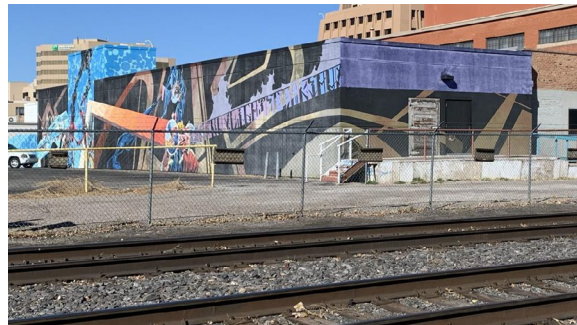


Albuquerque Rail Trail

Rebuilding American Infrastructure with Sustainability and Equity Proposal

Advancing transportation connectivity, safety, sustainability, innovation, and economic development through a vibrant urban trail



Submitted by: City of Albuquerque, New Mexico
April 2022

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Part I - Project Description

1.1 Project Description. The Albuquerque Rail Trail (“Rail Trail”) is an innovative multi-use urban trail project through the heart of Downtown Albuquerque. The Rail Trail will transform Downtown’s rail corridor into a vibrant and artistic urban trail that creates opportunities for economic development, healthy recreation, and cultural expression. The Rail Trail will connect the diverse communities it travels through and build bridges across those that have been disconnected by the railroad built in 1880. Following the ancient Camino Real, expanded over centuries by the wheel of modern times, the Rail Trail is the next expression of this essential trade route, embracing a resilient future for Downtown Albuquerque.

Among several other benefits, the Albuquerque Rail Trail will meet the RAISE grant merit criteria through:

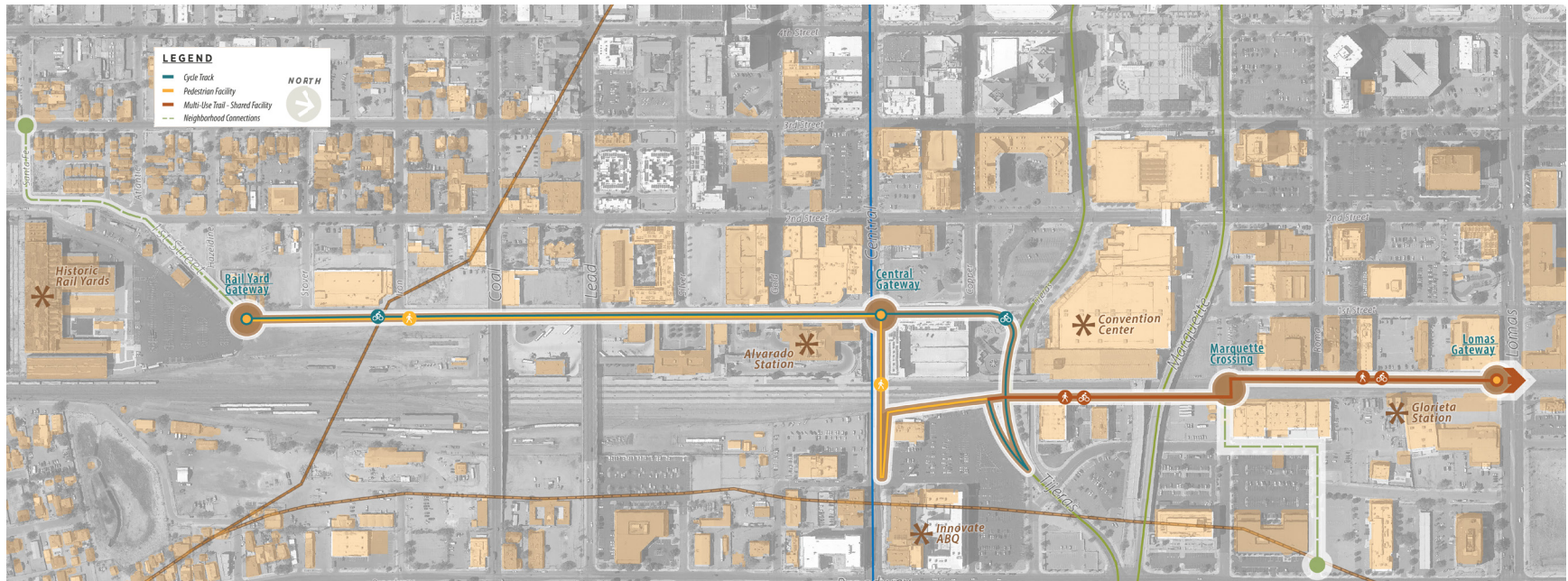
- **Safety:** Between 2015 and 2019, 59 cyclists were injured and 6 killed along three parallel streets that are within 800 feet of the proposed Rail Trail. Similarly, 65 pedestrians were injured and 4 killed in the same area. This project is projected to reduce bicycle fatalities by 52% to 88%, preventing up to 345 injuries and fatalities over the next thirty years, and creating a safer pedestrian connector through Downtown.¹
- **Environmental Sustainability:** Reducing vehicle miles traveled by as much as 99,259 annually by encouraging mode switches to bicycling.²
- **Mobility and Community Connectivity:** Improving and expanding access to active transportation alternatives, increasing annual bicycle trips by up to 570,000 trips per year.²
- **Quality of Life:** Creating safe and high-quality active transportation infrastructure in an area that has higher levels of social vulnerability, including higher rates of poverty, lower median incomes, and lower rates of homeownership, and creating a 30-year travel cost savings of \$1.2M.²
- **Economic Competitiveness:** Enabling nearly \$270M in trail-oriented-development potential along the trail corridor.³
- **State of Good Repair:** Collaborating with the private non-profit Friends of the Albuquerque Rail Trail to provide enhanced maintenance and programming of the trail.
- **Partnership and Collaboration:** Engaging with diverse-owned businesses and advocates for diverse-owned businesses through a Rail Trail Equity Steering Committee that will help encourage equitable development, small business growth, and opportunities for diverse-owned business creation along the trail.
- **Innovation:** Deploying broadband and Wi-Fi along the trail to enable Smart Cities technology like smart trashcans, or video surveillance to alert the City of real-time safety issues like crimes or trips and falls.

¹ City of Albuquerque, “Memo - Reduction of Cyclist Injuries and Fatalities Anticipated by the Proposed Albuquerque Rail Trail.” 2022.

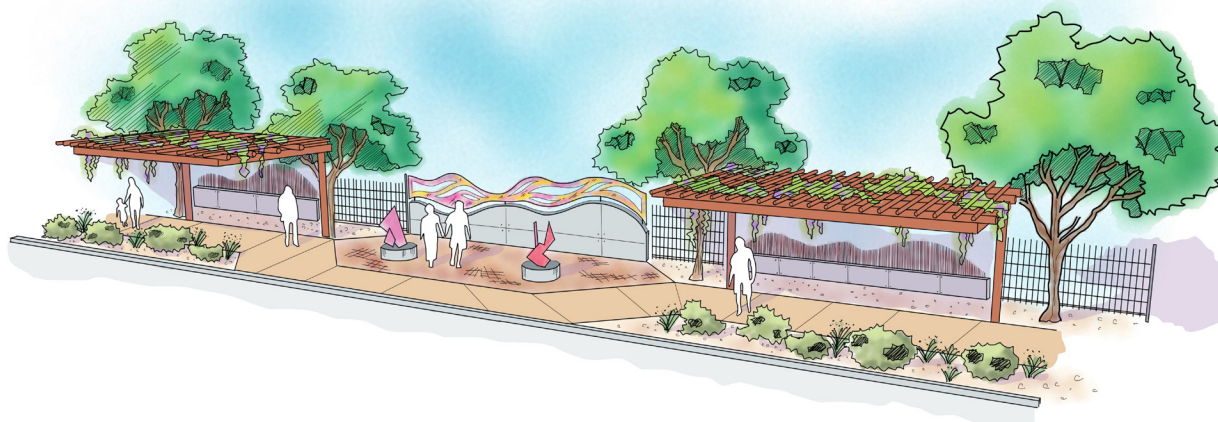
² City of Albuquerque, “Memo - Mode Shift Assessment and Reduced VMT in Support of the Proposed Albuquerque Rail Trail.” 2022.

³ See Benefit Cost Analysis for details on assumptions and calculation.

Map 1 - Rail Trail General Alignment Map



Artistic Rendering of Pedestrian Path along 1st Street



1.1.1 Project Components. The Albuquerque Rail Trail proposes a North-South 1-mile urban trail through the heart of Downtown. The Rail Trail runs along excess state-owned property directly adjacent to the rail tracks, and then switches to 1st street to accommodate rail right-of-way constraints. From Lomas to Central (0.5 miles), the trail is a multi-use path (shared by bicyclists and pedestrians) completely separate from vehicle traffic. From Central to the Rail Yards, the trail separates into a two-way cycle track and 14-foot enhanced sidewalk that is separated from vehicular traffic using an on-street landscaping buffer. The Rail Trail connects to several existing East-West bike infrastructures, and will be the only North-South route with dedicated bicycle infrastructure through the Downtown core. See Map 1 on the following page for alignment details.

1.2 Project History. In 2019, the City of Albuquerque completed a feasibility study for the Albuquerque Rail Trail. The study identified initial alignment options and outlined right-of-way constraints through the rail corridor. In early 2021, the City’s Metropolitan Redevelopment Agency (MRA) hired consultants MRWM Landscape Architects and Wilson Company: Engineers and Architects (“Wilson Engineers”) to develop a comprehensive Albuquerque Rail Trail Framework Plan for the 1-mile trail segment through Downtown. The final Albuquerque Rail Trail Framework Plan (“Framework Plan”) was published March 2022. The Framework Plan is outlined into seven sections: [Executive Summary](#), [Existing Conditions](#), [Outreach](#), [Technical Analysis](#), [Art + Cultural Programming](#), [Design Recommendations](#), and the [Appendix](#). The Framework Plan is based on New Mexico’s rich and diverse history, developed through thoughtful and meaningful community engagement and research of best practices from other major urban trail projects like the Atlanta Belt Line, Chicago 606 Bloomingdale Trail, the Indianapolis Cultural Trail, and the Charlotte Rail Trail. A new at-grade vehicular and pedestrian railroad crossing at Marquette Ave was fast tracked for construction and will be complete in Summer 2022.

1.2.1. Community Engagement. The Metropolitan Redevelopment Agency approached community engagement thoughtfully and boldly to ensure meaningful stakeholder3 input.

- In Januaray 2021, MRA convened a steering committee made up of property and business owners along the proposed trail alignment, neighborhood representatives from Downtown Main Street and the Barelas Community Coalition, and CPTED professionals. This group provided input to MRA and the consultant group throughout the planning process.
- In June 2021, MRA hosted an open house asking the public to provide input on the design and programming of the trail. With 115 attendees, 49% of whom came from communities surrounding the Rail Trail Corridor, valuable feedback was collected from the community and incorporated into the Albuquerque Rail



Trail Framework Plan.

