




# Complete Maple Street

A partnership for safe, multi-modal, equitable access



**GRANT: RAISE (FY23)**  
**DTOS59-23-RA-RAISE-PKG00278732**  
**WORKSPACE ID: WS01035869**  
**LOCATION: Fayetteville, Arkansas**  
**PROJECT APPLICANT: City of Fayetteville**  
**DUNS NUMBER: #07-565-7742**  
**GRANT REQUESTED: \$8,000,000**  
**MATCHING FUNDS: \$2,000,000**  
**TOTAL PROJECT COST: \$10,000,000**



**MAPLE ST.**

**RAZORBACK REGIONAL GREENWAY PAVED MULTI-USE TRAIL**





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## PARTNERS







# I. PROJECT DESCRIPTION



**"This project will have significant local and regional impact as it both accommodates and encourages the growing number of university affiliates, citizens, and visitors that chose alternative and active transportation modes."**

*- Dr. Charles Robinson, Chancellor,  
University of Arkansas*



# PROJECT DESCRIPTION

The Complete Maple Street project is a full reconstruction of a half-mile urban street corridor into a complete street connecting the University of Arkansas (UA) campus to the Razorback Regional Greenway, a regional shared-use paved trail network. The project addresses many transportation challenges, including: poor and dimensionally inadequate sidewalk conditions, a total lack of bicycle facilities, inadequate transit stops, insufficient drainage, and pedestrian safety risks associated with excessive vehicular lane widths that encourage speeding. The project addresses these challenges by replacing and upgrading the existing infrastructure and adding a new two-way cycle track on the campus frontage of Maple Street.



Figure 1. A rendering of the designed streetscape.  
(UA Community Design Center, 2019)

## Project History

Maple Street is positioned as a gateway street to the UA campus. However, due to the degraded vehicular infrastructure and a lack of pedestrian elements, the street actually acts as a barrier for safe and convenient access to campus. The need for this project was first formally identified in the 2014 Walk/Bike Northwest Arkansas Master Plan developed by the NWA Regional Planning Commission. Subsequently, the project was recognized as a catalyst project in the In 2018 the University of Arkansas, City of Fayetteville and Walton Family Foundation partnered to fund the full design on the project, and in 2019 Fayetteville voters approved bond funding to support construction in the amount of \$ 1 million. The University of Arkansas has also committed a \$1 million to go toward construction of the project. Currently, the Complete Maple Street project is in a “shovel ready” status pending full funding for construction. The project creates a complete street emphasizing multi-modal mobility that is safe, efficient and equitable for all users. This project is 100% designed, fully within the public right-of-way, and pre-approved for a categorical exclusion.



# EXISTING SITE CONDITIONS

## Existing Site Conditions

The existing Maple Street cross-section has significant safety and design deficiencies. These deficiencies are critical given the streets' vehicular and transit counts and high level of pedestrian and bicycle use. Most notably the street has excessive travel lane width coupled with inadequate sidewalk and bike facilities which comes at the expense of pedestrian and cyclist safety and comfort.

### Identified safety and design deficiencies include:

- ① Excessive and unsafe vehicular travel lane widths
- ② Unprogrammed pavement from former parallel parking spaces
- ③ Inadequate sidewalks of varying widths, alignments and condition
- ④ Lack of dedicated bicycle facilities
- ⑤ Crosswalks that are poorly marked, non-ADA compliant, or have obstructed sightlines
- ⑥ Lack of uniform pedestrian-scaled lighting.



Figure 2. A broken curb on Maple St.

