Bikeways & Trails Facility Plan

July 2014

Project Overview

Background

- **2008.** Desire to update & combine the City's two plans:
  - *Trails & Bikeways Facility Plan, 1993*
  - *Comprehensive On-Street Bicycle Plan, 2000*
- **2009.** The City hired Gannett Fleming & Alta Planning
- **2010.** Public Outreach
  - Three public open house meetings – May 2010
  - Two stakeholder workshops – June 2010
  - Thirteen User and Agency Interviews – June-July 2010
- **2011.** Draft Master Plan was completed

Recent Efforts

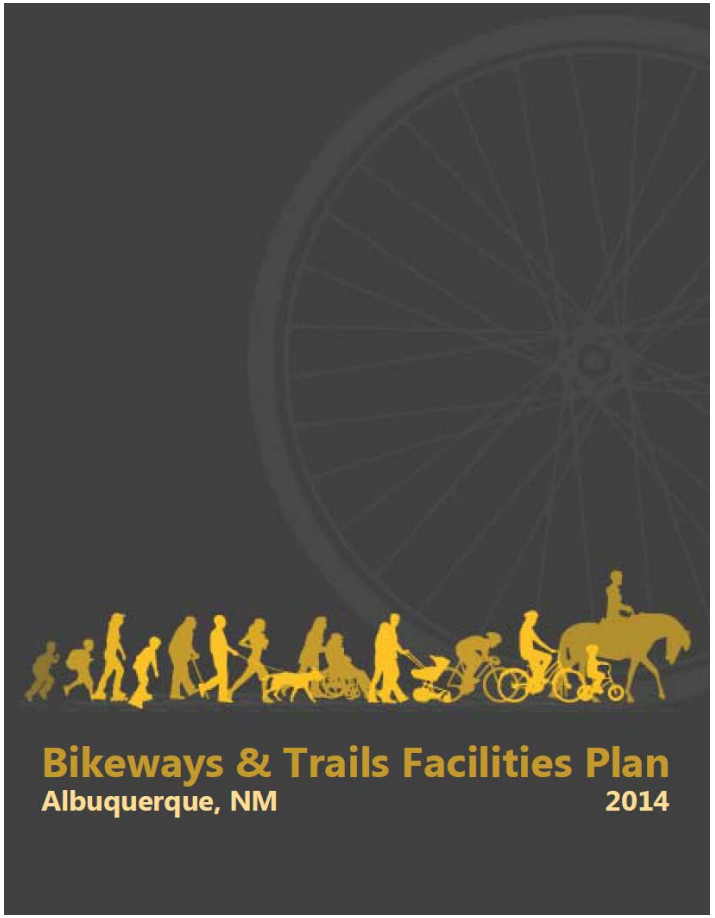
- Since September 2013, the Working Group has:
  - Reviewed, updated, & consolidated relevant content from the existing plans (1993, 2000, 2011)
  - Reviewed public input from 2010 & recent GABAC/GARTC meetings:
    - to inform new/revised Goals & Policies
    - to inform "Current Issues" which will be tied to the recommendations
    - to inform research of other jurisdictions' administrative practices
  - Re-working the mapping & geographic databases
  - Working on integrating P&R Design Guideline document
  - Developing Implementation Strategies, linked to the department responsible and timeline

Recent Efforts

- Draft Plan posted online July 1, 2014 + **Interactive Map**
- Three Public Open House Meetings
  - July 8th – Open Space Visitor's Center – 15 people
  - July 9th – Jerry Cline Park – 47 people
  - July 11th – Special Collections Library – 42 people
    - 22+ comments regarding specific locations/facilities
      - Many other comments provided on the maps directly
    - 18+ comments about programs/priorities
      - Improved maintenance, law enforcement, education of drivers & cyclists, design & wayfinding, better coordination with Bernalillo County/Rio Rancho

Plan Organization

- Part I
  - Introduction
  - Planning & Policy Framework
  - Existing Conditions & Current Issues
- Part II
  - Recommended Network
  - Recommended Programs
  - Implementation Strategies
  - Design Guidelines/Standards



Introduction

Chapter 1

Planning Purpose

- Planning Purpose:
  - Assess the current system
  - Make recommendations for:
    - new facilities
    - management processes
    - education & outreach programs
  - Connect Parks, Open Space and Trails for recreation
  - Improve non-motorized transportation system

Planning & Policy Framework

- Plan Vision:

*The City will provide access for **cyclists, pedestrians, and trail users** to all areas of Albuquerque, in order to provide **recreation opportunities** and to encourage cycling and walking as a **viable transportation** options, which result in an improved **quality of life** in the Albuquerque Metropolitan Area.*

History of Bikeways & Trail Development

1920s Photograph "Ray Schmidt," Chloride, NM
Source: Center for Southwest Research, University Libraries, University of New Mexico

- **1974.** The Bikeway Study
  - Estb. GABAC at this time
  - facilities are still not complete!
- **1993.** Trails & Bikeways
  - Estb. GARTC at this time
  - Estb. Two staff positions
  - 39 miles of paved trails
- **2000.** Comprehensive On-Street Bikeway Plan
  - Additional bicycle lanes & routes
  - Design standards & implementation plan

