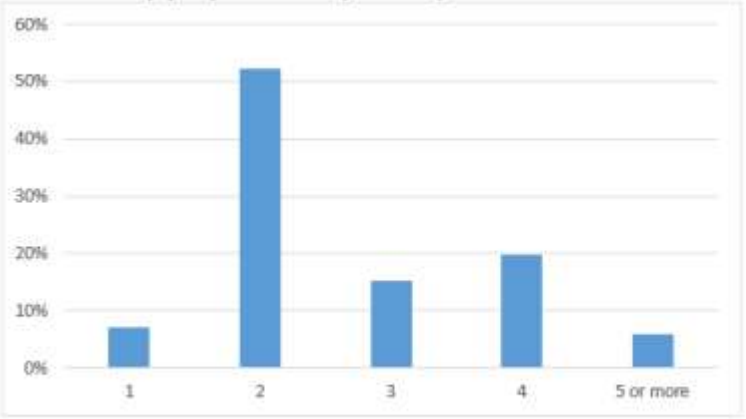
- Over 70% of respondents rated a greenway or shared use path connection between Valdese and Rutherford College as "Very Important"; 88% felt that such a connection was "Important" or "Very Important".
- 83% of respondent felt that connecting Valdese and Rutherford College with a sidewalk on Lovelady Rd was "Important" or "Very Important".
- An equal proportion of respondents felt that other types of connections between the towns, such as a bike line, was "Important" or "Very Important".

13. Which category describes your relationship to Valdese and Rutherford College? Select all that apply



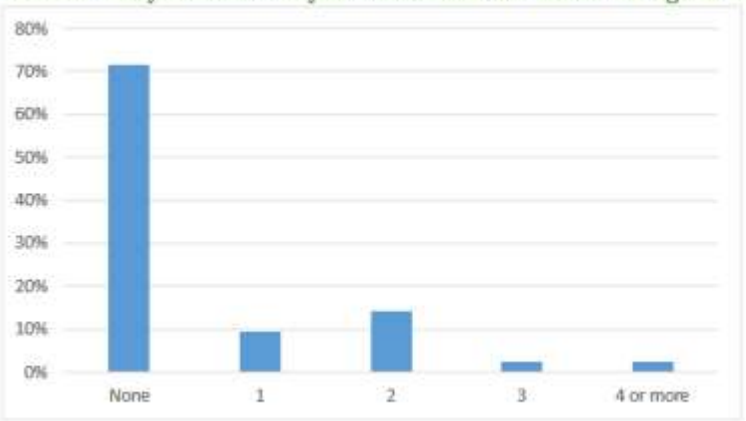
- Valdese residents make up 71% of respondents
- Rutherford College residents make up 18% of respondents
- People who work in Valdese or Rutherford College represent 31% of respondents
- Respondents were allowed to select more than one option

14. How many people currently live in your household?

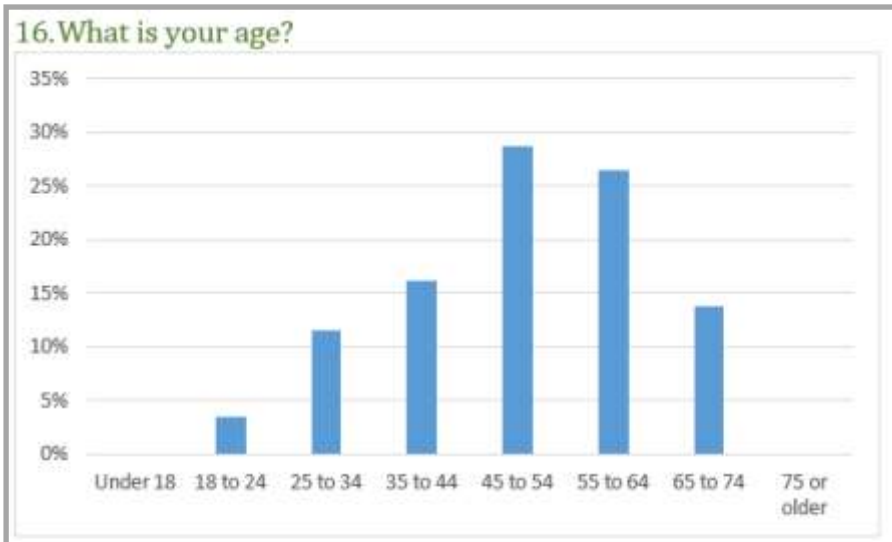


- A majority of respondents live in 2 person households.