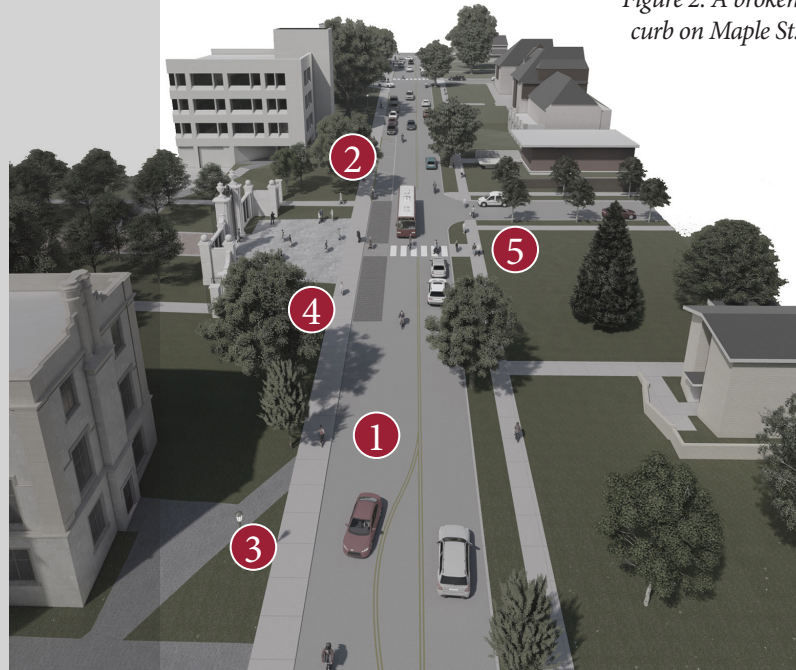


Figure 3. An aerial rendering of current conditions on Maple St. (UA Community Design Center, 2019)

## Adjacent Land Uses

The existing traffic patterns in and around the UA are being transformed by land use changes, primarily parking decks on campus edges and new infill development. The land use on the north side of Maple St. is predominantly student housing and community event spaces with a combined occupiable space of 457,000 sq. ft. The south side of Maple St. is almost exclusively UA classroom, office and lab spaces with a combined occupiable space of 220,824 sq. ft. The intense land uses on both sides of the street generate significant pedestrian, bicycle and e-scooter traffic.



# PROJECT IMPROVEMENTS



Figure 4. An overview of proposed improvements to traffic flow and safety.

- 1 Targeted roadway sub-base replacement and resurfacing of 2,475 linear feet of roadway with 11' transit and vehicular travel lanes.
- 2 A new traffic signal at the intersection of N. Gregg Ave., upgraded traffic signals at the intersections of Arkansas Ave. and Garland Ave.
- 3 Extensive tree plantings inside and outside of the street right-of-way.
- 4 Reorientation of four intersecting streets and one alleyway to one-way only northbound traffic improves vehicular, bicycle and pedestrian traffic and reduces excess traffic and left turn movements onto Maple St..
- 5 Improved four-way stops at street intersections along W. Douglas St., the east-west street one block north, extends safety aspects of this project into these neighborhoods to the north.

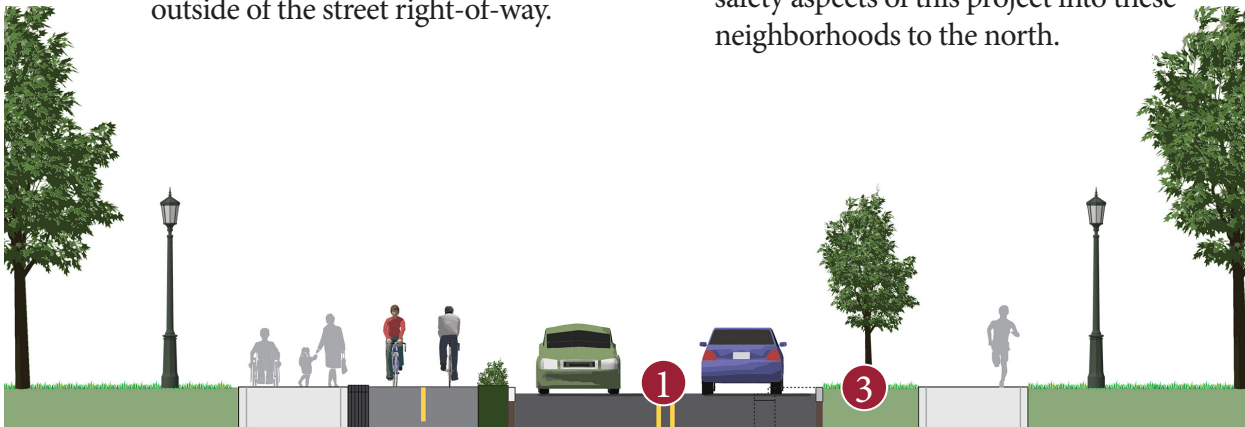
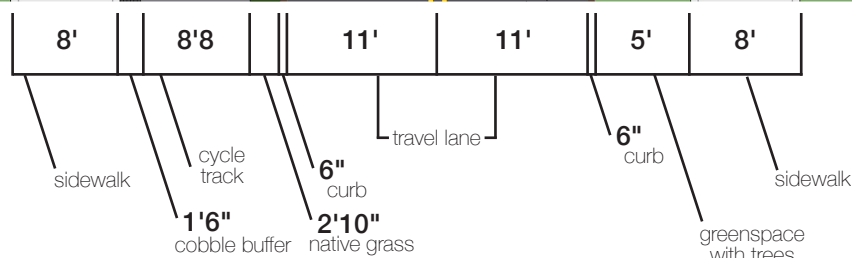