- In August 2021, MRA released a survey to collect additional public input on the design of the Rail Trail. The survey link was mailed to over 4,000 residences and businesses surrounding the Rail Trail. The survey was also distributed broadly on social media and email list serves. Respondents were asked their preferences on materials, amenities, and programming. The survey was available in English and Spanish. A total of 455 responses were received, with 58% of respondents residing in neighborhoods directly surrounding the Rail Trail Corridor. The feedback collected from the survey informed final design recommendations in the Framework Plan, and will guide future programming and activities planned for the Rail Trail.
- In September 2021, a small group of private and institutional property owners from the Steering Committee hosted a fundraiser to establish the Friends of the Albuquerque Rail Trail, a non-profit group that will provide programming and enhanced maintenance and security for the Rail Trail. The group raised \$50,000 and MRA matched the funds with an additional \$50,000 to develop a strategic plan and hire a part-time Executive Director. The Friends of the Rail Trail are currently conducting strategic planning sessions and have provided a letter of support for this project.
- In December 2021, MRA released the Albuquerque Rail Trail Framework Plan: Draft for Public Comment. After releasing the initial Framework Plan Draft for public review, MRA solicited additional community input. Feedback on the Draft Plan was incorporated into the final Albuquerque Rail Trail Framework Plan.
 - MRA staff attended five neighborhood association meetings to present the plan and gather feedback.
 - A Public Comment period was open from 12/6/21 to 1/31/2022, which received 114 comments.
 - A second survey was open from 1/8/2022 to 1/31/2022, which received 228 responses. Over 60% of respondents were from within neighborhoods surrounding the Rail Trail. 92% of the respondents rated their support of the Albuquerque Rail Trail as “high” or “very high”.
- In March 2022, MRA convened a group of diverse economic and community development leaders to form the Rail Trail Equity Steering Committee (the “Committee”). The Committee will meet quarterly to oversee the creation of a Rail Trail Equitable Development Plan, which will continue to engage community members through the greater Downtown area to steer City-led or City-sponsored investments in projects surrounding the Rail Trail. It will also identify how the City can create opportunities for minority-owned businesses along the Trail. The Rail Trail Equity Steering Committee consists of designated representatives from Downtown area neighborhood associations, community development entities, and Chambers of Commerce for diverse owned businesses. Membership includes:
 - African American Greater Albuquerque Chamber of Commerce
 - Albuquerque Hispano Chamber of Commerce
 - Albuquerque Asian Business Collaborative
 - American Indian Chamber of Commerce of New Mexico
 - Barelás Community Coalition

- Barelás Neighborhood Association
- Citizen’s Information Committee of Martineztown
- Downtown Main Street
- EDo Board (an East Downtown business and resident alliance)
- El Chante Business Collective
- Homewise (affordable homeownership developer)
- Huning Highlands Neighborhood Association
- New Mexico OUT Business Alliance
- South Broadway Neighborhood Association
- United South Broadway
- Women’s Economic Self-Sufficiency Team

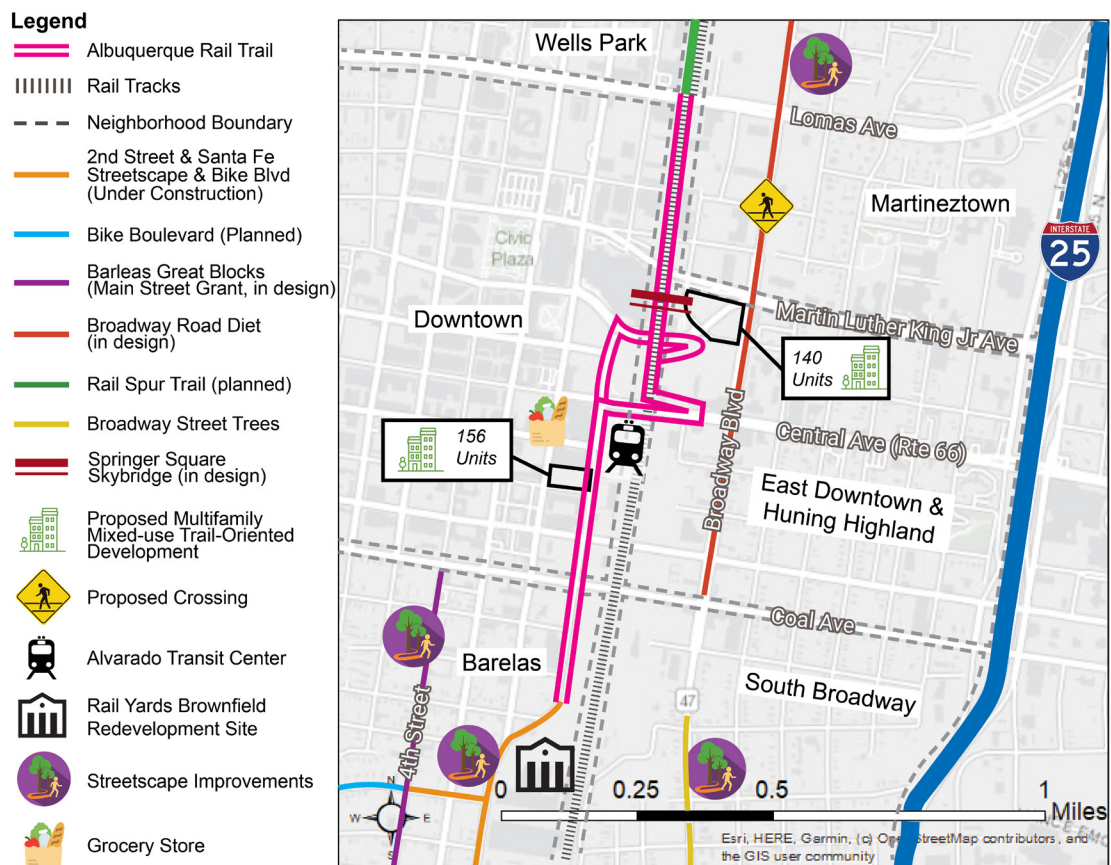
1.3 Planning context: Related adjacent projects. There are several projects underway that will complement and support the proposed Albuquerque Rail Trail, enhancing connectivity between neighborhoods. See Map 2 for a context map of improvements.

- **Barelás Neighborhood Improvements.** Ongoing construction on 2nd street and Santa Fe in Barelás will enhance the streetscape and add bicycle infrastructure. This will connect the Barelás residential communities to the Rail Trail. It will also connect Rail Trail users to the Barelás Main Street on 4th, which is currently under design for streetscape, walkability, and traffic calming improvements under a “Great Blocks” grant from New Mexico Main Street. Future plans for a bicycle boulevard on Santa Fe west of 4th street will connect additional Barelás residents to the Rail Trail.
- **Broadway Improvements.** The City is designing a road diet treatment for a segment of Broadway Boulevard between Coal and Mountain. This includes adding an additional pedestrian crossing between Central and Lomas to connect the residential neighborhood in Martineztown to the planned Rail Trail. Additionally, the City is adding street trees to segments of South Broadway to improve walking conditions and to help mitigate the negative air quality effects of being sandwiched between a highway and the rail corridor.
- **Springer Square Skybridge.** MRA and the private property owners at Springer Square (on the East side of the tracks) have entered into a Development Agreement to construct a pedestrian and bicycle bridge over the rail tracks to a city-owned parking garage (on the West side of the tracks). Springer Square will reconstruct its existing surface parking lot into a public plaza that will be directly accessible from the Rail Trail. The City has committed \$1M to this \$6M project.
- **Trail and Trail Oriented Development Opportunities**
 - The **Rail Yards** is an active brownfield redevelopment site. Over \$15M has been invested into creating public plazas, soil remediation, extension of utilities, new roofs, sidewalks, and streetscape. The property is now positioned for private investment and partnership to create a center for employment and entertainment. The Rail Yards has a master development plan, accessible [here](#).
 - There are two proposed **multifamily housing projects** adjacent to the trail, which would

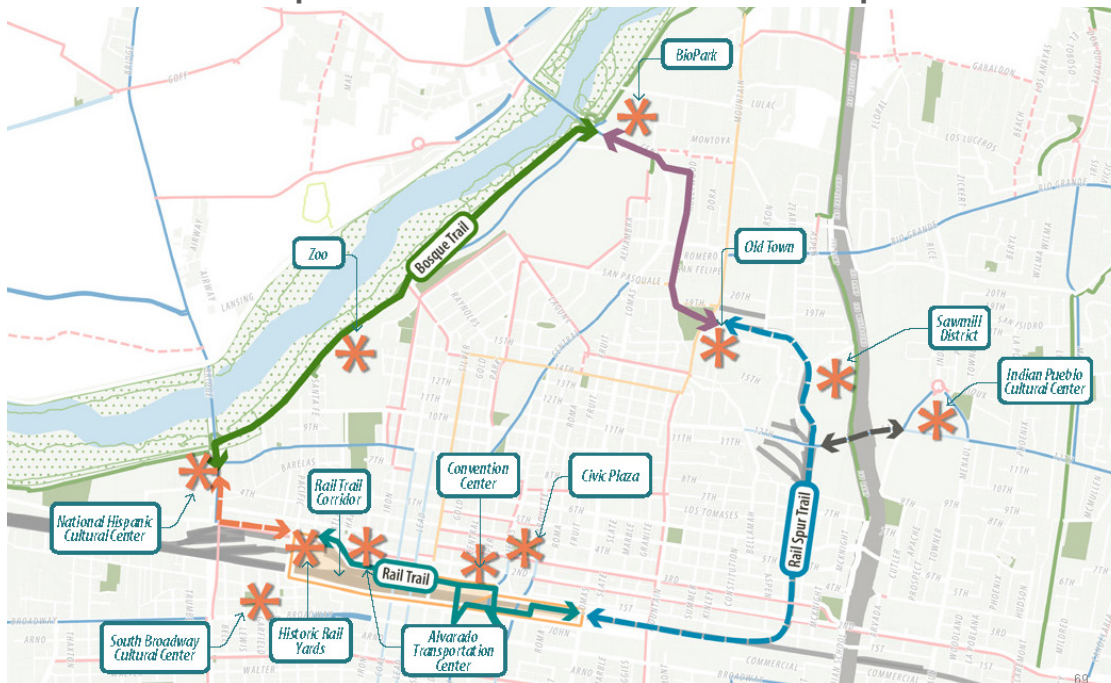
add nearly 300 new housing units to the Downtown area. The Rail Trail can serve these future residents by connecting them through Downtown and to transportation alternatives at the Alvarado Transit Center. Though the Downtown has had the fastest growing population in the city (growing over 60% in the past 10 years), new housing units in the Downtown core have mostly been affordable housing. The Rail Trail can be an urban amenity that makes the Downtown market desirable for a variety of housing types. Future housing opportunities along the Rail Corridor are likely to arise after construction of the Rail Trail has been completed. See the Trail Oriented Development Opportunities Map ([Map 10](#)) for further details.