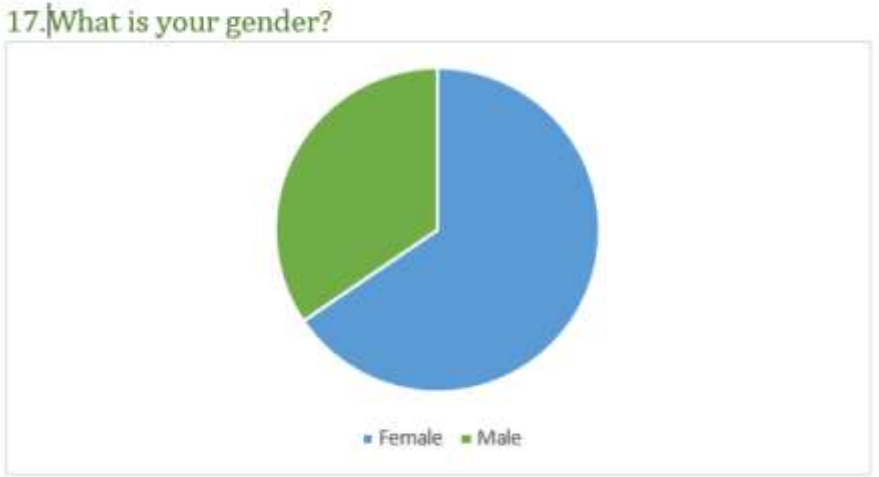
15. How many members of your household are under the age of 18?



- Just over a quarter of respondents live with household members under the age of 18.



- Over half of respondents are between the ages of 45 and 64.



- Women represent two thirds of respondents.

Detailed Responses for Questions 8-11

Need for sidewalks

(x = number of times in individual responses; most comments in BOLD type)

- Berrytown Ave - x1
- Bravard Drive/Gardiol Street - x3
- Carolina Street - x7
- Church Street - x1
- Dixie Avenue - x1
- Italy Street - x1
- Laurel Street - x1
- **Lovelady Road - x10**
- **Main Street/Highway 70 - x13**
- Malcolm Boulevard— x4
- Morgan Trace - x1
- Woodlawn Drive - x1
- Pineburr Street - x1
- Praley Street - x1
- Tron Ave - x1

Intersections (x = number of times in individual responses)

- Laurel Street and Gardiol - x1
- Main Street and Rodoret - x2
- Main Street and Church St - x1
- Main Street and Carolina St - x1
- Main Street and Laurel St - x1
- Malcolm Boulevard and Lovelady - x1
- **US 70 and Malcolm Boulevard - x6**

Greenways/Trails

- Childrens Park to Gardiol - x1
- Lovelady Rd/Connect Draughn High School to both towns - x4
- McGalliard Park greenway to lake and WWTP - x3
- US 70 from Valdese to Rutherford College - x2

Other Comments:

- Upgrade in front of Hospital in Rutherford College
- Crossing light on Main Street near video store
- Need better crosswalks at all intersections!