Accomplishments

- Early Accomplishments
  - 24 Miles of Bike Lanes
  - 39 Miles of Trails
    - Paseo del Bosque
    - Paseo del Nordeste
    - Tramway Trail
- Recent Accomplishments
  - Tripled the extent of the system
  - Three Bicycle Boulevards
  - Major Trail Projects
    - Gail Ryba Bridge
    - Bear Canyon Arroyo Bridge
    - Four new North Diversion Channel Trail Underpasses

Bikeways & Trails	1974	1993	2000	2010	2014	Total Proposed System
Multi-Use Trails	0	39	55	161	177	520
Unpaved Trails	-	-	-	-	100	100
Bike Boulevards	0	0	0	6	6	14
Bike Lanes	0	24	48	170	203	359
Bike Routes	0	0	56	134	134	212
Total System Length	**0**	**63**	**159**	**471**	**520***	**1105**
Total System (incl. unpaved)	-	-	-	-	620	1205
Grade-Separated Crossings	0	10	15	26	31	46

Bikeways & Trails Benefits

- **Economic**
  - community building
  - personal health
  - vehicle expense
  - traffic congestion
- **Traffic Safety**
  - improved traffic flow for motorists
  - designated facilities enhance cyclist safety & comfort
- **Social Equity in Mobility**
  - 1/3 of Americans do not drive
  - trails & bikeways provide mobility options
- **Public Health**
  - facilitate physical activity
  - decrease obesity & chronic diseases
  - enhanced mental health
- **Environmental/Natural & Cultural Resource Protection**
  - way to preserve open space
  - reduce fossil fuel consumption
  - reduce emissions/improve AQ
- **Quality of Life**
  - attract new businesses
  - less traffic in neighborhoods
  - variety of options for travel

The Planning Approach

- Public Involvement
  - 3 Public open house meetings
  - 2 Stakeholder workshops
  - 13 User and agency interviews
  - Recent regular attendance @ GABAC/GARTC
- User Counts
- Crash Analysis
- Bicycle specific analyses:
  - Bike Quality Index
  - Cycle Zone Analysis
  - User Survey
  - Street Plan GIS analysis
  - Engineering Gap analysis
- Survey of other jurisdictions

Planning & Policy Framework

Chapter Two

Planning & Policy Framework

7 Plan Goals

- Improve bicycle and pedestrian safety.
- Develop a continuous, interconnected, and comprehensive system of bikeways & trails.
- Enhance maintenance of all bikeways & trails.
- Increase use of the bikeways & trails network.
- Increase public awareness and education related to bikeways & trails.
- Recognize and leverage the bikeway & trail network as an integral part of economic development and quality of life.
- Streamline administrative practices and coordination.

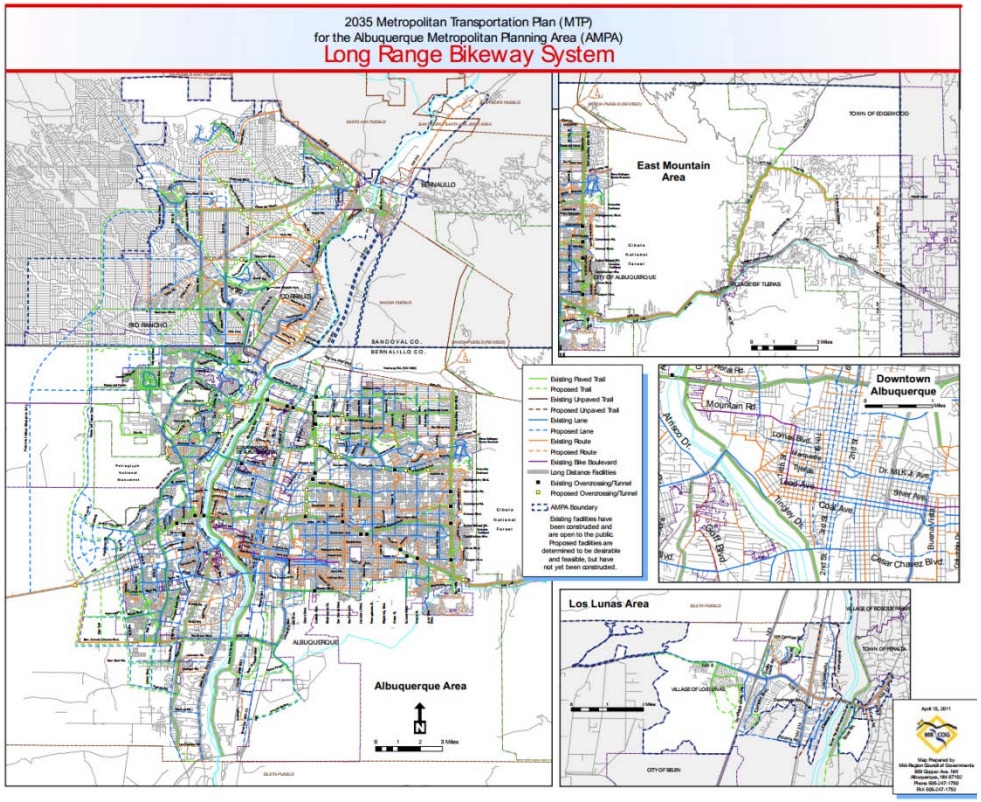
Planning & Policy Framework

- Plan Goals
  - Methods to achieve the vision.
- Plan Policies
  - Guidance to achieve the goal and vision.