Figure 5. The new cross-section.





# PROJECT IMPROVEMENTS

- ⑥ Redesign of six existing crosswalks with the addition of four new crosswalks. All ten crosswalks are ADA compliant with six crosswalks located at signalized intersections and an additional four equipped with passive detection activated Rectangular Rapid Flashing Beacon (RRFB) systems
- ⑦ Sidewalks widened to 8 feet on both sides of the street that meet ADA cross-slope requirements
- ⑧ A grade separated 8'8" wide two-way cycle track along the south side of the street. The cycle track has a 1'6" textured cobble buffer separation from the sidewalk and a 2'10" native plant landscape buffer between the vehicular travel lane and the cycle track on the south side of the street
- ⑨ Uniform street lighting to increase visibility for all users.
- ⑩ New stormwater infrastructure including low-impact development stormwater infiltration landscape beds for the sidewalk and cycletrack storm runoff

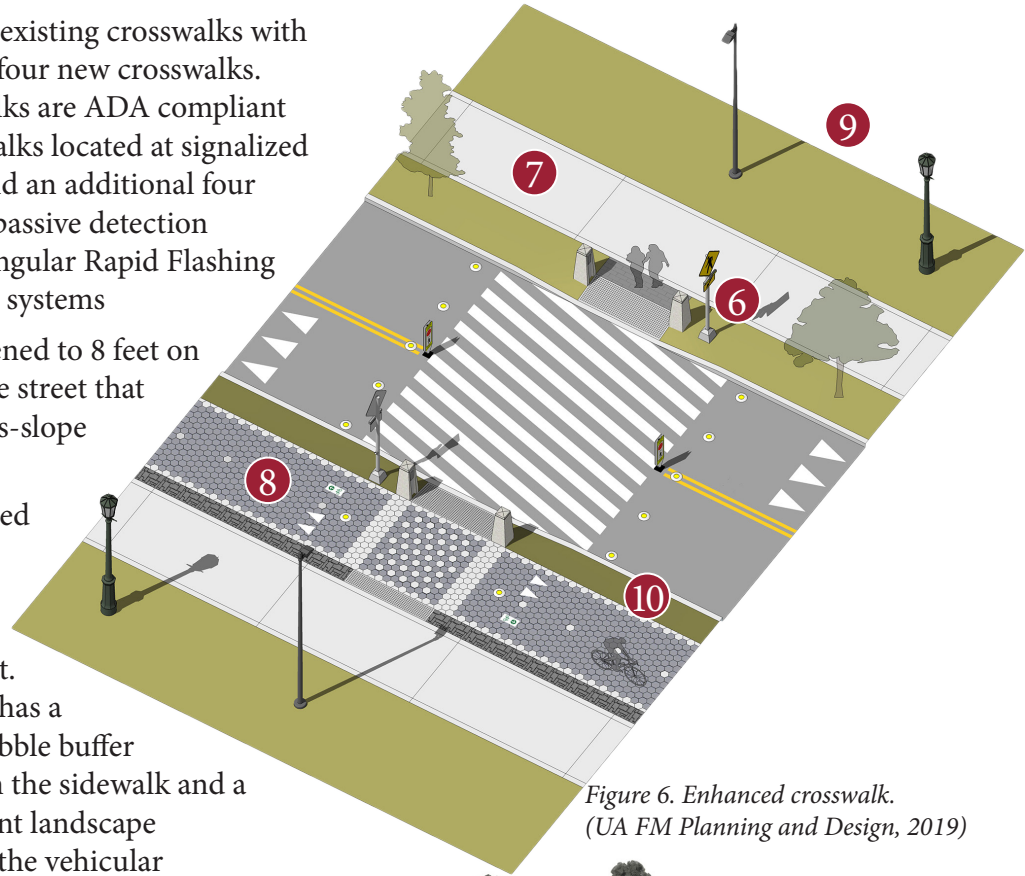
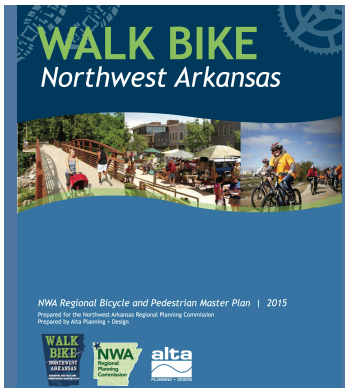


