

Trails del Norte

Report and Recommendations on Proposed Bike Trails

Prepared for Rocky Mountain Youth Corps

by
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INTRODUCTION

Ernest Atencio, dba Land & Culture Consulting, was contracted by Rocky Mountain Youth Corps (RMYC) to create action plans for the development of two bike trails in Taos County: 1) Arroyo Seco to Taos and 2) Rio Fernando between Kit Carson Park and Fred Baca Park. Early in the process, with input from other partners, we decided to brand this project the Trails del Norte Coalition. As part of the project, I also researched and wrote a report documenting the benefits of bike trails, *Trails for the People and Economy of Taos: Community, Health, and Economic Benefits of Trails for Biking and Other Recreation in the Taos Area* (Appendix A), which has been used to garner support from the public, the Taos Pueblo Warchief, the National Park Service's Rivers, Trails, and Conservation Assistance Program (RTCAP), Taos County, the Town of Taos, and others. I also completed an application for technical assistance to RTCAP (Appendix B).

From the start, it was apparent that there was far greater public interest and momentum toward the Arroyo Seco to Taos trail than the Rio Fernando trail. Outreach and grant proposals to date have focused primarily on the Seco to Taos trail. In addition, the in-town Rio Fernando trail, potentially involving numerous private landowners and route variables, carries far greater logistical and public relations complexity, and either trail project will be a significant undertaking on its own, so pursuing both at the same time may simply not be realistic. Outreach, building relationships, and brokering individual access easement agreements will all require far more time and effort than the seven-month term of this contract allows. In consultation with Carl Colonius, RMYC executive director, we decided to focus first on the Arroyo Seco to Taos trail, and even more specifically, on the critical stretch from Seco to the “blinking light” at the intersection of NM 150, NM 522, and US 64. Eventually, RMYC and Trails del Norte will extend the trail—and just as importantly, the *idea* of trails—through El Prado and into the Town of Taos. This phased approach would serve several purposes, including:

- allow RMYC to learn and become familiar with the planning, design, and construction process on one trail, before taking on multiple trails
- serve as a high-visibility demonstration project, to brand and legitimize Trails del Norte
- demonstrate the public and economic benefits of trails
- demonstrate a successful public-private partnership
- make the idea of public trails less threatening to private landowners

All of which will strengthen the Trails del Norte initiative and make it easier to step into the more complex situation in the Town of Taos.

To that end, this report is divided into two primary sections: the Arroyo Seco to Taos Trail and the Rio Fernando Trail. The Arroyo Seco to Taos section includes far more background and detail, general design recommendations, and cost estimates. The Rio Fernando section is a more general discussion of options and recommendations, including maps and lists of landowners that potential routes might cross, included in the appendices.

I will emphasize here that public bike trail design is a highly technical and specialized activity and in order to meet public funding requirements and state and local regulations it will be necessary to hire a professional transportation design engineer to create the final plans for either trail. The following will be useful, but it is the product of a non-technical layperson.

ARROYO SECO TO TAOS TRAIL

Background and Need

The idea of a bike trail linking Arroyo Seco and Taos has long been a dream for many in the community. Currently, the roadway along NM 150 has no shoulder at all, with traffic traveling at up to 55 miles per hour, which makes biking extremely hazardous. A bike path would open up a safe new commuting potential for those who travel between the two locations, as well as a new recreational opportunity for all community members. The public health benefits for a community struggling with obesity and type 2 diabetes are significant. And expanding on Taos's reputation as a destination for outdoor recreation, especially on the heels of the recent designation of the Río Grande del Norte National Monument, there is great potential to increase local economic vitality by attracting more visitors to the region. This trail would essentially be an extension of a popular road bike ride from Arroyo Seco to Taos Ski Valley, and with the combination of that dramatic open landscape between the blinking light and Seco with its vast mountain views, and the more challenging climb through an alpine environment along the Rio Hondo, it will be a world-class ride and sure to become very popular.

Outreach and Partners

In a preliminary meeting with Taos Pueblo, just after beginning this project, I was told that Roberta Salazar of Rivers and Birds had just been into the office the previous week inquiring about the same project. When I contacted the New Mexico Department of Transportation Bicycle, Pedestrian, and Equestrian Coordinator to inquire about highway easements and legal requirements for a bike trail along NM 150, she told me that she had already been in discussion with Jacob Caldwell about the same project. So we all joined forces, along with the Del Norte MtB Alliance (DNMA), as the Trails del Norte Coalition. We have extended an invitation to the Taos Pueblo Tribe to join the coalition, and others may join as the project moves forward.