- Improve bicycle and pedestrian safety.
  - **Policy:** Develop a **legible and predictable** bikeway and trail system **through** planning, design, and implementation of physical improvements.
  - **Policy:** Provide engineering and multi-disciplinary **reviews for user safety** in all new and reconstructed bicycle and pedestrian facilities.
  - **Policy: Improve the utility** of bikeway and trail facilities **through** programmatic activities, such as safety audits and assessments, education, outreach, and maintenance practices.
  - **Policy:** Provide a more **welcoming and comfortable environment** for all travelers along roadways and trails.
  - **Policy:** Balance the need to discourage unauthorized motorized vehicle access on a trail with the need to provide the trail users a facility without unnecessary obstructions **through application of the best practice guidance for bollard placement** in the design guidelines.

Planning & Policy Framework

- Relationship to other Plans
  - City Plans & Policies
    - Comprehensive Plan
    - Facility Plan for Arroyos
    - Sector Plans
    - Code of Ordinances, including the Traffic Code
    - Development Process Manual
  - Regional Plans
    - 2035 Metropolitan Transportation Plan
  - Statewide Plans
    - NM Bicycle, Pedestrian, Equestrian Advisory Plan
  - Federal Policies & Programs
    - MAP-21 Funding & Policies



Existing Conditions & Current Issues

Chapter Three

User Needs – Existing Conditions

- **Existing Conditions:**
  - Population:
    - 555,500 people in ABQ
    - 902,800 in AMPA
  - Variety of cyclists, with different needs
    - Advanced users
    - New riders, children
    - Traffic intolerant adults
  - Pedestrians, equestrians (slower travel speeds)
  - Needs of utilitarian users & recreational users are similar: safe, comfortable, direct routes

User Needs – Current Issues

- Current Issues/Challenges:
  - Balancing the Needs of the Various Users (Multi-Use Trails)
    - Speed differences
    - Trail etiquette
    - Equestrian Trails
    - Education/wider trails
  - Conflicts between cyclists/trail users & vehicles
    - Education for cyclists & motorists
    - Traffic Laws
    - Predictable Behavior

Existing Facilities – Existing Conditions

- **Existing Conditions:**
  - Facility Types
    - Multi-use trail - 177 miles
    - Bicycle lane - 203 miles
    - Bicycle route - 134 miles
    - Bicycle boulevard - 6 miles
  - Support facilities
    - Signage
    - Bicycle detectors
    - Parking & trailheads
    - Intersections & Crossings

Existing Facilities – Current Issues

- **Current Issues/Challenges:**
  - Retrofitting trails to be universally accessible
  - Evaluate facilities against design standards
  - Bollard placement evaluation
  - Trail bollard inventory
  - Bike Blvd. assessment
  - End-of-trip facilities & programs

System Analysis – Existing Conditions

- **Assets & Challenges:**
  - Land Use & Destinations
    - Major employment centers
    - Civic buildings such as libraries
    - Transit stations
    - Major retail and commercial centers
    - Schools/Universities
    - Parks and regional recreation areas
  - Multi-Modal Connections

System Analysis – Existing Conditions

- **Assets & Challenges:**
  - Physical Constraints
    - Rio Grande
    - Interstate Highway, Arterials & Rail Road
    - Open Space, Arroyos, & West Mesa Escarpment
    - Gated Communities
    - Golf Courses
    - Indian Pueblos
    - Airports
    - Military Base

System Analysis – Existing Conditions

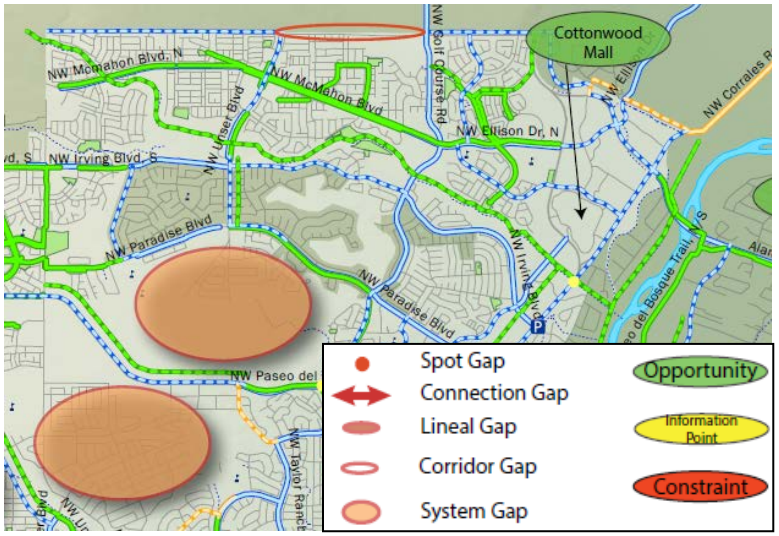
- **System Use:**
  - Bikeway & Trail User Counts
  - Bicycle Commuting Data
  - On-Street Needs Assessment
    - BQI/CZA/StreetPlan and other techniques…
    - Gap Closure Analysis: intersections & missing links