Appendix B. Project Ranking Criteria

Criteria	Possible Points	Criteria	Possible Points
Proximity to Schools: Project will connect a school to neighborhoods and other destinations.	15: Project has direct connection or is within ¼-mile of a school. 10: Project is within ¼-mile of a school but has no direct connection. 5: Project is within ½-mile of a school but has no direct connection. 0: Project is beyond ½-mile	**Access to Food**: Project will connect major food outlets to neighborhoods.	10: Project is within 1/4-mile of a major food outlet (grocery story or farmers market) 7: Project is within ½-mile of a major food outlet (grocery story or farmers market) 4: Project is within ¼-mile of a minor food market (convenience store) 0: Project is beyond these limits.
East of Implementation: Measures the likelihood that project can be easily implemented based on available right-of-way and other constraints.	15: Project has no evident right-of-way constraints or other feasibility issues. 10: Project has limited right-of-way constraints or few other feasibility issues. 5: Project has r/w or feasibility issue but not both. 0: Project has major right-of-way constraints or feasibility issues.	**Traffic Exposure:** Based on function of the roadway project is along.	10: Project is along or crosses a US highway route 7: Project is along or crosses a state highway or other arterial route 4: Project is along a local street that connects two highways or arterials 1: Project is along a local street that does not connect two highways or arterials.
Safety: Separation project provides between traffic and pedestrians and the speed of the traffic creating the risk. Exposure Risk as per hierarchy of protection/separation, + speed. Crossing upgrade only projects are scored based on prevailing sidewalk conditions.	10: Project proposes to provide six or more feet of separation from traffic at 35 mph or higher. 7: Project proposes to provide four to six feet of separation from traffic at 35 mph or higher, OR more than two feet of separation between pedestrians traffic slower than 35 mph. 4: Project proposes to provide up to two feet of separation between traffic and pedestrians or width greater than 5 feet of walking surface. 1: Project proposes to provide curb separation only between traffic and pedestrians. 0: Project provides no additional separation between traffic and pedestrians.	**Population in Need:** Project is within a Census Block Group identified as having socioeconomic needs.	5: Project is within a block group showing need among more than 2 categories 3: Project is within a block group showing need among 2 categories. 1: Project is within a block group showing need in 1 category. 0: Project is not within a block group showing need.
Proximity to Downtown: Project will connect downtown to neighborhoods and other destinations.	10: Project has direct link or within ¼-mi of downtown. 7: Project is within ¼-mile of downtown but no direct link. 4: Project is within ½-mile of downtown but no direct link. 0: Project is beyond ½-mile	**Identified in Past Plans**: Project was identified in past local or regional plans.	5: Project is identified in a past plan. 0: Project is not identified in past plans.
Proximity to Parks or Natural Areas: Project will connect parks and recreation sites to neighborhoods and other destinations.	10: Project has direct link or is within ¼-mile of a park. 7: Project is within ¼-mile of a park but has no direct connection. 4: Project is within ½-mile of park but no direct link. 0: Project is beyond ½-mile	**Fills Gap in System**: Project will connect to existing facilities by filling the gap between them.	5: Project fills a gap in the existing sidewalk or greenway system along a high volume route. 3: Project fills a gap in the system along secondary routes. 0: Project does not address a gap in the system.
		Steering Committee Priority: Points assigned by the steering committee.	Steering committee was asked to assign a score from 1 to 5 for each project. Points assign reflect the average points (rounded) assigned by the steering committee.

Appendix C. Detailed Project Ranking

These are the project rankings stemming from the detailed ranking criteria on the previous page. Each project was evaluated on these criteria. The Top 10 projects were identified as the "Short-Term" Priorities and therefore have more detailed project information in this plan. The remaining projects are "Long-Term" Priorities and have less detailed information as things will likely change before they are implemented.