- Future Northern Expansion to the Rail Spur Trail and Greater Downtown Bike Loop.** A feasibility study was recently completed to extend the planned Rail Trail to the Northwest. This 2.25 mile section of multi-use trail (the Rail Spur Trail), would run through a unique artisan warehouse district. The area is also home to some of Albuquerque’s most popular breweries. The end of the trail segment would connect downtown to Albuquerque’s most popular tourist destinations, including several museums, the Sawmill District, and Old Town. Further information on the Rail Spur Trail is available online for review [here](#).
 - A future westward connection would connect the Rail Spur Trail and the existing Bosque Trail. Another southern future connection could connect the Rail Trail to the National Hispanic Cultural Center, and then reconnect to the Bosque Trail to create a full 7-mile Greater Downtown Urban Trail loop (see Map 3).

Map 2 - Planned projects within 0.25 miles of the Rail Trail



Map 3 - Greater Downtown Urban Trail Loop



1.4 Statement of Work

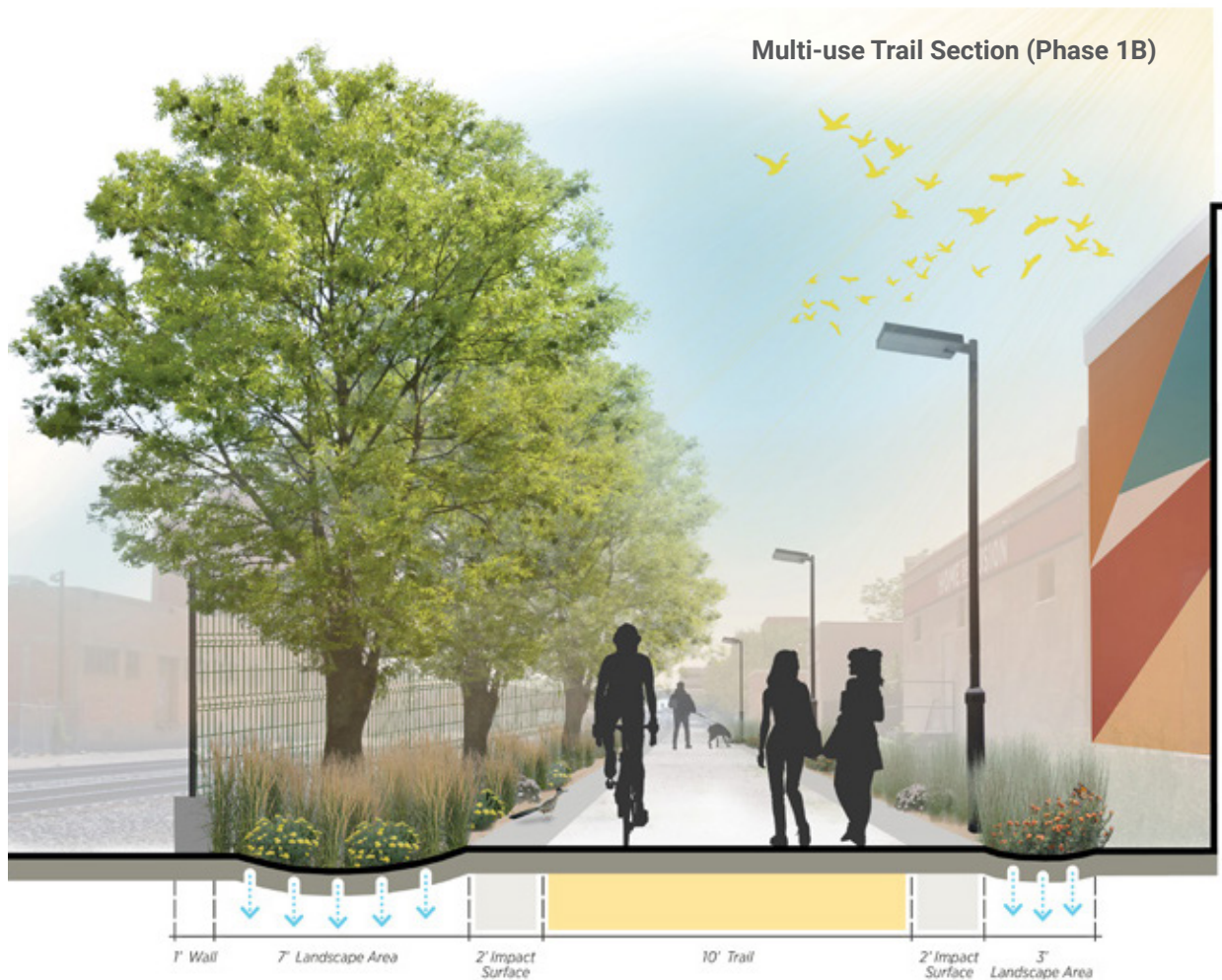
1.4.1 Technical and engineering aspects. The right-of-way (ROW) along the Rail Trail corridor varies in width, requiring a flexible design that is fundamentally different on the north and south sides of Central Avenue. In the northern portion, the trail alignment is constrained where buildings back onto the railroad and no buffer exists. In the southern portion of the site, the ROW is wider and properties along the western edge of the trail are owned by the City. Where the trail is immediately adjacent to the rail, the proposed trail requires 25 ft. to accommodate the trail shoulders, landscape buffers, and space to allow two-way trail traffic. In addition to this requirement, a 25 ft. setback from the railroad center line is required. Where the trail is located along a roadway, a minimum of 24 ft. is required to accommodate a 12 ft. cycle track and a 12 ft. pedestrian corridor with landscaping. Where more ROW is available, a raised median will be installed between vehicular travel lanes and the trail.

The Rail Trail construction will consist of:

- Approximately 0.45 miles of multi-use trail, which will vary between 14' – 16' wide, including a 2' soft impact surface on either side of the trail.
- Landscape buffers along the multi-use trail, which will vary in width and location depending on ROW constraints. Generally, there will be a landscape buffer on either side of the multi-use trail, one 3' for grasses and smaller plantings, and one 7' for larger plantings and trees.
- Fencing specified to the height and width regulated by the New Mexico Department of Transportation to separate trail users from the railroad (approximately 1' wide).
- One approximately 200-foot-long pedestrian and cyclist bridge over Tijeras.
- Two ramped and graded switchbacks (at Central and Tijeras).

- Approximately 0.7 miles of a two-way cycle track (varying between 8' and 12' wide), which will include vehicle lane reductions on Tijeras and 1st street.
- Landscape buffers between cars and cycle tracks along 1st street and Tijeras where ROW permits (between 5 – 10' wide).
- Expansion of existing sidewalks along 1st street (9' – 18' wide, depending on ROW), for approximately 0.4 miles.

For a detailed technical analysis and dimensions of all segments of the Rail Trail, see [Section IV](#) (Technical Analysis) and [Section VI](#) (Design Recommendations).



1.4.2 Current design status. In March 2022, Wilson Engineers and MRWM Landscape Architects were contracted to complete final construction, engineering, and landscape designs. Design is anticipated to be completed by October 1, 2022. If the Rail Trail is awarded a RAISE grant, the City would be able to swiftly begin procurement for a construction contractor following DOT and RAISE grant agreement guidelines.

Part II - Rail Trail Location

2.1 Geographic location: Census Tracts, Areas of Persistent Poverty, and Opportunity Zones.

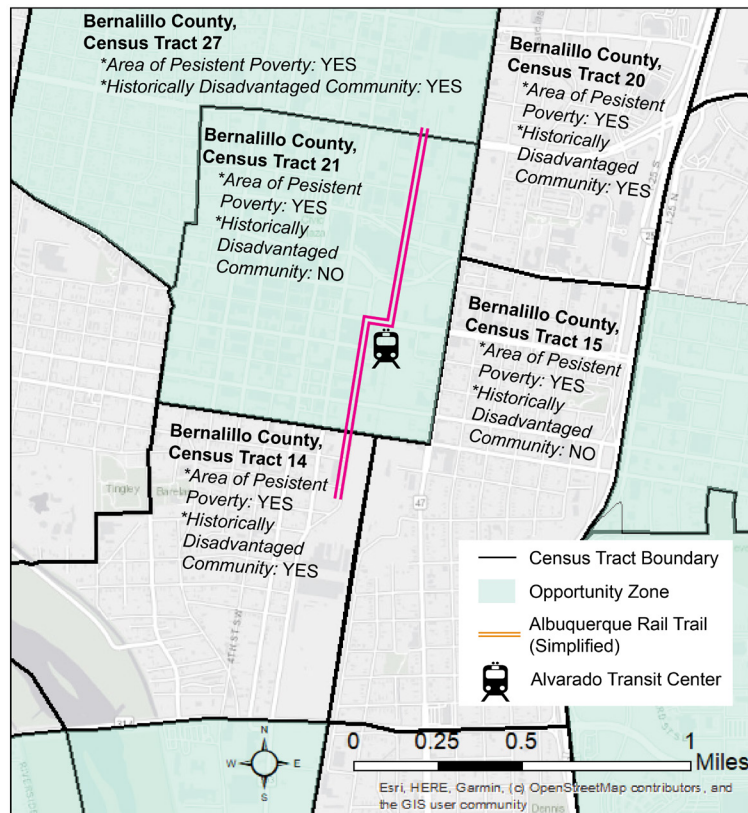
The Albuquerque Rail Trail is located in the Albuquerque Metropolitan Statistical Area in New Mexico. The Rail Trail connects three Census Tracts (FIPS 35001002100, 35001001400, and 35001002700). All three Census Tracts are Areas of Persistent Poverty. Two of the Census Tracts (FIPS 35001001400 and 35001002700) are Historically Disadvantaged Communities. Two of the Census Tracts are Qualified Opportunity Zones (FIPS 35001002100 and 35001002700).