System Analysis – Existing Conditions

- **System Use:**
  - Bikeway & Trail User Programs
    - Education, Encouragement & Enforcement
    - Review existing programs & determine if new ones are needed
  - Current Studies
    - 50 Mile Activity Loop
    - Bicycle boulevard assessment
    - Bike route signage assessment
    - Wayfinding sign project

Esperanza Community Bike Shop
Graduates of the First Class

System Analysis – Current Issues

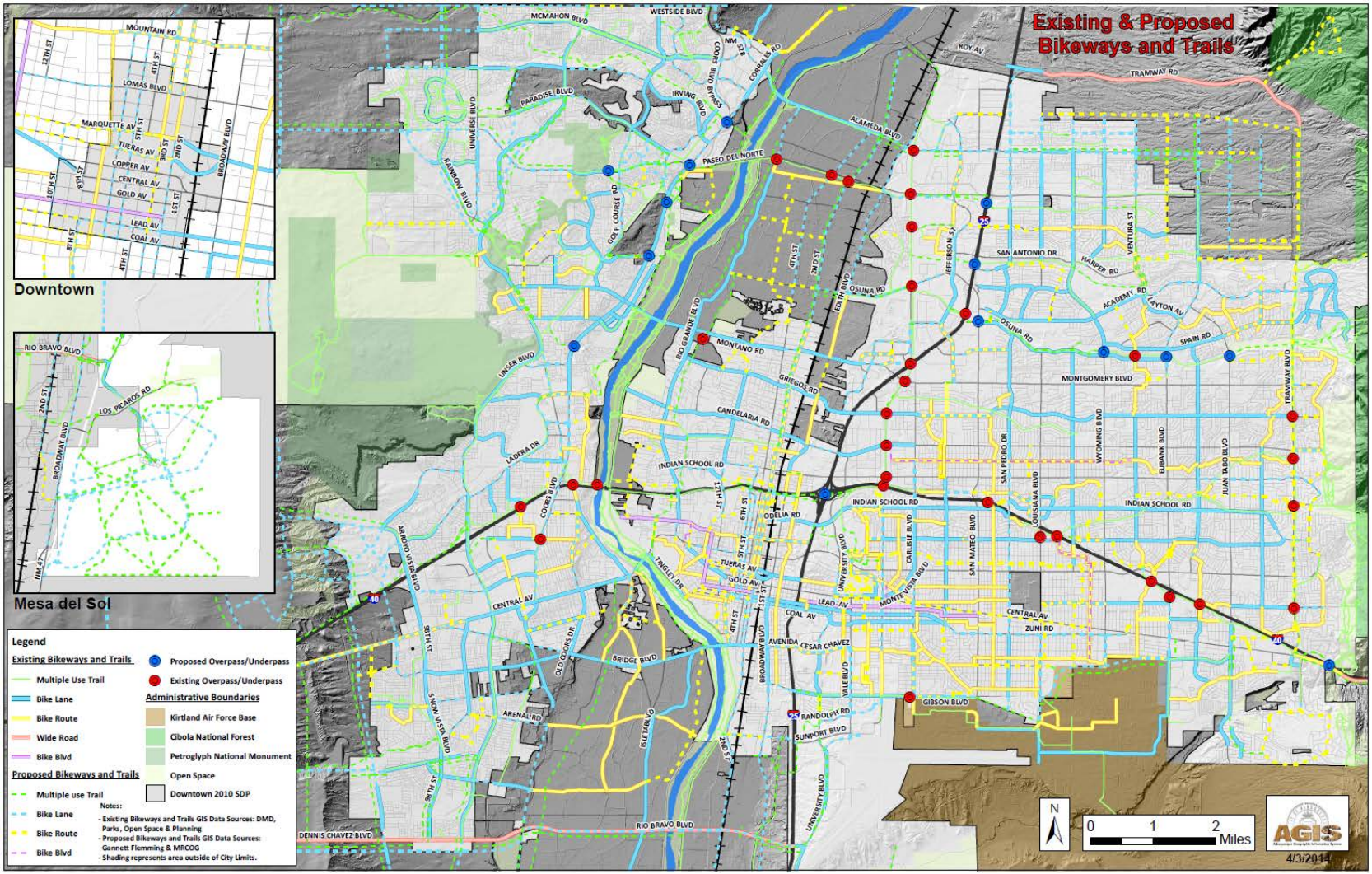


- **Current Issues/Challenges:**
  - Coordination between City Departments & Other Agencies
  - Advisory Groups
  - Wayfinding & Orientation
  - Discontinuous Network
  - Trail Counts (more needed)
  - Maintenance Concerns