To date, we have received enthusiastic encouragement from nearly everyone we have spoken to, with formal letters of support from Rivers and Birds, DNMA, the Taos Pueblo Warchief, the Taos County Manager, Taos Alive, and the owner of Taos Cyclery. The National Park Service's Rivers, Trails, and Conservation Assistance Program is considering an application for technical assistance to help with the project. Taos County recently passed Resolution 2013-53, "declaring the eligibility and intent of Taos County to submit an application to the New Mexico Department of Transportation for Federal Fiscal Year 2014-2015 Transportation Alternative Funds," specifically to pay RMYC for the planning and construction of the trail along NM 150 (Appendix C). And a grant proposal for the Transportation Alternative Funds has been submitted. We are reaching critical mass with plenty of momentum and support to continue driving the project forward.

Routes and Design Recommendations

Routes

As mentioned above, the priority focus at this time is on the 4.6-mile stretch of the bike trail between the village of Arroyo Seco and the blinking light intersection. That section of the route,

paralleling NM 150 within the highway easement along the east side of the road, is relatively straightforward. In addition, it has the advantage of having an unofficial community parking area on the highway easement next door to the intersection. From that point on through El Prado and into the Town of Taos, there are a variety of route options and a multitude of potential individual access easement agreements to be brokered. I have made preliminary contact with a couple of key landowners, as well as Taos Pueblo, however, as has been frequently noted throughout the project, some of those relationships could well take years to come to fruition.

Route options from the vicinity of the blinking light into Taos include (see Appendix D):

- A. onto the shoulder of U.S. 64 south
- B. through the KTAO Solar Center property, across the Attiyeh and Rumsfeld properties, to Ben Romero Road, then onto the shoulder of U.S. 64 south
- C. extending option 2: cross Ben Romero Road and continue across property owned by Jim Leahy, Appleseed LLC, then onto a variety of other private properties to the shoulder of U.S. 64 south, or across Taos Pueblo land to Hail Creek Road to 64 south
- D. onto Rabbit Hunt Return Road (Indian Service Route 707) about .4 mile before the blinking light, then onto Ben Romero Road to U.S. 64 south

I have made preliminary contact with the owners of the Attiyeh Property and the manager/son-in-law of the owners of the Rumsfeld property, under option 2 above (contact information in Appendix F). They are aware of the project and considering the possibility of the trail crossing their properties. The owner of the Appleseed LLC property, under option 3, is probably a willing partner. We have met with and discussed this project with the Taos Pueblo Warchief and Governor. There are currently no commitments from any of these landowners, but it is important to keep the lines of communication open.

Design Recommendations

According to the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*, the two options that could work along NM 150 are 1) paved shoulders with a designated bike lane of at least 5 feet on both sides of the highway or 2) a stand-alone “shared use sidepath,” which would run along only one side of the road. Based on discussions with project partners, input from other bikers, the design challenges and expense of widening the highway on both sides for designated bike lanes, and the sheer number of driveways to accommodate on the west side of the highway, I strongly recommend a two-way sidepath along the more open east side. This is the option outlined below.

In circumstances such as exist along NM 150, AASHTO recommends a minimum width for a shared use sidepath of 8 feet, with a 1-2 foot graded shoulder on each side with a maximum 6:1 slope. The trail should be 5 feet from the edge of the road and 5 feet from any obstacles (such as the existing barbed-wire fence), for a total minimum of 20 feet. The existing highway easement along NM 150 is 40 feet from the center line, which extends in most places about 29 feet from the outside white line of the highway, allowing adequate room along most of the route for a bike path. In a few locations the boundary fence along Taos Pueblo land may need to be adjusted. In three other locations the trail may need to merge into an widened road shoulder, including the first .1 mile departing Arroyo Seco, for about .2 mile along the passing lane at the NM 230 intersection, and the last .2 mile before the blinking light intersection.

The trail profile should be a total depth of 6 inches, including a 4-inch base course of crusher fines and 2 inches of asphalt. For over half of this route—about 2.5 miles between the intersection of NM 230 and the blinking light—the terrain is level and trail construction will be relatively easy. From 230 to Arroyo Seco, there will be more challenges, including slopes that will require cut and fill leveling, wetlands, and drainage issues. A mileage log with terrain and design considerations follows:

Approximate Mileage north to south	Description/Notes
0	intersection of NM 150 and Hondo-Seco Road in Arroyo Seco
0 - .1	crowded situation, shoulder bike lane recommended
.1 - .2	steep roadside slopes up to 2:1, cut and fill required
.2 - .4	level
.4 - .8	slopes between 10:1 and 2:1, cut and fill required
.8 - .85	low, wet area, will require some fill material and drainage
.85 - 1	level
1 - 1.2	slopes up to 5:1, cut and fill required
1.2 - 1.3	level
1.3 - 1.5	lowest spot on highway at Piñon Road with serious drainage issues; drainage on east side of road needs to be redesigned and existing culvert under the road may need to be moved
1.5 - 1.6	level
1.6 - 1.9	steep slopes up to 2:1, cut and fill required
1.9 - 2.1	wider section of pavement with passing lane at intersection with NM 230; will require widening the shoulder for a short merge section
2.1 - 4.4	level and open
4.2	Rabbit Hunt Return Road
4.4 - 4.6	merge with widened shoulder
4.5	KTAO Solar Center and unofficial community parking area on highway easement
4.6	blinking light intersection, crosswalk across U.S. 64 to southbound shoulder