2.2 Connections to existing transportation infrastructure.

The Albuquerque Rail Trail will run through the hub of local and regional mass transportation options in Downtown. The Alvarado Transit Center serves Amtrak, the Rail Runner, Albuquerque Rapid Transit (ART), 24 local and regional bus routes, and Greyhound. The Rail Runner is a 97-mile North-South inter-region commuter rail, connecting:

- Belen (35 miles south of Albuquerque)
- Los Lunas (25 miles south of Albuquerque)
- Albuquerque
- Bernalillo and Santa Ana Pueblo (10 miles North of Albuquerque)
- Santa Fe (65 miles north of Albuquerque)

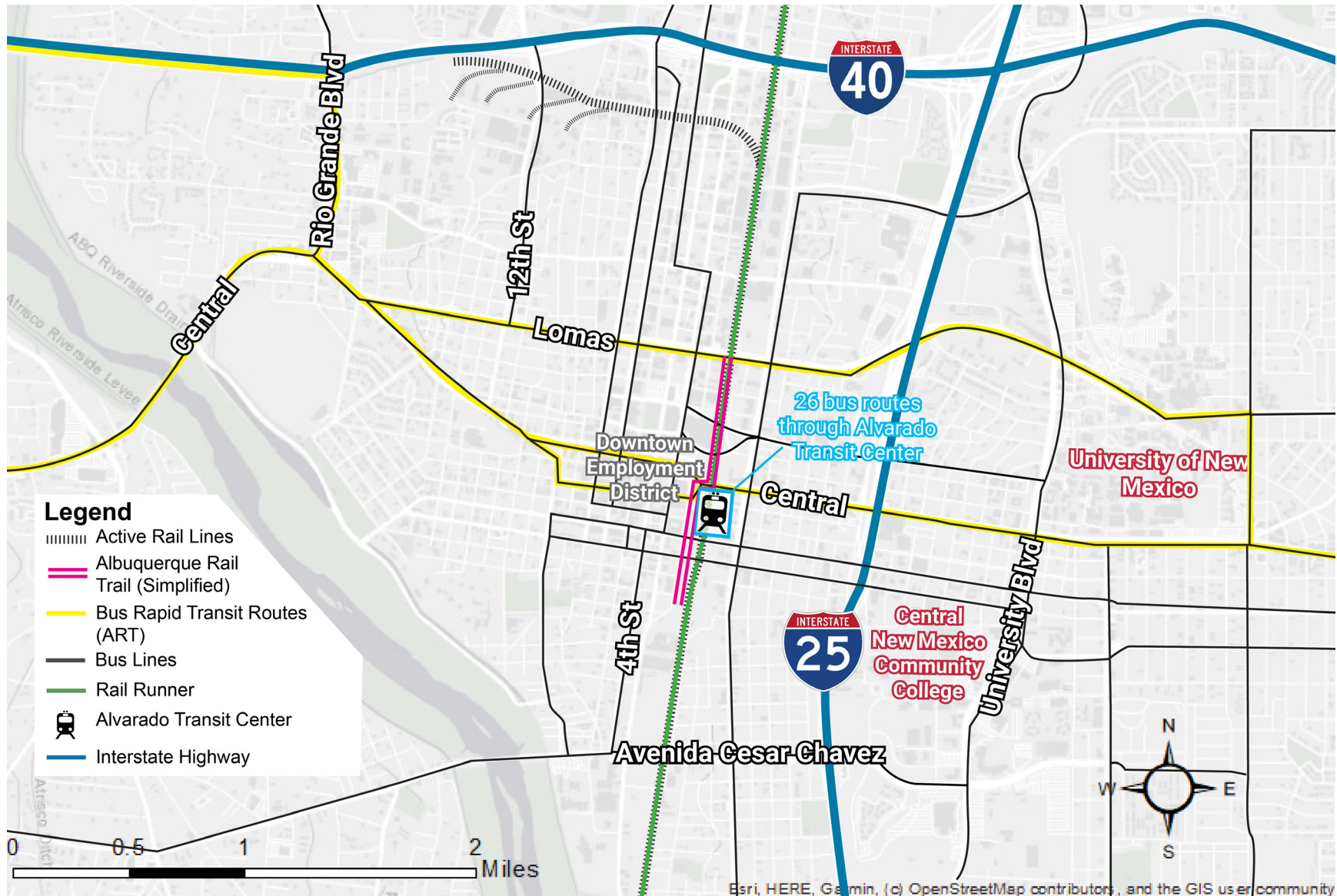
Map 4 - Project Area & Census Tracts



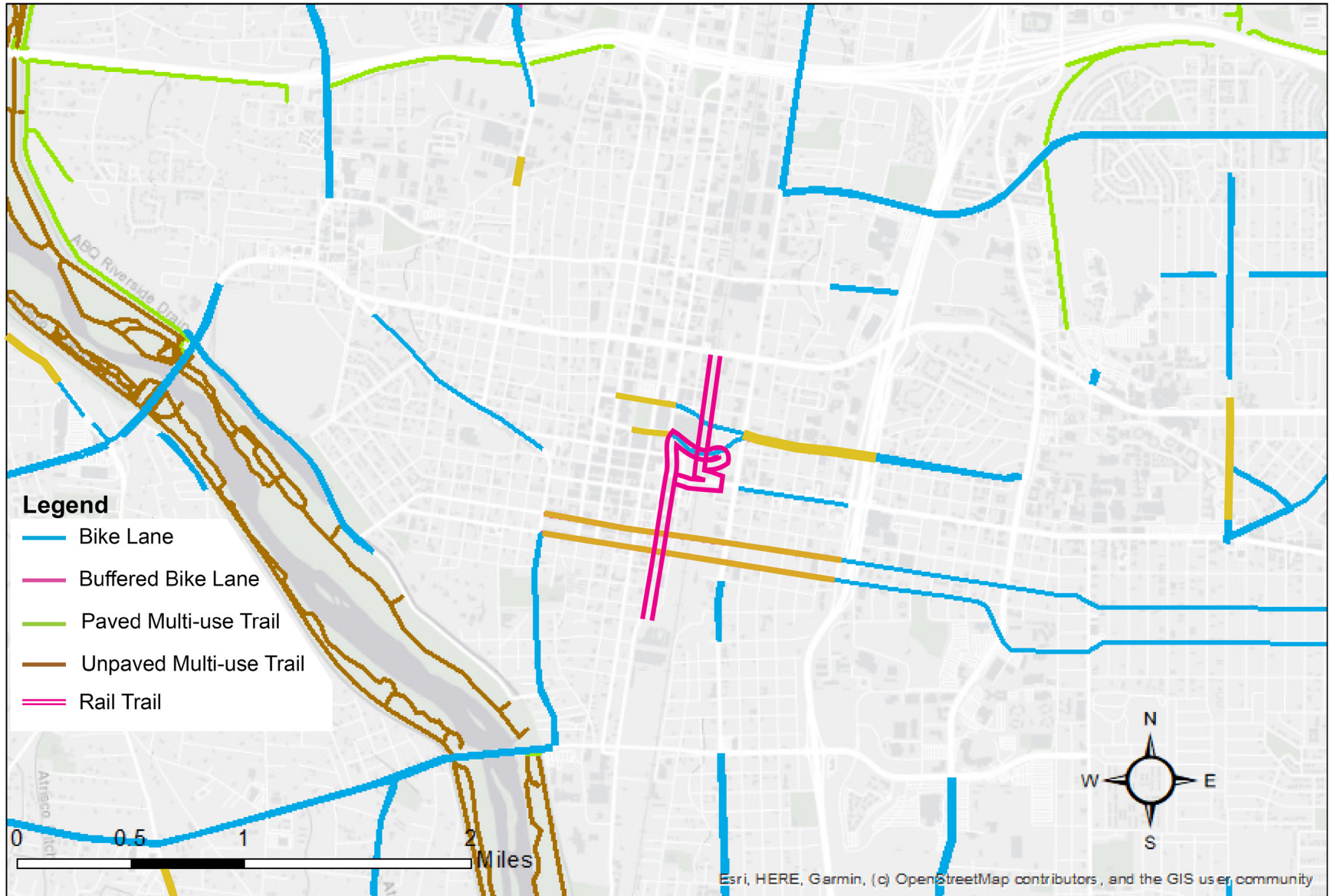
The recently installed ART bus rapid transit lines run on an East-West axis, providing rapid and frequent bus service along Central, which is one of the most population-dense corridors in Albuquerque. A new line was recently added, providing connection to northwestern Albuquerque, across the Rio Grande. See **Map 5** on the following page for existing transit connections.

Current bike infrastructure in the Downtown area is fragmented. Some bike routes end abruptly, leaving cyclists to fend for themselves for several blocks until they reach a designated route. Additionally, many of the surface streets require bikes and cars to share lanes. Most designated bike lanes offer no physical barriers to protect cyclists from car lanes, leaving bicyclists exposed to distracted drivers. Creating a dedicated pedestrian and bicycle corridor in the heart of downtown will serve both local and regional commuters, closing the missing link for safe access to jobs, amenities, and tourist destinations. By installing this critical “last mile” infrastructure, we hope to attract more users of local and regional transit who have destinations in the Greater Downtown area. See **Map 6** for bicycle infrastructure connections.

Map 5 - Existing Transit Connections



Map 6 - Existing Bike Infrastructure Connections



Part III - Source & Use of Funds

3.1 Cost Estimate and Use of Funds. General cost estimates and fund sources for construction of the Rail Trail are outlined below. These cost estimates do not include any previously expended funds. For a detailed and itemized cost breakdown, view the “[Albuquerque Rail Trail Cost Estimate](#)” excel spreadsheet.

TABLE 1 - COST ESTIMATE & SOURCE OF FUNDS

General Construction Cost Estimate and Phasing			Funding Source		
Independent Utility	Phase	Cost Estimate	Local (City)	RAISE	Other Federal
Independent Utility Segment 1	Phase 1b: Lomas - Tijeras	\$3,782,765	\$756,553	\$3,026,212	\$0
	Phase 2: Tijeras - Central Ave	\$1,901,216	\$380,243	\$1,520,973	\$0
	Phase 3: Tijeras Access + 1st Street to Central Ave	\$2,467,003	\$493,401	\$1,973,603	\$0
Independent Utility Segment 2	Phase 4: Alvarado Station	\$1,111,346	\$222,269	\$889,077	\$0
	Phase 5: 1st Street - Gold Ave to Coal Ave	\$2,393,233	\$478,647	\$1,914,586	\$0
	Phase 6: 1st Street - Coal Ave to Rail Yards	\$2,678,109	\$535,622	\$2,142,487	\$0
		\$14,333,671	\$2,866,733	\$11,466,938	\$0

The City has provided a match letter confirming local match and identifies sources for the funds. The project costs have been updated for this grant application as of March 2022, and may be different from the project costs identified in the Framework Plan.

Part IV - Merit Criteria

The Albuquerque Rail Trail simultaneously advances many of the City's goals, including sustainability, safety, equity, mobility, affordability, quality of life, economic development, public-private partnership, and smart city technology. These goals directly align with the US Department of Transportation RAISE Grant merit criteria. This project will serve two Historically Disadvantaged Communities and three Area of Persistent Poverty.