Recommended Network

Chapter 4

Proposed Facilities

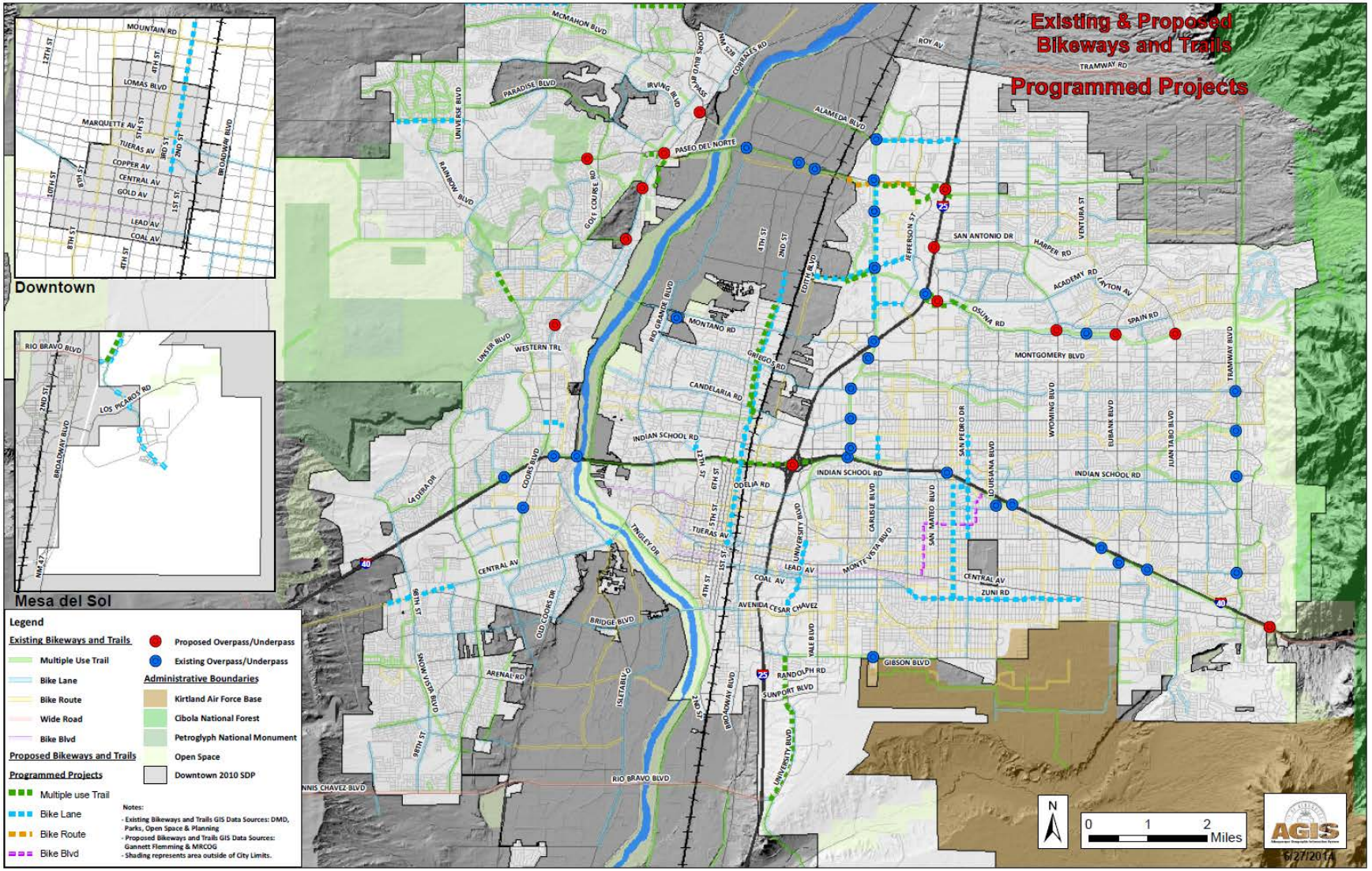


Proposed Facilities

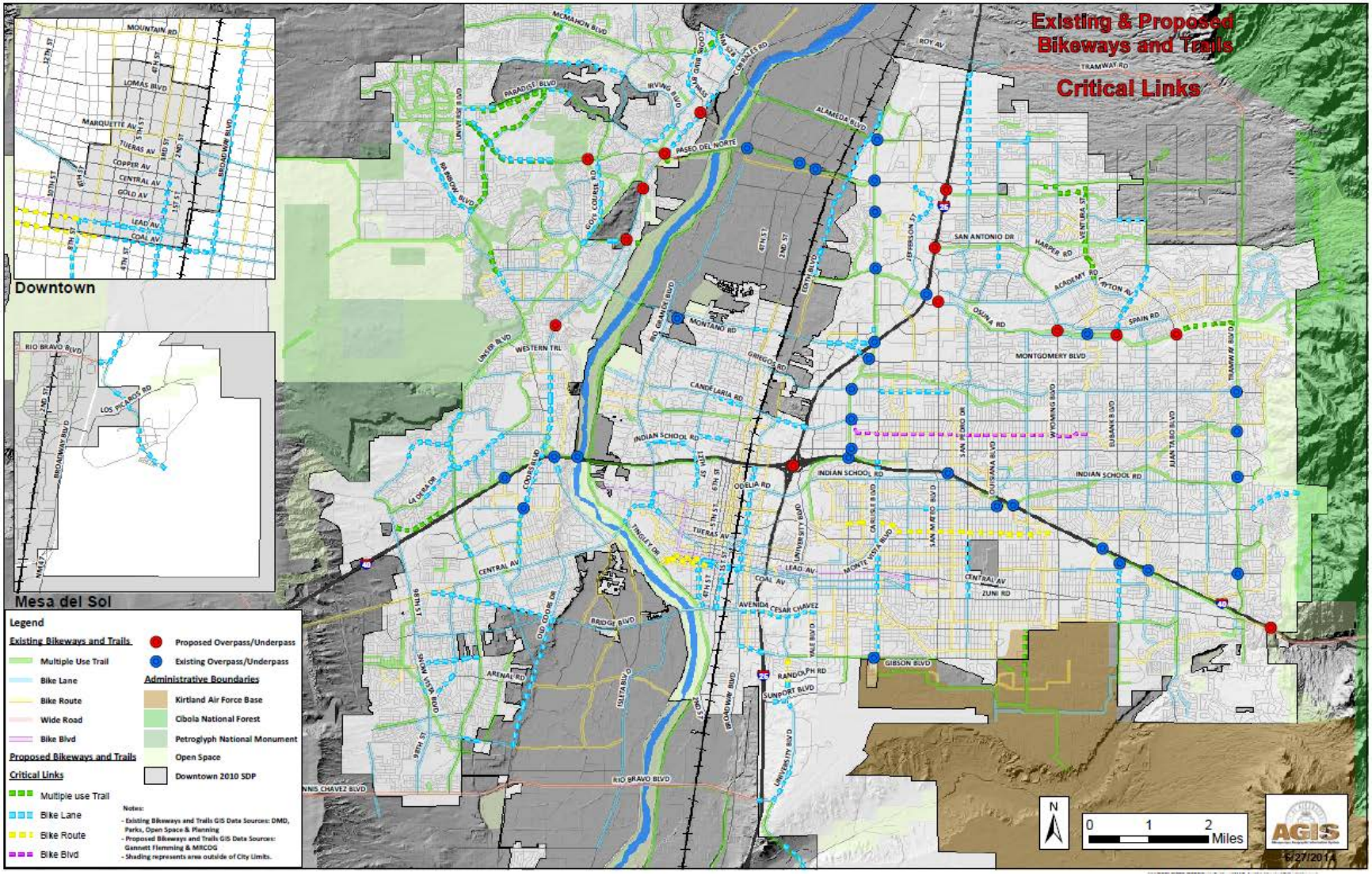
The proposed trail alignment is inconsistent with current development & platting

Proposed trail re-alignment (teal) along existing drainage way and at the edge of developed subdivision

High Priority Projects



High Priority Projects



Recommended Programs

Chapter 5

Road Map

- **Chapter 5: Recommended Programs**

  A. Current Safety, Education & Encouragement Programs

     A. City Bicycling & Trail Programs
        (Bike Rodeos, Esperanza Community Bike Shop, Bike Box program, trail building & maintenance volunteer program)

     B. Partnerships & Programs to Encourage/Support