Figure 6. Enhanced crosswalk. (UA FM Planning and Design, 2019)



Figure 7. Rendering of new Maple St. (UA Community Design Center, 2019)

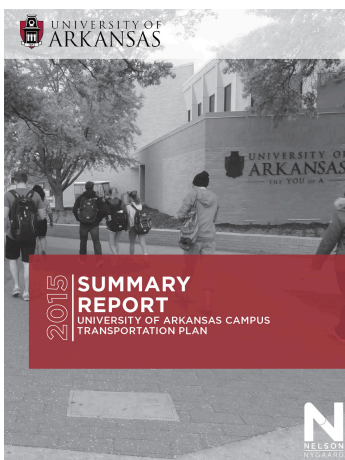
# SUPPORTING TRANSPORTATION PLANS



## **2015 Walk Bike Northwest Arkansas Master Plan<sup>1</sup>**

*Developed with Alta Planning + Design*

The Northwest Arkansas Regional Planning Commission report highlighted “catalyst projects” that are priorities for the community. The report recommended a cycle track on Maple St. as “Catalyst Project No. 1” for the regional active transportation network. The plan identifies catalyst projects as the highest priority that would be the greatest overall to benefit to the region.



## **2015 University of Arkansas Campus Transportation Plan<sup>2</sup>**

*Developed with Nelson Nygaard*

The UA Campus Transportation Plan was developed through a data driven iterative process. More than 5,000 people participated through online surveys, stakeholder meetings, an interactive project website and maps, open houses and workshops. A key recommendation of the plan was to redesign major campus gateways to prioritize walking, biking, and transit. The Plan specifically recognized Maple St. as the “most direct and grade-friendly corridor” for connecting to the regional trail system and identified the leading campus gateway strategy as “creating last mile bicycle network connections”.



## **2018 City of Fayetteville Mobility Plan<sup>3</sup>**

*Developed with Nelson Nygaard*

The City adopted the Fayetteville Mobility Master Plan in 2018 with a vision of a “transportation system that is equitable and safe for all users, provides desirable access opportunities for all transportation modes, and promotes and supports the continued economic growth and prosperity of the city and its citizens.” The Plan is guided by four primary goals:

1. A transportation network that is safe for all users
2. A transportation network that is equitable
3. A transportation network that emphasizes multi-modal mobility
4. A transportation system that promotes and supports economic growth and sustainability