4.1 Safety. There is currently no North-South dedicated bike infrastructure through Downtown. This has led to a high rate of injuries and fatalities for cyclists on North-South streets in the Downtown Area. The City of Albuquerque and the Mid Region Metropolitan Planning Organization (MRMPO) tracks car, cyclist, and pedestrian involved injuries and fatalities on city- and county-owned roads. MRMPO then creates a High Fatality and Injury Network (HFIN) map that planners use to identify particularly dangerous roads that need improved safety measures to reduce incidents. Between 2015 and 2019, 59 cyclists were injured and 6 killed along three parallel streets that are within 800 feet of the proposed Rail Trail.¹ The number and frequency of incidents on Broadway and 2nd Street are above 2x the mean of other streets within the region, indicating a documented need for safety improvements.

Map 7 - High Fatality & Injury Bike Map



¹MRMPO, "MRCOG Roadway Safety and Crash Report (2015 – 2019)." Mid Region Council of Governors, 2021. Available online as an ArcGIS StoryMap: <https://arcgis.com/storymaps/viewer/1zb4Xv0>.

Physical separation between bicyclists and cars can help prevent vehicle-involved collisions and near-collisions. Increasing the number of bike facilities – especially separated and protected bike lanes – improve safety outcomes for all user types (vehicles, buses, cyclists, and pedestrians). By providing cyclists with a car-separated facility through Downtown – both on the cycle track and on the multi-use trail – we anticipate reducing cyclist injuries and fatalities between 52% and 88%.² Estimates indicate that construction of the Rail Trail could reduce annual cyclist-involved accidents from 13 to as little as 1.5 incidents, potentially saving one life every year. See the “Memo - Reduction of Cyclist Injuries and Fatalities Anticipated by the Proposed Albuquerque Rail Trail” for details on assumptions and calculations.

TABLE 2 - PROJECTED SAFETY IMPROVEMENTS FOR CYCLISTS³

Cyclist Involved Incidents	5-Year Injuries	5-Year Fatalities	5-Year Total Incidents	Annual Total Incidents (Avg)
Existing Incidents on Broadway, 2nd, and 1st Streets along Rail Trail Alignment (2015 - 2019)	59	6	65	13
Reduction in Incidents (Low Impact Scenario)	30.8	3.0	33.7	6.7
% Reduction (Low Impact Scenario)	52%	49%	52%	52%
Reduction in Incidents (High Impact Scenario)	52.1	5.3	57.5	11.5
% Reduction (High Impact Scenario)	88%	89%	88%	88%
Future Projected Incidents (Low Impact Scenario)	33.2	2.9	36.1	7.2
Future Projected Incidents (High Impact Scenario)	6.9	0.6	7.4	1.5

Similarly, there were 65 pedestrians injured and 4 killed in the same parallel streets. In 2019, the City of Albuquerque implemented a “Downtown Safety Zone” to enhance pedestrian safety and curb pedestrian-involved fatalities. The Downtown Safety Zone limits all vehicular traffic to 20mph in the Downtown Core. Though not quantified here, this project would likely reduce pedestrian-involved crashes and may reduce vehicular crashes as well.

For a discussion of innovative technology that will be installed to increase safety, see [Section 4.8.1](#).

² Using crash reduction factors from Federal Highway Administration, 2019; Teschke et. al., 2012; and Tinsworth et. al., 1994.

³ City of Albuquerque, “Memo - Reduction of Cyclist Injuries and Fatalities Anticipated by the Proposed Albuquerque Rail Trail.” 2022.

Map 8 - High Fatality & Injury Pedestrian Map



4.2 Environmental Sustainability. As the state of New Mexico’s central transportation hub and most populated metro area, transportation is a significant contributor to local emissions and air pollutants. The Rail Trail focuses on environmental sustainability in many aspects, reducing vehicle miles traveled, decreasing reliance on vehicles, reducing GHG emissions from transportation, and promoting mode shifts, all while focusing on historically disadvantaged communities. The landscaping included in the trail will help improve local ecosystems and increase the city’s resiliency as climate change is projected to increase temperatures and intensify summertime monsoon events. Finally, this project creates additional opportunities to redevelop brownfield sites along the Rail Trail alignment.

4.2.1 Reduce vehicle miles traveled and car dependence. Albuquerque is a car-centric city, which is reflected in high rates of transportation-related greenhouse gas emissions. Improving public transit and active transportation options within the city are of greatest importance to implement the City’s Climate Action Plan.⁴ Residents of Downtown Albuquerque are more likely to bicycle, walk, or take transit for their commute than the rest of the city, making this an ideal location to target for additional mode shift.⁵ To reduce emissions from transportation, the Climate Action Plan focuses on promoting mode shifts from car dependent routes to routes that are pedestrian and cyclist friendly. An interdepartmental analysis completed for this project estimates a low- and high-scenario for new cycle trips induced by these facilities, and calculates the potential reduction in Vehicle Miles Traveled (VMT). The results of the analysis demonstrate this project could create over 570,000 new cycling trips and result in a VMT of 99,259 annually (high scenario).⁶ These could result in cost savings for consumers up to \$596k over the course of thirty years, and significant cost savings from reduced emissions.

See “Memo - Mode Shift Assessment and Reduced VMT in Support of the Proposed Albuquerque Rail Trail” for details on assumptions and methodology.

TABLE 3 - PROJECTED VMT REDUCTION & COST BENEFITS

Factor	Low Scenario	High Scenario
New Daily trips	1,220.79	1,562.88
New Annual Trips	445,588	570,451
Daily VMT Reduction	81	272
Annual VMT Reduction	29,423	99,259
Total Emissions Costs per VMT	\$5,885	\$20k
Lifetime User Cost Savings (30 year span)	\$175k	\$589k
Lifetime Emissions Cost Savings (30 year span)	\$177k	\$596k
Annual Total Cost Savings	\$12k	\$39k
30-Year Total Cost Savings	\$351k	\$1,184k

⁴ 2021 Climate Action Plan, <https://www.cabq.gov/sustainability/documents/2021-climate-action-plan.pdf>

⁵ IDA, “Calculating the Value of Downtown Albuquerque, New Mexico.” International Downtown Association, 2021.

⁶ City of Albuquerque, “Memo - Mode Shift Assessment and Reduced VMT in Support of the Proposed Albuquerque Rail Trail.” 2022.

4.2.2 Increasing resilience and strengthening local ecosystems. A significant goal in Albuquerque’s 2021 Climate Action Plan is to increase tree canopy and green spaces. This will help absorb greenhouse gas emissions, strengthen ecosystems, and improve resiliency during major summer flooding events (which are occurring with more intensity in Albuquerque, likely due to climate change impacts). The Rail Trail is consistent with the Climate Action Plan’s goal of sustainable development by increasing local quantities of trees, green spaces and vegetation. Using native species in landscaping can decrease water dependency, increase water retention in soils by using planting areas as rain gardens, minimize soil erosion, and create favorable habitats for a variety of environmentally beneficial species.

4.2.3 Planting trees and reducing the urban heat island effect. Downtown Albuquerque experiences some of the worst impacts of the Urban Heat Island Effect, as outlined in a recent Heat Watch Report.⁷ The construction of the Rail Trail can help reduce ambient temperatures by minimizing the use of asphalt and concrete, planting 170 trees, providing additional structural shade, incorporating native landscaping, and applying cool pavement coatings to cycle tracks. Not only will this help to mitigate rising local summer temperatures, it will also ensure the safety and comfort of community members who utilize the trail. Over the course of 30 years, adding 170 trees combined with reduced VMT through mode shifts could help reduce 1,144 tons of CO₂, 1 ton of NO_x, 0.68 tons of SO_x, 0.74 tons of PM₁₀, and .003 tons of PM_{2.5}.⁸ Over its lifetime, trees could add \$90k in net benefits (considering the value of its environmental and economic impact, minus maintenance costs).

4.2.4 Recycle or redevelop brownfield sites. This project will reuse 47,000 square feet of excess state-owned right of way adjacent to the rail line. Additionally, the project will connect Downtown Albuquerque to the Albuquerque Rail Yards, which is a 28-acre former steam locomotive repair shop constructed in the 1800s. The site was abandoned in the 1970s, and the City has owned the property since the 2007 and began environmental remediation in 2019. The site is under a New Mexico Environment Department Voluntary Remediation Program (VRP), and was granted a Conditional Certificate of Completion in September 2021 for soil remediation on the Northern half of the site. Many more environmental concerns need to be addressed per the VRP as buildings are remodeled, including adding vapor barriers, mitigating asbestos, removing lead-based paint, and more.

Despite continued environmental remediation requirements, by addressing the largest environmental concern at the site (soil contamination), the City has prepared the Rail Yards for private development opportunities. The construction of the Rail Trail will generate market demand and continue the momentum of the City’s investment. Based on a recent Market Analysis completed by Leland Consulting, at full build out of the Rail Yards redevelopment could support up to 224,000 sq. ft. of mixed employment space. This is likely to be a combination of office (50%), light industrial/makers space (30%), and ground floor active use (20%). Job creation at full build out could be as high as 1,020 jobs.⁹

⁷ Heat Watch, “Albuquerque Heat Watch Report.” CAPA Strategies, 2021.

⁸ See the Benefit Cost Analysis for assumptions and details.

⁹ Leland Consulting, “Albuquerque Rail Yards Redevelopment Evaluation.” Leland Consulting Group, prepared for the City of Albuquerque, August 2019.

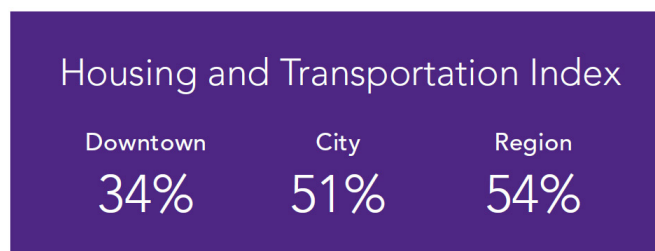
4.3 Quality of Life. The Rail Trail will not only serve as a significant transportation infrastructure project, but it will also create a curated experience with cultural programming by the Friends of the Albuquerque Rail Trail. The project will create a high-quality urban amenity for existing residents, future residents, and tourists alike.

4.3.1 Increase accessibility for travelers in underserved, overburdened, or disadvantaged communities. The Rail Trail will connect underserved, overburdened, and disadvantaged communities to existing bicycle infrastructure and transportation alternatives. For a more detailed discussion of increased accessibility to transportation alternatives, please refer to [Section 2.2](#).