Signs and some trail marking will be required at road and driveway intersections, merge areas, and where any other hazards or obstructions exist. A conservative estimate of signs includes a total of 15 intersections requiring three signs each, three merge areas requiring four signs each, and four miscellaneous hazards with two signs each, for a total of 65 signs and posts. Trail markings in these circumstances can be minimized, but a yellow center line is recommended for 50 feet before every road and driveway intersection and for sections of limited sight distance. White edge stripes are recommended where the trail merges with the road shoulder.

There are several factors that will have to be taken into account in a professional engineering design and/or during the construction that will determine whether safety rails or additional barriers are required. In most cases where the trail shoulder grade is greater than 6:1, or where

physical obstructions exist within 5 feet of the of the trail, a safety rail is recommended. In places where the trail is within 5 feet of vehicle traffic, a crash-proof barrier is preferred.

Cost Estimate

This detailed cost estimate is for the 4.6-mile stretch along the highway easement from Arroyo Seco to the blinking light intersection only.

Item	Cost
Personnel	
RMYC Crew (40 days @ \$1,000)	\$40,000
Supervisor/Manager	9,600
Administration	12,500
Personnel Subtotal	62,100
Contractors/Consultants	
Design and Engineering	35,967
Environmental/Planning	17,928
Contractors Subtotal	53,895
Materials	
Base course of crusher fines 6,747 tons @ \$11.60 (24,288' x 12' x 4" + 25% compaction = 4,498 CY x 1.5)	78,265
Asphalt surface, including contractor 242,880 sq ft @ \$2.00 (24,288' x 10') / 3,036 tons (sq ft x 2" = 1,499 CY x 2.025)	485,760
Fill material estimated 50 CY @ \$14.95	747
Signs estimated 65 signs @ \$20 and posts @ \$20 for intersections, merging, and hazards	2,600
Striping machine and paint for intersections and merge areas	260
Barriers placeholder for unknown need and quantity	7,500
Materials Subtotal	575,132
Equipment Rental	
1 Loader/Backhoe @ \$3,795/month for two months	7,590
2 Bobcats @ \$3,225/month for two months	12,900
2 Tampers @ \$1,320/month for two months	5,280
1 Ride-on-Top Roller @ \$2,595/month for two months	5,190
RMYC vehicle costs, tools, miscellaneous	5,000
Equipment Subtotal	35,960
GRAND TOTAL	\$727,087

Since the potential route through El Prado to the Town of Taos is unknown at this time, all I can do is roughly estimate the cost on a per-mile basis per the above figures. Actual costs will vary depending on a variety of engineering design and construction and other factors. The estimates

below are at \$158,062 per mile from the vicinity of the blinking to the Town of Taos boundary at the intersection of U.S. 64 and Hail Creek Road.

Route	Mileage	Estimate
A. onto the shoulder of U.S. 64 south	2.8	\$442,574
B. through the KTAO Solar Center property, across the Attiyeh and Rumsfeld properties, to Ben Romero Road, then onto the shoulder of U.S. 64 south	3.1	\$489,992
C. extending option 2: cross Ben Romero Road and continue across property owned by Jim Leahy, Appleseed LLC, then a onto a variety of other private properties to the shoulder of U.S. 64 south, or across Taos Pueblo land to Hail Creek Road to 64 south	3.2	\$505,798
D. onto Rabbit Hunt Return Road (Indian Service Route 707) about .4 mile before the blinking light, then onto Ben Romero Road to U.S. 64 south	3.1	\$489,992

These estimates are all based on 2013 prices. Depending on when the construction is undertaken, adjustments for additional fuel or materials costs and other considerations will be necessary. The estimates do not include organizational overhead.

RIO FERNANDO TRAIL

Background and Need

A bike trail connecting Kit Carson Park and Fred Baca Park, ideally along the Rio Fernando, would provide a beautiful “urban” biking experience along a town greenbelt for Taoseños of all ages and backgrounds. It would link two open space areas in the Town of Taos and the neighborhoods in between, continuing the centuries-old tradition of streams and *acequias* as community transportation corridors. And it is consistent with the Town’s Bicycle Facilities Master Plan and the Safe Routes to School Program. The potential community, economic, and public health benefits are similar to those for the Arroyo Seco to Taos trail, but possibly even greater, as the more concentrated population in the Town would have easy access.