<sup>1</sup> <https://www.bikenwa.org/infrastructure-master-plans>

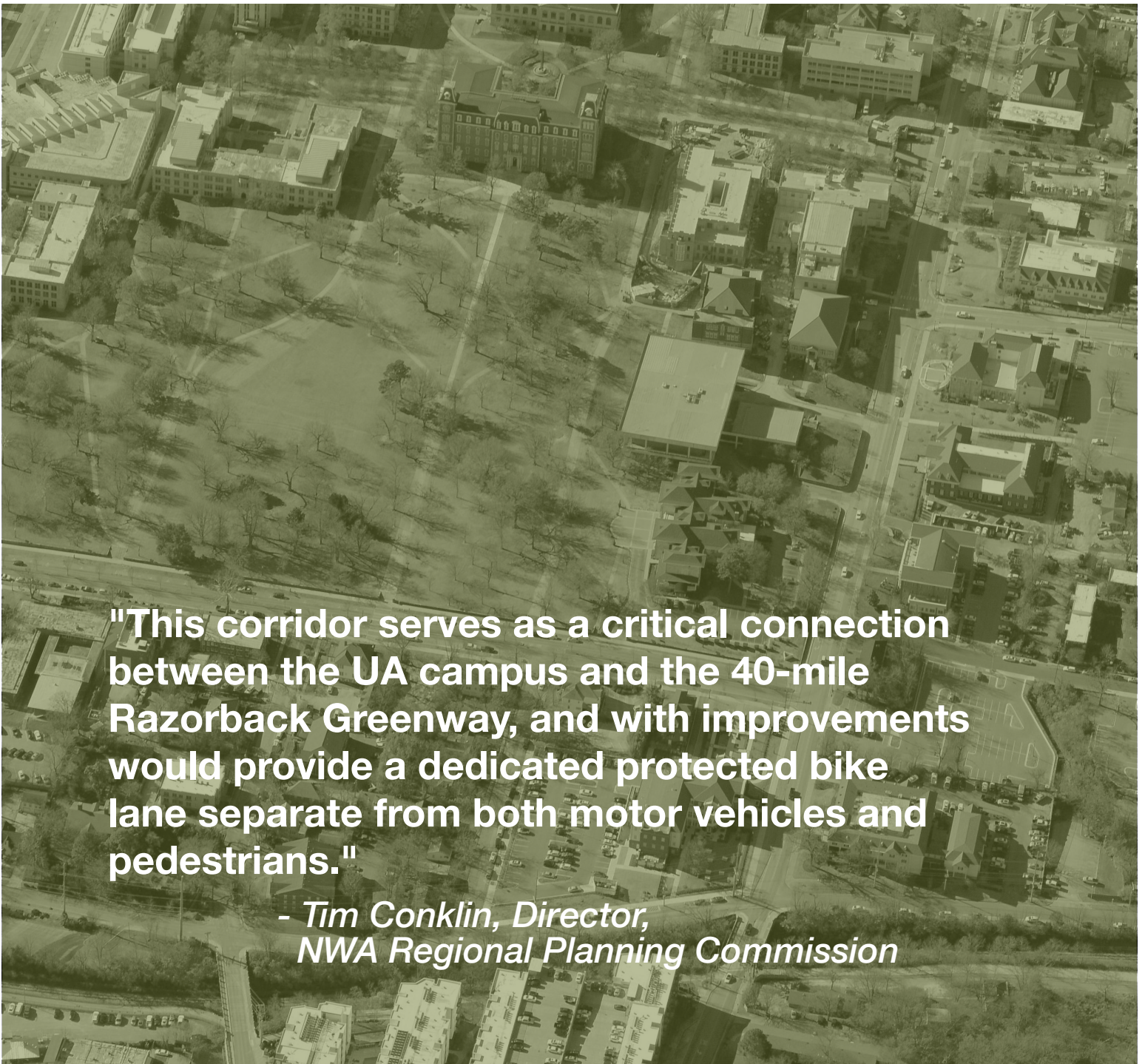
<sup>2</sup> [https://planning.uark.edu/campus\\_planning/content/2015\\_transportation\\_plan\\_smry.pdf](https://planning.uark.edu/campus_planning/content/2015_transportation_plan_smry.pdf)