4.3.2 Reduce transportation and housing cost burdens for existing residents, and create a live-work-play district that encourages new residents to move to location-efficient Downtown neighborhoods. Redevelopment of the area around the Rail Trail is a prime opportunity to increase density and reduce reliance on automobiles. The Rail Trail is likely to generate trail-oriented housing developments. During the Rail Trail framework planning process, the City coordinated with two local developers to concurrently plan two major mixed-use housing projects within 500 feet of the trail (see [Map 2](#)), which will collectively add nearly 300 housing units. There are several other opportunity sites along the trail that are ideal for mixed-use housing developments (see [Map 10](#)). The statistics demonstrate the potential for downtown to accommodate a car-free lifestyle:

- Only 66% of Barelás and South Broadway households own a car, compared to 87% citywide.¹⁰
- Only 62% of Downtown neighborhood residents commute to work by driving a single-occupancy vehicle, significantly lower than the City (84%).¹¹
- 13% of workers living in the Greater Trail Area also work in the area.¹²

In Albuquerque, a Downtown household with a median income for the region can expect to spend 34% of its income on housing and transportation combined. Citywide, residents can expect to spend 51% of their income, demonstrating Downtown to be a very affordable and location efficient neighborhood. Additionally, Downtown is home to 6% of the regions job's, despite representing only 0.3% of the City's land.



Source: Center for Neighborhood Technology H&T Index (2018)

4.3.3 Enhance the unique characteristics of the community for underserved, overburdened, or disadvantaged communities. As discussed in [Section 1.2.1](#), the City of Albuquerque conducted extensive community outreach during the Framework Planning process. The community provided significant input on the physical design to align with historic identity and incorporate culturally relevant programming once construction is complete. Examples include [interpretive signage](#) and plaques describing communities' histories, artistic motifs in the trail

¹⁰ Esri Business Analyst, ACS 2019.

¹¹ Esri Business Analyst, ACS 2019.

¹² OnTheMap, US Census Bureau.

design inspired by historic cultures, public art curated by local artists, and traditional medicinal gardens along the trail. See [Part VI](#) of the Framework Plan for design guidelines that are being used to create final construction documents.

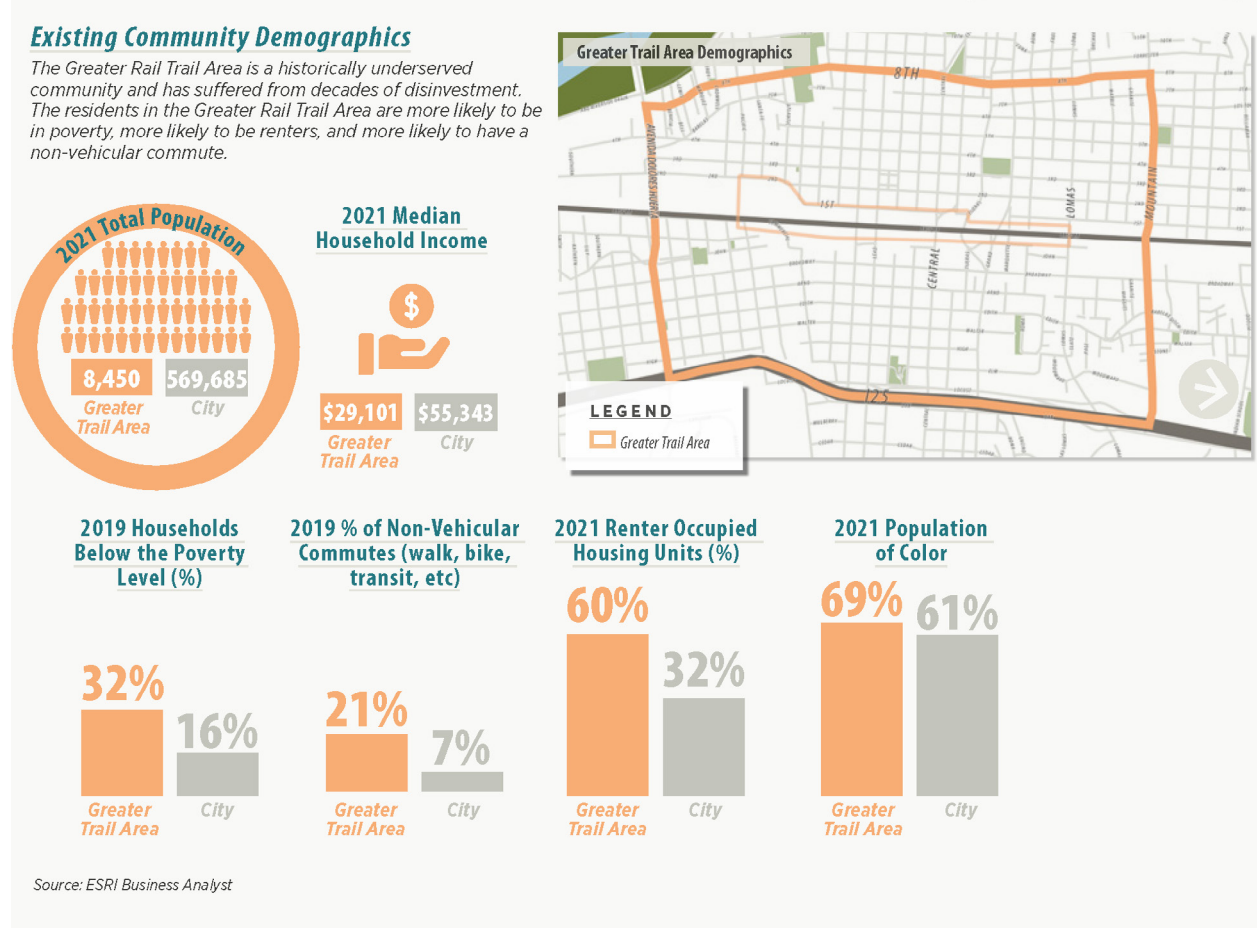


4.4 Mobility and Community Connectivity. The Albuquerque Rail Trail will promote community connectivity by enhancing railroad crossing opportunities, providing safer and affordable transportation choices, and designing a facility that is accessible for all types of active transportation users through Universal Design.

4.4.1 Increase affordable transportation choices for underserved, overburdened, or disadvantaged communities. The Rail Trail focuses on creating bicycle and pedestrian infrastructure in an area that has higher levels of social vulnerability, including higher rates of poverty, lower median incomes, and lower rates of homeownership. Providing bicycle and walking infrastructure that connects to the Alvarado Transit Center will create safer and more reliable access to jobs and daily necessities for historically disadvantaged communities. See Figure 1 for more details on existing community demographics.

Neighborhoods around the Rail Trail have a high rate of non-single occupancy vehicle commutes; 21% use public transit or active transportation to get to work. As mentioned in [Section 2.2](#), there are no North-South bicycle facilities Downtown connecting Barleas, Wells Park, and Martineztown to the Downtown core. (See [Map 5](#) and [Map 6](#) for an illustration of how the Rail Trail will add connections to existing bicycle and transit facilities.) The Rail Trail will connect commuters to the Alvarado Transit Station, which has 24 local bus routes along with regional commuter options.

Figure 1 - Existing Community Demographics



On January 1, 2022, the City launched the Zero Fare Pilot Program, making all City bus trips free to riders for a full year. Throughout the year, the City will collect data on ridership numbers, security incidents, cost and feedback from passengers to help determine whether the program is successful enough to make Zero Fare permanent. By connecting the neighborhood to low-cost and free public transportation at the Alvarado Transit Center, the City can reduce consumer transportation costs for residents of these census tracts that are designated Areas of Persistent Poverty and Historically Disadvantaged Communities.

4.4.2 Create thriving communities for live, work, and play by expanding transportation choices, and installing infrastructure that is comfortable and incorporates Universal design.

The Rail Trail will add safe bicycle and walking facilities that will encourage more cautious users to take active transportation. Bike lanes that are merely striped or buffered with paint can result in uncomfortably close passes by vehicles. Such events can cause anxiety and decrease desirability of biking, especially for women. Women have higher concerns around safety and largely prefer off-road cycle routes, followed by physically-barriered on-road facilities. Adding protected cycle tracks or bicycle facilities that are otherwise physically separated from vehicles on roads can result in a significant increase in bicycle use, as these types of facilities are perceived to be safer by cyclists, especially women. Currently, women only account for 29% of all bicycle trips in Albuquerque.¹

¹ MRMPO, “Connections 2040: Mid Region Metropolitan Transportation Plan.” Mid Region Council of Governance, 2020.

Designing safer and more accessible facilities to provide greater comfort may increase the number and diversity of users – and can expand use for both recreational and commuting purposes.

The Rail Trail is designed for all types of users, including pedestrians, cyclists, people using assisted mobility devices, children, and the elderly. Incorporating benches at frequent intervals with adequate shade will increase comfort for mobility-limited and elderly trail users. All crossings along and entrances to the Rail Trail will be designed for the ease of wheelchair users.

4.4.3 Increase mobility and connectivity between neighborhoods. The Rail Trail will reconnect historically bifurcated communities that have been disconnected by the railroad. The Marquette Crossing, which is currently under construction, will add a new at-grade vehicular and pedestrian/cyclist crossing necessary for the Rail Trail’s construction. This grant would allow the City to enhance existing crossings that are currently underutilized because they are narrow, lack physical barriers between vehicles and pedestrians/bicyclists, are poorly lit, and generally feel unsafe (Figure 2). The Rail Trail will create safer and more comfortable crossing opportunities for residents and workers, which may encourage the use of active transportation for short trips across the railroad (Map 9).

Map 9 - Existing & Planned Crossings

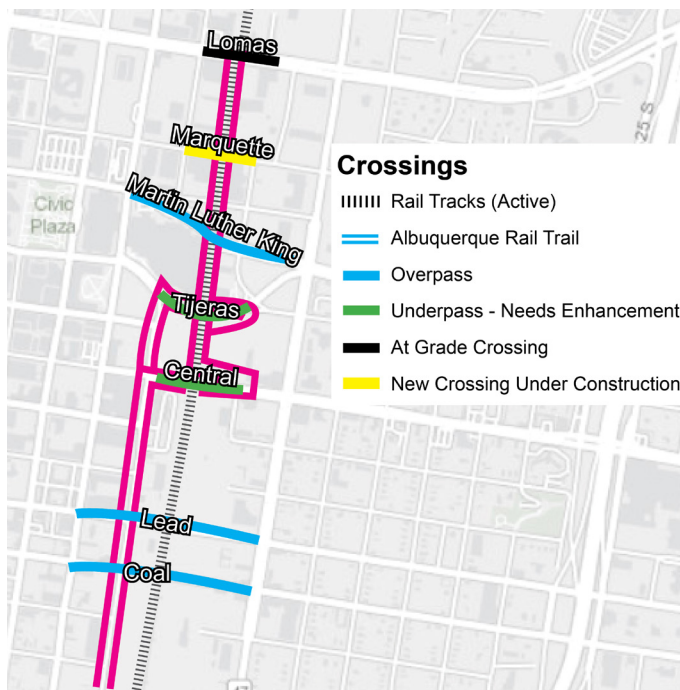


Figure 2 - Central Underpass



4.5 Economic Competitiveness and Opportunity

4.5.1 Improving the economic strength of the city. Downtown Albuquerque is home to an entertainment and arts district that has been challenged by COVID-19. As the city attempts to draw customers back to the district, creating an outdoor urban amenity like the Rail Trail could draw residents and tourists alike. Conveniently located adjacent to the Albuquerque Convention Center and several hotels, the Rail Trail can serve as a draw for new tourists and enhance existing tourism.