	Project Ranking	Project Name	Location	Length (in Miles)	Short-Term Recommendation	Total Points	Proximity to Schools	Ease of Implementation	Safety	Proximity to Downtown	Proximity to Parks/Natural Areas	Access to Food	Traffic Exposure	Population in Need	Identified in Past Plans	Fills Gap in System	Steering Committee Priority
						100	15	15	10	10	10	10	10	5	5	5	5
Short-Term Priorities	1	US 70 (Main Street) in Valdese, from Sterling St to Eldred St	V	1.4	Intersections/Crossings	77	10	15	7	10	10	10	10	5	0	0	0
	1	Malcolm Boulevard in Rutherford College, from Perkins Rd to Lovelady Rd	RC	1.8	Intersections/Crossings	77	10	15	7	10	10	7	10	5	0	0	3
	3	Carolina Street, from US 70 (Main St) to Praley Street	V	0.8	Sidewalk (one or both sides)	71	0	15	10	10	10	4	7	5	5	5	0
	4	Lovelady Road, from Laurel Street to Malcolm Boulevard	RCV	1.9	Multi-Use Pathway	68	15	15	10	0	10	0	7	3	0	5	3
	5	Church Street, from US 70 to Margaret St	V	0.9	Upgrade to sidepath	63	15	5	7	7	10	7	7	5	0	0	0
	6	Lake Rhodhiss Greenway, McGalliard Falls to Wastewater Treatment Plan	V	1.2	Multi-Use Pathway	52	15	10	10	0	10	0	1	1	0	3	2
	7	US 70, from Children's Park to Malcolm Boulevard	RC	1.3	Sidewalks (one or both sides)	51	0	10	7	4	10	4	10	1	0	5	0
	8	Massel Ave, from Rodoret St to Carolina St	V	0.2	Sidewalks (one or both sides)	50	5	10	4	7	10	4	1	1	5	3	0
	8	Heritage Middle School Greenway from McGalliard Falls to the school	V	0.7	Multi-Use Pathway	50	15	10	10	0	10	0	1	1	0	3	0
	10	US 70 (Main Street), Tunnel Rd to Sterling	V	0.2	Sidewalks (one side)	47	0	10	7	0	0	10	10	5	0	5	0
Long-Term Priorities	11	Lake Rhodhiss Greenway, Wastewater Treatment Plan to Lovelady Road	V	1.0	Multi-Use Pathway	45	10	10	10	0	10	0	1	1	0	3	0
	12	Eldred Street, from Berry Ave/Pons St to Perkins Ave	V	0.8	Sidewalk (one side)	43	0	5	10	7	0	4	4	5	5	3	0
	13	Woodlawn Dr / Hilltop St, from Honeycutt St to Malcolm Blvd	RC	1.3	Sidewalks (one side)	41	10	10	4	4	4	4	1	1	0	3	0
	13	Church Street, from Margaret St to McGalliard Creek	V	0.5	Sidewalk or Sidepath	41	0	10	4	0	10	0	7	5	0	5	0
	15	Gardiol Ave/Bravard Street, from Curville St to Malcolm Blvd	RCV	1.3	Sidewalk (one side)	40	0	0	4	10	10	4	4	3	0	5	0
	16	Hoyle Street, from US 70 (Main St) to Pineburr Ave	V	0.5	Sidewalk (one or both sides)	39	0	0	4	10	0	10	4	3	5	3	0
	17	Excelsior Drive/Adams St, from Malcolm Blvd to Bravard St	RC	0.4	Sidewalks (one side) + pathway	36	5	5	7	7	7	0	1	1	0	3	0
	17	Pineburr Ave, from Hoyle St to Eldred St	V	1.4	Sidewalks (one or both sides)	36	0	5	4	4	4	7	1	3	5	3	0
	19	Hoyle Creek Greenway	V	2.0	Multi-Use Pathway	32	10	0	7	0	10	0	1	1	0	3	0
	20	Perkins Rd/Hauss Ridge Rd, from Eldred St to Malcolm Blvd	RCV	1.3	Sidewalks (one side)	21	0	5	4	0	0	0	4	5	0	3	0

Appendix D. Cost Estimating Table

Cost estimates for projects contained in this plan were derived from "planning level" estimating techniques. Due to the scope and resources available for this plan, planning level estimates are used to generalize costs for projects due to the high variability and unknown factors involved. They are based on prevailing construction costs on a per unit (per mile in this case) estimate of
general project features, including: sidewalks with curb and gutter included; sidewalks without curb and gutter include; and greenways or multi-use trails. Little is known about available right-of-way due to limitations of GIS data and lack of documented right-of-way along many North Carolina highways.

Any greater level of specificity on estimates would imply a level of known detail or level of field work that is not commensurate with a pedestrian plan of this type. A feasibility study or detailed design is needed to obtain more detailed estimates. Design costs are typically 10-15% of construction costs. The topography, existing cross-section, and drainage requirements could slightly lessen or greatly increase these values.

Type of Improvement	Unit	Cost per unit
New Sidewalks *(assume 5-feet in width, concrete surface)*		
• One side of a street, including curb and gutter	Per mile	$500,000
• Both sides of a street, including curb and gutter	Per mile	$1,000,000
• One side of a street, no curb and gutter work required	Per mile	$150,000
• Both sides of a street, no curb and gutter work required	Per mile	$3000,000
Paved Multi-Use Trail or Greenway *(assume 10-feet in width, asphalt)*		
• Multi-use trail along existing railbed (prepped)	Per mile	$600,000
• Multi-use trail along waterway, such as a creek or stream	Per mile	$1,000,000
Major Intersection Upgrades		
• Includes installation of pedestrian signals, audible pedestrian buttons, curb ramp upgrades and crosswalk striping	Per each	$15,000
Minor Intersection Upgrades		
• Includes crosswalk striping and curb ramp upgrades	Per each corner	$3,000