As explained above, this trail proposal, potentially involving numerous private landowners and route variables, carries a high degree of logistical and public relations complexity. The community outreach, building relationships, and brokering individual access easement agreements would require a tremendous amount of time and effort, and possibly a slow cultural shift in residents’ attitudes toward public trails. As a result, this trail is much more conceptual at this point with far less on-the-ground knowledge of the specific routes, design variables, and challenges, and the information below will be very general.

Early in the research for this project I contacted an attorney with expertise in *acequias*, David Benavides, to inquire about the possibility of using existing acequia access easements—including access along the Rio Fernando as a primary source of local acequias—for a public bike trail. State law (NMSA Sections 72-8-3 and 73-2-5) protects a historical, permanent, unobstructed easement, as wide as necessary for purposes of maintenance, operations, and improvements along *acequias*, and we wondered if that easement might be available for a bike trail. Benavides explained that the protected access is only for legitimate *acequia* business by *acequia* members, not for access by the general public. The idea has no legal legs to stand on, but in terms of traditional use of *acequia* easement, it could be a starting place.

In a recent meeting with Town of Taos Manager Oscar Rodriguez, he discussed the idea that *acequias* and streams were historically community transportation corridors that people walked or rode on horseback to travel from one place to another. He suggested approaching trails within the Town from that angle, as a continuation of a historical tradition. He further suggested that a trail project through neighborhoods in town might start with just a few small, piecemeal projects extending and linking dead ends through and across streams, *acequias*, and vacant land. This would provide an important service for the Town of Taos and local residents, creating more direct access corridors, and ease people into the idea of public trails.

Specifically, Rodriguez suggested three locations to consider and he pledged that if RMYC came back with a proposal by March 2014, he would advocate for those projects in the next Town budget. Those locations include:

- extend the dead end at the north end of Zuni Street off La Posta by bridge and trail across the Rio Fernando to connect with Murray Street (this crosses route option A below)

- extend Del Norte Lane off Adobe Road to connect with Gusdorf Place and the neighborhood park at that location
- extend the dead end of Adobe Road to the southeast across a vacant lot to Sunset Street or Calle Palomita to connect with Paseo del Cañon
- other similar situations within the Town of Taos probably exist and are worthy of investigation

Potential Routes

With input from Carl Colonius and others with familiarity and experience in transportation planning, three route options were identified to connect Kit Carson Park and Fred Baca Park. A map showing route options is in Appendix D and a list of landowners and public rights-of-way along each route is detailed in Appendix E.

Option A

This route maximizes a greenbelt, open space alignment along the Rio Fernando, and other open lands along the way, and would cross numerous private properties requiring access easement agreements with each landowner. About 2 miles in length, this is the longest of the potential routes and would require development of shared roadways and/or bike lanes on up to .9 mile of public roads, with the rest on private or open space properties. One particularly problematic portion of the route would be crossing Paseo del Pueblo Sur at location that is not at an intersection.

Option B

This route uses a combination of low-traffic public roads and a few private properties, with less than half a mile of Rio Fernando frontage. The overall length is about 1.5 miles and would require development of shared roadways and/or bike lanes on about .7 mile of public roads.

Option C

This route uses existing public roads only for about 1.5 miles and would require development of shared roadways and/or bike lanes over the entire route.

Cost Estimates

Without any on-site assessment of the design elements and challenges, cost estimates are impossible to provide. The best I can do at this point is provide an extremely rough estimate based on the per-mile costs for the Arroyo Seco to blinking light stretch. As above, the estimates here are at \$158,062 per mile for the three options between Kit Carson Park and Fred Baca Park (see Appendix D). There will certainly be other and far more complex design engineering and construction costs, depending on the route, and no estimate has been made regarding differential costs for the development of a shared roadway and/or a bike lane along some parts of the routes.

Route	Mileage	Estimate
A. optimal Rio Fernando alignment with numerous landowners	2	\$316,124
B. some public roads and some landowners	1.5	\$237,093
C. on public roads	1.5	\$237,093

Ernest Atencio, dba Land & Culture Consulting, is former executive director of Taos Land Trust with over 16 years of experience in land conservation and land management and another 19 years working in national parks and leading outdoor trips. He holds a Masters degree in applied sociocultural anthropology with an emphasis in sustainable development.

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APPENDICES

Appendix A
Trails for the People and Economy of Taos

Appendix B
RTCAP Application

Appendix C
Taos County Resolution 2013-53

Appendix D
Maps

Appendix E
Rio Fernando Trail Landowners

Appendix F
Other Contacts