Downtown Albuquerque currently offers only one park; adding this linear urban trail would enhance and strengthen its identity as a live-work-play district. The authentic cultural offerings in downtown enhance its character, heritage, and beauty, and creates a unique sense of place not easily replicated in other parts of the city. A strong identity, mixed with vibrancy and activity created by the Rail Trail, could enhance and strengthen the economy of Albuquerque’s Downtown.

4.5.2 Offer significant regional and national improvements in economic strength and opportunity by increasing the economic productivity of land.

There are several opportunity sites along the Rail Trail that offer significant opportunities for infill development (Map 10). Many are privately owned, with owners who would seek to improve their properties concurrently along with the construction of the Rail Trail. There are other underutilized properties along the Trail, especially along 1st Street, that would be ideal for more infill and trail-oriented-housing development. The Downtown housing market is attractive, boasting new housing unit growth of 70%. All types of housing constructed in recent years – both affordable and market rate – have filled up rapidly upon project completion. The area boasts a 3.8% multifamily vacancy rate, the lowest in the city.¹³ This demonstrates that there is demand and desire to live in Downtown, but inflated costs of construction and market uncertainty have stalled new multifamily construction. Constructing the Rail Trail will add a desirable amenity for all types of renters, which will help enhance the market attractiveness for multifamily developers.

Other urban trail projects have helped boost property values. Downtown Albuquerque has experienced inconsistent property value growth over the past 10 years, fluctuating from negative to positive numbers, while citywide property values have increased consistently around 3%



Source: City of Albuquerque (2019)



*Excludes group quarters population
Source: American Community Survey 5-Year Estimates (2015-2019)

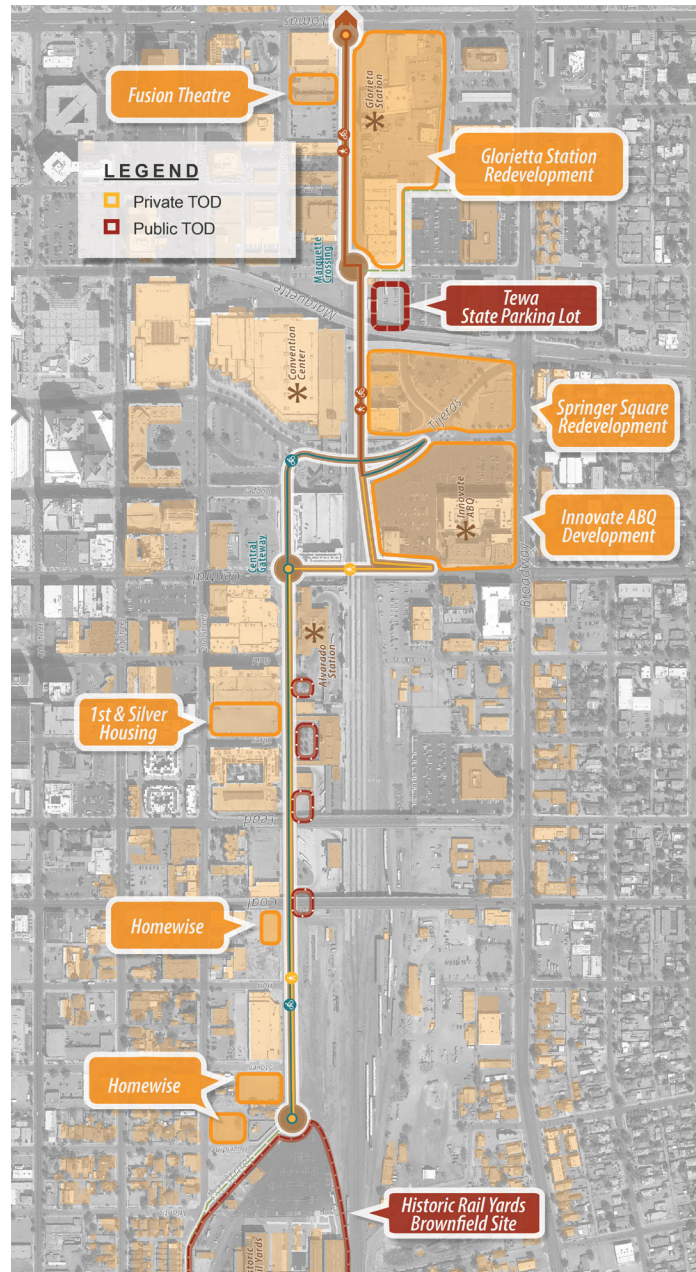
¹³ IDA, “Calculating the Value of Downtown Albuquerque, New Mexico.” International Downtown Association, 2021.

annually.¹⁴ Downtown Albuquerque’s total property value increase since 2010 has lagged behind the rest of the city. The construction of linear parks or urban trails have been demonstrated to help boost property values. In Indianapolis, a study showed that after the construction of their urban Cultural Trail, property values within 500 feet of the trail increased by 148%.¹⁵ Along the Rail Trail there are a mix of privately and publicly owned properties, and none are single family homes (Map 10). This is an opportunity for the City to capture increased tax revenue to reinvest in the Downtown core.

4.5.3 Increasing opportunities for businesses. Urban trails and linear parks have been shown to help create jobs, encourage new businesses to open, and increase consumer spending. An Indiana University study of the Indianapolis Cultural Trail showed that 48% of businesses along the trail reported seeing an increase in revenue since the trail’s construction; 40 – 50 full time and 50 part-time jobs were added to existing businesses; and 25% of businesses surveyed reported they were new to the area, and had selected the location because of the trail.

4.5.4 Increase transportation options and system connectivity to revitalize underserved, overburdened, or disadvantaged communities, and increase access to jobs and location-efficient affordable housing. See Sections [2.2](#), [4.3.1](#), [4.3.2](#), [4.4.1](#), and [4.4.3](#) for a discussion of how the Rail Trail will enable affordable transportation options.

**Map 10
Trail Oriented Development Opportunities**



¹⁴ IDA, “Calculating the Value of Downtown Albuquerque, New Mexico.” International Downtown Association,
¹⁵ Indiana University Public Policy Institute, “Assessment of the Impact of the Indianapolis Cultural Trail: A Legacy of Gene and Marilyn Glick.” Indiana University School of Public and Environmental Affairs, March 2015.
 Park and Kim, “Economic impacts of a linear urban park on local businesses: The case of Gyeongui Line Forest Park in Seoul.” *Journal of Landscape and Urban Planning* (181), 2019.

4.6 State of Good Repair. The City of Albuquerque’s Parks and Recreation department maintains hundreds of miles of multiuse trails across the City. This project will utilize smart technology like smart trashcans that notify maintenance crews when trash needs to be removed. Additionally, the Friends of the Albuquerque Rail Trail will provide enhanced maintenance and cleanup along the trail. This project modernizes and transforms one half mile of unutilized right-of-way into an active transportation alternative.

4.7 Partnership and Collaboration. Private-public partnerships, especially those that result in cost-sharing between a public agency and a private organization, have enabled success and high-quality parks, trails, and other public infrastructure projects. After learning how successful similar public-private partnerships have been in other cities, property owners along the Rail Trail who participated in the framework planning process established the Friends of the Albuquerque Rail Trail. The Friends of the Albuquerque Rail Trail will hire an executive director to implement the following:

- Fundraise for additional staff and events to establish programming (like movie nights, farmer’s markets, fun runs, and cleanup days along the trail once construction is complete).
- Hire private security to enhance safety along the trail.
- Contract maintenance workers to provide more frequent cleanup than is typical for city-owned trails.

These services will be coordinated with the City through a formal agreement.

For a discussion of how the City will continue to engage with the community and diverse owned business leaders to ensure equitable development, see [Section 1.2.1](#).

4.8 Innovation. The Albuquerque Rail Trail is innovative in several ways. Technology along the trail will include solar powered lighting; cameras and audio detection that allows the City to monitor for safety; and deployment of high quality broadband infrastructure. Additionally, a nonprofit Friends of the Albuquerque Rail Trail has been established to provide enhanced funding for maintenance and programming along the trail.

4.8.1 Deploying technologies and other practices that drive safety outcomes for underserved, overburdened, or disadvantaged communities.

In 2020, the City of Albuquerque installed audio and visual technology at Albuquerque Rapid Transit stops, which are able to visually and acoustically detect events such as gunshots or car accidents. The implementation of sensor technology has acted as a “force multiplier” that has allowed the Albuquerque Police Department’s (APD) Real Time Crime Center to quickly and efficiently triage and send officers in the event of an emergency situation. The pilot has provided initially promising results, significantly increasing the number of dispatches to areas with this technology. This indicates that APD is becoming more aware of events that may have otherwise been undetected and not responded to. This technology will also be installed along the Rail Trail, which could help improve safety by alerting APD of events such as an attack that is actively taking place, or a trip and fall that may require emergency medical attention. Additionally, emergency call boxes will be installed intermittently along the trail. Finally, video surveillance can be used to collect data analytics to understand the number and type of trail users to determine usage,



identify maintenance needs, and help guide programming. The City is also considering adding Smart Benches through a partnership with the Central New Mexico Community College, which could be used for charging phones, installing interactive art, or providing additional user counts along the trail.

4.8.2 Broadband deployment concurrent with the transportation project construction.

The construction of the Rail Trail will include one mile of broadband infrastructure. This will enable the use of the technology referenced above in Section 4.6.1, including video and audio surveillance for enhancing safety along the trail. Fiber will also be utilized to enable interactive and digital art installations that are being planned separately by the City's Public Art Department. Free City Wi-Fi will be available to users along the trail. Planned public parks and plazas along the Rail Trail could provide nearby children with a safe and welcoming environment to access Wi-Fi for school projects. It can also help enhance or augment educational programs and tours that will be planned by the Friends of the Albuquerque Rail Trail.