        (bike events, driver education, bike valet, Safe Routes to School, advocacy groups & bike clubs)

  B. Proposed Programs

     A. Enhanced enforcement actions (for bicyclists, peds, & cars)

     B. Bicycle & trail counts + crash reporting

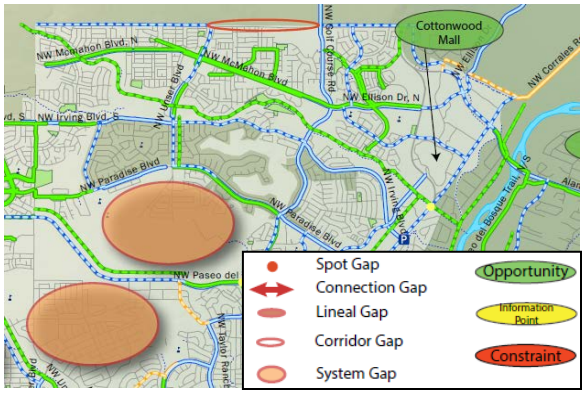
     C. Other awareness/encouragement/education programs

Implementation Strategies

Chapter 6

Recommendations

- Bikeway & Trail Development Approach
  - A. Administrative Organization & Coordination
  - B. Role & Structure of Advisory Committees
  - C. Policies for Bikeway & Trail Development
  - D. Procedures for Design, Development, & Review



- Legislative Recommendations – City Traffic & Zoning Code, DPM
- Maintenance & Operations Recommendations
- Monitoring & Evaluation
  - A. Bikeway & Trail Counts
  - B. Crash Data Collection & Analysis