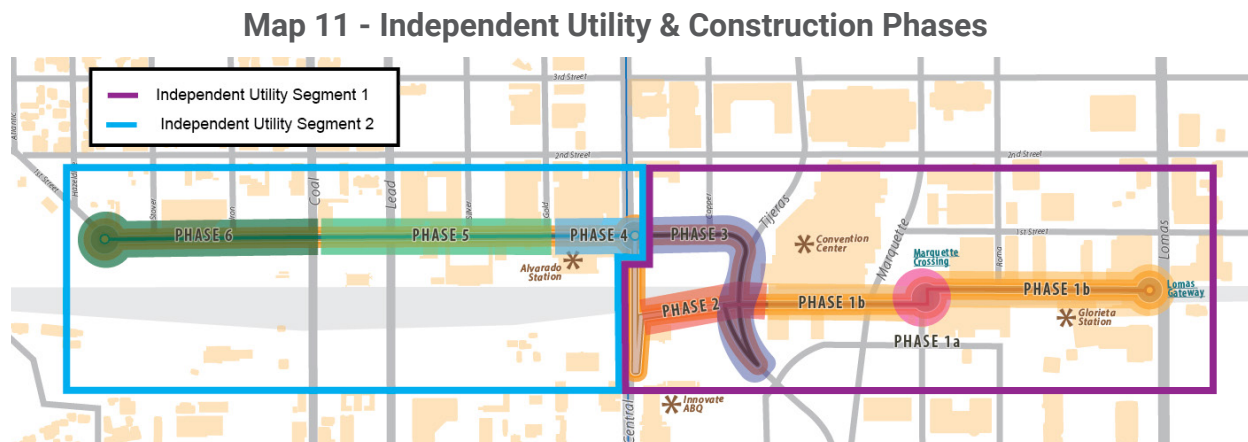
4.8.3 Incorporating innovative funding and financing. See [Section 4.7](#) for information on how the City will partner with a private entity to provide enhanced maintenance and programming for the Rail Trail.



Part V - Project Readiness

5.1 Schedule. The project is estimated to take approximately three years to complete, including permitting. The schedule on the following page is based on the assumption that final design documents will be complete by October. Due to recent global procurement and supply chain delays, the schedule permits an additional six months for a total of three and a half years.

5.2 Phasing and Independent Utility. The project's construction will be broken out into phases identified in the Framework Plan and in the Construction Budget. The image below shows segments of the project that have Independent Utility.



5.3 Permitting & NEPA. The City of Albuquerque will need to pull both local and state permits for construction. The City has initiated the NEPA process by submitting a Level of Effort form to the appropriate State DOT office (see “TPLA Level of Effort Form”). The City will follow NEPA guidelines as directed by the State DOT.

5.3.1 Local permits. Construction permits for the project will be submitted through the City of Albuquerque's typical construction permitting process. Permits will be acquired concurrently once design is complete, and include:

- General building permit (DRB, City of Albuquerque)
- Water Utility Authority tap permit
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- Electricity Hookup permit (PNM)

5.3.2 State Permits. A representative from the State of New Mexico Department of Transportation (NMDOT) Transit and Rail Division sat on the Rail Trail Steering Committee, providing feedback on alignment and guiding safety and security requirements for the design of the Albuquerque Rail Trail. The NMDOT will review the construction drawings at 10%, 60%, and 90% design to ensure compliance with safety and security standards. Once design documents are completed and approved by NMDOT, the City and NMDOT will execute a “License for Construction & Use Agreement within New Mexico Department of Transportation Public Right of Way.” The NMDOT has provided a letter of support for this project, detailing their involvement and anticipated compliance with their requirements.

5.3.3 Programming into the Local Transportation Improvement Project List (TIP).

The Albuquerque Rail Trail is identified as a high priority project in the Mid Region Metropolitan Planning Organization's (MRMPO) Metropolitan Transportation Plan. MRMPO has provided a letter of support for the project, and indicated that should the project receive the RAISE grant, the project will be incorporated into the TIP in the following amendment cycle, which typically occurs every 2 to 3 months.

5.4 Assessment of Project Risks and Mitigation Strategies. Materials and construction delays are common given today's supply chain issues. A six-month construction contingency buffer has been added to the project timeline to accommodate delays in materials, labor, or other supplies. Construction directly adjacent to the rail lines will need to be coordinated with the New Mexico State Department of Transportation, especially for the movement of materials and equipment that may need to momentarily halt railroad usage.

There are few anticipated environmental concerns around the Rail Trail's construction. The project construction areas are relatively flat, with little to no vegetation or wildlife; it has been an urban center for over 200 years. There are no designated State and National Parks, National Wildlife Refuges, or National Game Preserves located on or in the vicinity of the Site. There are no Wilderness Areas, as designated or proposed under the Wilderness Act, or wild or scenic rivers, as designated or proposed under the Wild and Scenic Rivers Act, that are located on or in the vicinity of the Site. The site is not in a flood plain.

Some of the buildings and infrastructure adjacent to the trail are historic. Coordination with the State Historic Preservation Office (SHPO) will need to be conducted to ensure no adverse effect to buildings or infrastructure. The main concerns are the buildings and bridges at Tijeras Ave and Central Ave. Precautions and vibration monitoring will need to be conducted during construction. The proposed pedestrian bridges will be constructed adjacent to the Tijeras bridge and on the south end will be spanned over the existing railing.

5.5 Public Input. The City of Albuquerque has conducted extensive community outreach and incorporated the public's feedback into the Framework Plan, as detailed in [Section 1.2.1](#). The City will continue to work with the community to create an Albuquerque Rail Trail Corridor Equitable Development Plan to guide new development and economic development projects that are enabled through the construction of the Albuquerque Rail Trail.

Part VI - Benefit Cost Analysis

6.1 Executive Summary. A benefit-cost analysis (BCA) was conducted for the Albuquerque Rail Trail Project (“Project”) for submission to the U.S. Department of Transportation (USDOT) as a required part of a discretionary grant application for the federal fiscal year (FFY) 2022 RAISE grant program. The analysis was conducted in accordance with the benefit-cost methodology as recommended by USDOT in the March 2022 Benefit-Cost Analysis Guidance for Discretionary Grant Programs.

The Project involves the construction of separate pedestrian and bicycle paths along the existing railroad corridor in central Albuquerque, connecting the Rail Yards with the Alvarado Transit Station and North to Lomas. Along the Rail Trail will be planted shade trees creating an inviting, pleasant environment. Located adjacent to proposed trail are numerous parcels and business that can take advantage of the enhanced walkability, attractive amenities, increased bicycle and foot traffic generated from the Rail Trail. The improved amenities will promote economic development by facilitating business attraction and retention.

The primary benefits identified for the Project are improved safety from the construction of dedicated bicycle and pedestrian paths, increased bicycle ridership and associated health and recreation benefits, reduced vehicle operating costs from decreased vehicle-miles traveled (VMT), and emission reductions from reduced VMT and from landscape trees. Table 4 details the discounted and undiscounted monetary values of these benefits, expressed in 2020\$. Construction of bicycle paths is expected to reduce bicycle crashes by between 61% and 89%, avoiding 196 injury crashes and 20 fatal crashes over the 25-year study period for this Project. Due to increased bicycle ridership, the shift from auto travel to bicycle travel is expected to reduce VMT 64,341 miles per year, or 1,608,525 miles over the Project study period. Improved air quality from landscape trees and reduced VMT is expected to reduce emissions over the Project study period by 1,144 tons of CO₂, 0.99 tons of NO_x, 0.68 tons of SO_x, 0.74 tons PM₁₀ and 0.003 tons of PM_{2.5}.

There are other benefits including improved redevelopment opportunities and increased property values that were not determined to be accurately monetizable for the BCA. As such, the benefits were not included in the BCA, however if they could have been included Project value would be higher. Albuquerque Rail Trail improves economic competitiveness by reducing motor vehicle congestion in the downtown area thus making the downtown area more attractive to business. The Project increases bicycle and pedestrian access to businesses. Finally, cultural amenities associated with the Trail make the downtown more inviting. These outcomes make business attraction and business retention easier. This improved competitiveness is important for economic growth.

Alongside the Albuquerque Rail Trail there is 935,000 square feet of developable area, in addition to 402,000 square feet at the Rail Yards which is considered a brownfield redevelopment site. Assuming an average development cost of \$200 per square foot, these developable areas represent a \$267.5M development opportunity, which would be expected to produce a property value increase of an amount greater than that. These benefits are very significant, however due to the uncertainty of the timeline for development of these sites and limited ability to identify specific beneficiaries of these development activities, it was not included in the BCA. That said,

the Albuquerque Rail Trail is a key component for activating the redevelopment of this area, so if this were included in the BCA, Project value would be significantly higher.

TABLE 4 - PROJECT BENEFITS BY LONG-TERM OUTCOME CATEGORY, 2022-2051

Type of Benefit	Relationship to RAISE Goals	Undiscounted (2020\$)	Discounted (7%) (2020\$)
Safety	Improved safety from construction a cycle track and an off-street multi-use trail.	\$315.7M	\$101.5M
Health	Health benefits from increase bicycle ridership	\$80.1M	\$25.8M
Cycling Facilities	New dedicated bicycle infrastructure that will increase and improve bicycle ridership	\$51.7M	\$16.6M
Reduced Fuel Costs & Auto/Truck O&M	Fuel savings and reduced Auto/Truck O&M from reduced VMT	\$723.8k	\$232.7k
Emissions	Emissions reductions due to reduced VMT	\$112.3k	\$52.3k
Residual Value	Remaining usable life on trail facilities at the end of 25-year study period	\$2.3M	\$281.0k
Increased O&M	Increased O&M from new trails that require maintenance	(\$62.5k)	(\$20.1k)

Tables 5 and 6 provide a summary of the BCA results. The discounted benefit-cost ratio of the Project was estimated to be 14.0. This means the present value of the Project’s total benefits are 14.0 times the present value of the Project’s cost. The Project’s undiscounted benefit-cost ratio was estimated to be 32.8. The net present value of the Project is positive (\$436.8 million undiscounted and \$134.1 million discounted, both in 2020\$). Benefits (\$450.6 million undiscounted and \$144.4 million discounted, both in 2020\$) substantially exceed the costs (\$13.7 million discounted and \$10.3 million undiscounted) for the proposed Project.

TABLE 5 - BENEFIT-COST ANALYSIS RESULTS, 2022-2051

BCA Metric	Project Lifecycle	
	Undiscounted (2020\$)	Discounted (7%) (2020\$)
Total Benefits	\$450.6M	\$144.4M
Total Capital Costs	\$13.7M	\$10.3M
Net Present Value (NPV)	\$436.8M	\$134.1M
Benefit Cost Ratio (BCR)	32.8	14.0

TABLE 6 - BENEFIT-COST ANALYSIS RESULTS, IRR AND PAYBACK PERIOD

Internal Rate of Return (IRR)	64%
Payback Period (Years)	5.36

Part VII - Supplemental Documentation

7.1 Link to download supplemental materials. To download memos, analysis, maps, and plans referenced in this document (including the Benefit Cost Analysis and detailed construction cost breakdowns), [click here](#).