Implementation Actions

Element	ID	Priority	Action	Measurement	Lead Agency; Coordination Required
Programs	20	Ongoing	Develop, distribute, and update annually a bicycle and trail map, which includes commuting, and safety tips and laws related to bicycling.	A new map will be produced each year	**Bikeways Coordinator;** Parks & Recreation and Planning
Administration	21	Short-term	Update the short-term priority facility construction list every two years, in conjunction with the Decade Plan		**Trails Coordinator & Bikeways Coordinator;** Planning
Administration	22	Short-term	Monitor the implementation of elements within the Bikeways and Trails Facility Plan and have a goal to update the Plan at five year intervals. Monitor and document the status of work towards short and mid-term implementation actions. Evaluate if there is an adequate system and equitable distribution of each of the facility types, according to the principals of developing an extensive system that also responds to population densities and demand.	Produce an annual report with all projects and programs statused.	**Planning, Municipal Development and Parks & Recreation**
Administration	23	Short-term	Develop an improved project identification, design, and development process through a Plan Implementation Project Team & Technical Review Group.	Project implementation team is established and operational	**Parks & Recreation and Municipal Development;** Planning
Administration	24	Short-term	Ensure that consistent, routine training of City of Albuquerque, MRCOG, and other jurisdiction staff is taking place.		**Parks & Recreation and Municipal Development;** Planning
Administration	25	Short-term	Evaluate the current Advisory Group process and its effectiveness. Make recommendations and implement an improved training, coordination, and input process.		**Parks & Recreation and Municipal Development;** Planning
Administration	26	Short-term	Conduct a biennial meeting among agencies involved in planning and implementation issues regarding bikeways and trails (construction, right of way, maintenance, funding, education, etc.) to include at least: the City (DMD, P&R, Planning Department, Open Space, Park Management, Bike Safety Program), NMDOT, BernCo, AMAFCA, MRCOG, MRGCD, Rio Rancho, and representatives of Citizens Advisory Groups and other advocacy groups. Topics will include: presentation of status	Meeting is conducted	**Trails Coordinator & Bikeways Coordinator;** Planning
Programs	115	Long-term	Commit appropriate police time (bicycle and motor vehicle patrols) to target pedestrian, bicyclist, and motorist enforcement efforts.	Document strategies for balanced enforcement efforts.	**APD**
Programs	116	Long-term	Continue and expand Police Bicycle Patrols and dedicate a distinct percentage of their time to educational efforts on proper bicycling behavior.	Report the number of staff or FTE assigned to bicycle patrols.	**APD**
Programs	117	Long-term	Provide dedicated funding to support public bicycling awareness programs and "Share the Road" campaigns.	Operating funds will be allocated for bicycling awareness programs	**Bicycle Educator and Municipal Development;** Planning
Programs	118	Long-term	Developing a Driver Diversion Class will be a longer-term effort, as they will require coordination with many community partners. The Diversion Class will require the support and participation of local courts, and work-ing with lawyers, traffic safety professionals and educators to prepare the curriculum will help the program launch on a firm footing. This program may need start-up funding	Document efforts to develop a program.	**APD;** Parks & Recreation, Municipal Development

Design Manual

Chapter 7

Design Manual

Bicycle & Trail Facilities

1.6 Bike Lanes

Design Summary

Designated exclusively for bicycle travel, bike lanes are separated from vehicle travel lanes with striping and also include pavement stencils. Bike lanes are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation.

The DPM recommends minimum bike lane widths of:

- 5 feet, measured from painted edgeline to edge of gutter, on roadways with posted speed limits of 40 mph or greater.
- 4 feet, measured from painted edgeline to edge of gutter, on roadways with posted speed limits of 35 mph or less.

However, AASHTO and other guidance authorities recommends a 5-foot minimum for bike lanes, with 4 feet only in restricted corridors. This text should be considered for revision to specify that a 5-foot bike lane is recommended on streets with posted speed limits of 35 mph or less. In addition, the DPM should specify that bike lanes are measured to the inside edge of the gutter pan, ensuring smooth pavement rather than a gutter edge in the bike lane.

Discussion

Many bicyclists, particularly less experienced riders, are more comfortable riding on a busy street if it has a striped and signed bike lane than if they are expected to share a wide lane. Providing marked facilities such as bike lanes is one way of helping to persuade more tentative riders to try bicycling.

Bike lanes are a popular accommodation for commuter and recreational cyclists.

Bike lane pavement markings in Portland, Oregon provide character to the roadway.

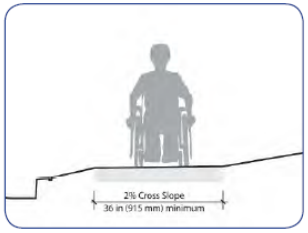
1.9.1.2 Trail Accessibility

Design Summary

- 3 feet minimum clear width, where less than 5 feet, passing space should be provided at least every 100 feet.
- Cross slope should not exceed 5 percent.
- Signs shall be provided indicating the length of the accessible trail segment.
- Curb ramps shall be provided at roadway crossings and curbs. Tactile warning strips and auditory crossing signals are recommended.

Discussion

Slopes typically should not exceed 2 percent. However,



ADA clearance requirement.

Intersections & Grade Separated Crossings

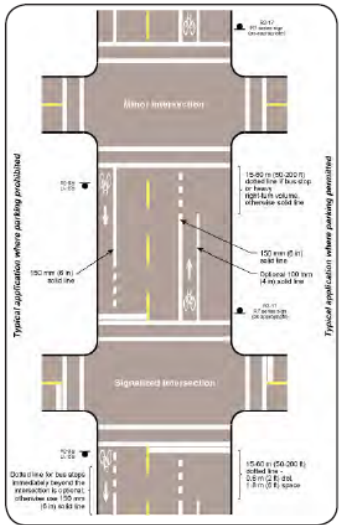
1.6.1.4 Bike Lane Striping at Intersections

Design Summary

- Stop striping bike lanes at painted crosswalks or the near side cross street property line
- At complex intersections, bike lanes may be dotted.
- At signalized or stop-controlled intersections with right-turning motor vehicles or at bus stops on the near side of the intersection, replace the solid striping to the approach should be with a broken line with 2-foot dots and 6-foot spaces for 50 to 200 feet.
- If a bus stop is located on a far side of the intersection, replace the solid white line with a broken line for at least 80 feet from the crosswalk on the far side of the intersection.
- At T-intersections with no painted crosswalks, continue the bike lane striping on the side across from the T-intersection through the intersection area with no break.

Discussion

Bike lane striping should be brought to the crosswalk or property line on the near side of an intersection. Bike lane striping is not continued through intersections, except where high volumes of motor vehicles are turning right, a bus stop is located in advance of or on the far side of the intersection or at a complex intersection. In the example photo from Portland, Ore., bicyclists are directed on the right hand side of a



Landscaping improves the walking and bicycling experience, and can deter vandalism.

Type 4: Grade-separated Crossings

Grade-separated crossings may be needed where existing bicycle/pedestrian crossings do not exist, where ADT exceeds 25,000 vehicles and where 85th percentile speeds exceed 45 mph. Safety is a major concern with both overcrossings and under-crossings. In both cases, shared-use path users may be temporarily out of sight from public view and may have poor visibility themselves. Under-crossings, like parking garages, have the reputation of being places where crimes occur. Most crime on shared-use paths, however, appears to have more in common with the general crime rate of the community and the overall usage of the shared-use path than any specific design feature.

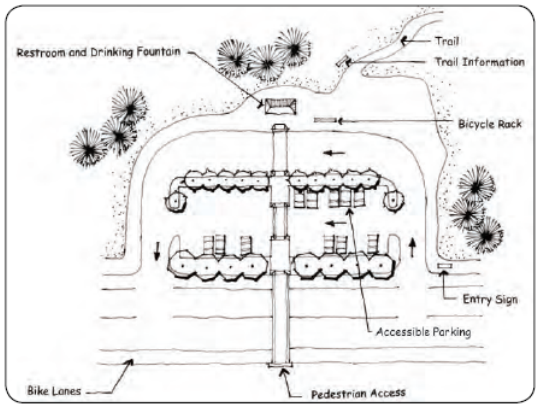
Design Manual

Amenities & Wayfinding

1.9.5.4 Trailheads

Design Summary

- Major trailheads should include automobile and bicycle parking, trail information (maps, user guidelines, wildlife information, etc.), garbage receptacles and restrooms.
- Minor trailheads can provide a subset of these amenities.



Discussion

Good access to a path system is a key element for its success. Trailheads (formalized parking areas) serve the local and regional population arriving to the path system by car, transit, bicycle or other modes. Trailheads provide essential access to the shared-use path

for the cyclist alerting the motorist to the unique character and operations of the bicycle boulevard (Figure 6).

1.10.1.4 On-Street Signage Guidelines

Signage for on-street bikeways can serve both wayfinding and safety purposes including:

- Helping to familiarize users with the bicycle network.
- Helping users identify the best routes to destinations (Figure 7).
- Helping overcome a "barrier to entry" for people who are not frequent cyclists or pedestrians.
- Visually cue motorists that they are driving along a bike route and should use caution.
- Including mileage and travel time estimates minimize the tendency to overestimate the amount of time it takes to travel by bicycle (Figure 8).

Figure 6a

Identifying Destinations for Signage

Destinations for on-street signage can include:

- On-street bikeways (regional or local)
- Commercial centers
- Regional or local parks and trails
- Public transit sites
- Civic or community destinations, such as hospitals and schools
- Area destinations (e.g., cities, downtowns or neighborhoods)

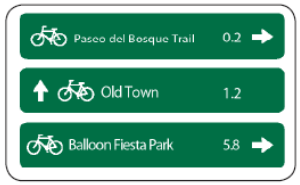


Figure 7 - Wayfinding signage concept.

Maintenance Practices

1. On-Street Bike Facility Maintenance Considerations

Like all roadways, bike lanes, routes, and bike boulevards require regular maintenance. This includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flat and installing bicycle-friendly drainage grates. These considerations are particularly relevant to bike lanes, as cyclists have a narrow corridor to traverse.

Surface

Bicycles are much more sensitive to subtle changes in roadway surface than are motor vehicles. Various materials are used to pave roadways and some are smoother than others. Compaction is also an important issue after trenches and other construction holes are filled. Uneven settlement after trenching can affect the roadway surface nearest the curb where bicycles travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks. For more information, see BikeSafe Repetitive/Short-Term Maintenance document: www.bicyclinginfo.org/bikesafe/countermeasure.cfm?CM_NUM=-4

- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than 1/4 of an inch.
- Maintain a smooth surface of all bikeways that is free of potholes.
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition.

Examples of bicycle-safe drainage grates.

Design Manual - Wayfinding

Wayfinding at Street Intersections

Wayfinding at Trail Intersections

Street Name Pavement Marking

Trail Name Pavement Marking & Mile

Questions? Comments?

Source: Palace of the Governors Photo Archives, New Mexico History Museum, Santa Fe, NM
From left to right: Stikey, Widmeyer, unidentified, Rev. E.L.H. Griswold, Hood, and Phil Harroun