<sup>3</sup> <https://www.fayetteville-ar.gov/3081/Fayetteville-Mobility-Plan>





## II. PROJECT LOCATION



**"This corridor serves as a critical connection between the UA campus and the 40-mile Razorback Greenway, and with improvements would provide a dedicated protected bike lane separate from both motor vehicles and pedestrians."**

**- Tim Conklin, Director,  
NWA Regional Planning Commission**



# PROJECT LOCATION

Maple Street is in an urbanized area in Fayetteville Arkansas. Fayetteville is a college town of 93,943 located in Northwest Arkansas. Fayetteville is the largest city in the Fayetteville-Springdale-Rogers Metropolitan Statistical Area with a region-wide 2019 population of 546,725.<sup>4</sup> Maple Street is a central east/west connector that is bordered on the north by a Federally-designated Area of Persistent Poverty and Historically Disadvantaged Community along the northern boundary of the University of Arkansas main campus. This section of Maple Street from Gregg Ave. west to Garland Ave. provides a critical link connecting the UA campus to the regional active transportation network, Wilson Park, downtown Fayetteville and densely populated off-campus housing. The University of Arkansas, the state's flagship land grant institution established in 1871 with a 2021 student enrollment of 29,068.<sup>5</sup> The University of Arkansas primary campus sits on

Maple Street, which connects directly to the Razorback Regional Greenway which serves as the backbone for a regional network of over one hundred miles of shared-use paved trails. Fayetteville's population increased by 23% between 2010 and 2020 censuses. The UA also increased enrollment by 26% since 2010. This rapid growth has significantly increased transportation demand on Maple Street and servicing trips to and from the UA campus.

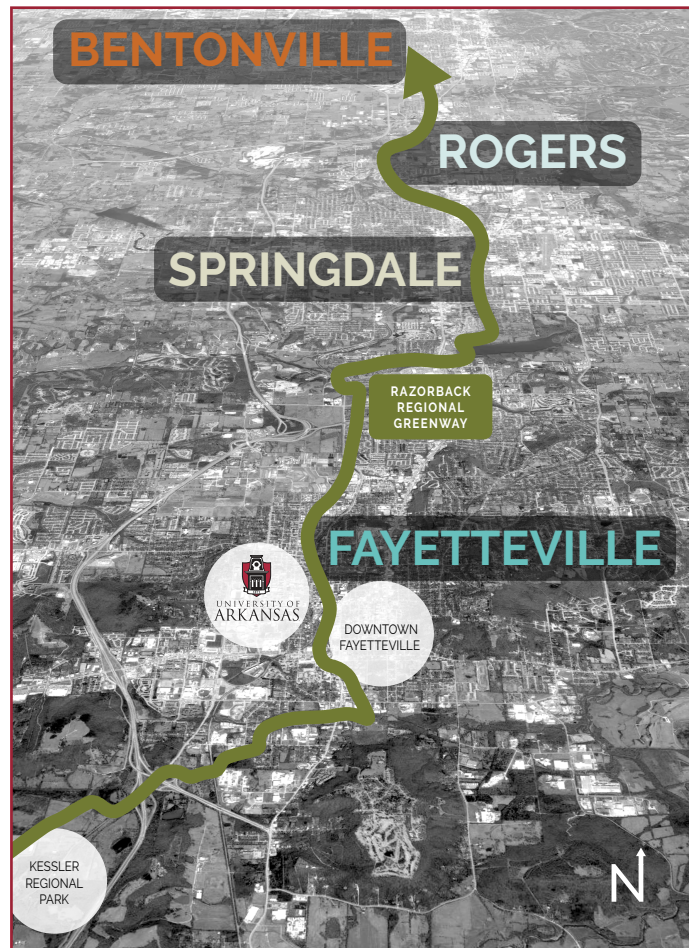


Figure 8. Northwest Arkansas connected by the Greenway trail system.

4 <https://censusreporter.org/profiles/31000US22220-fayetteville-springdale-rogers-ar-metro-area/>

5 <https://www.census.gov/quickfacts/fayettevillecityarkansas>



# PROJECT LOCATION

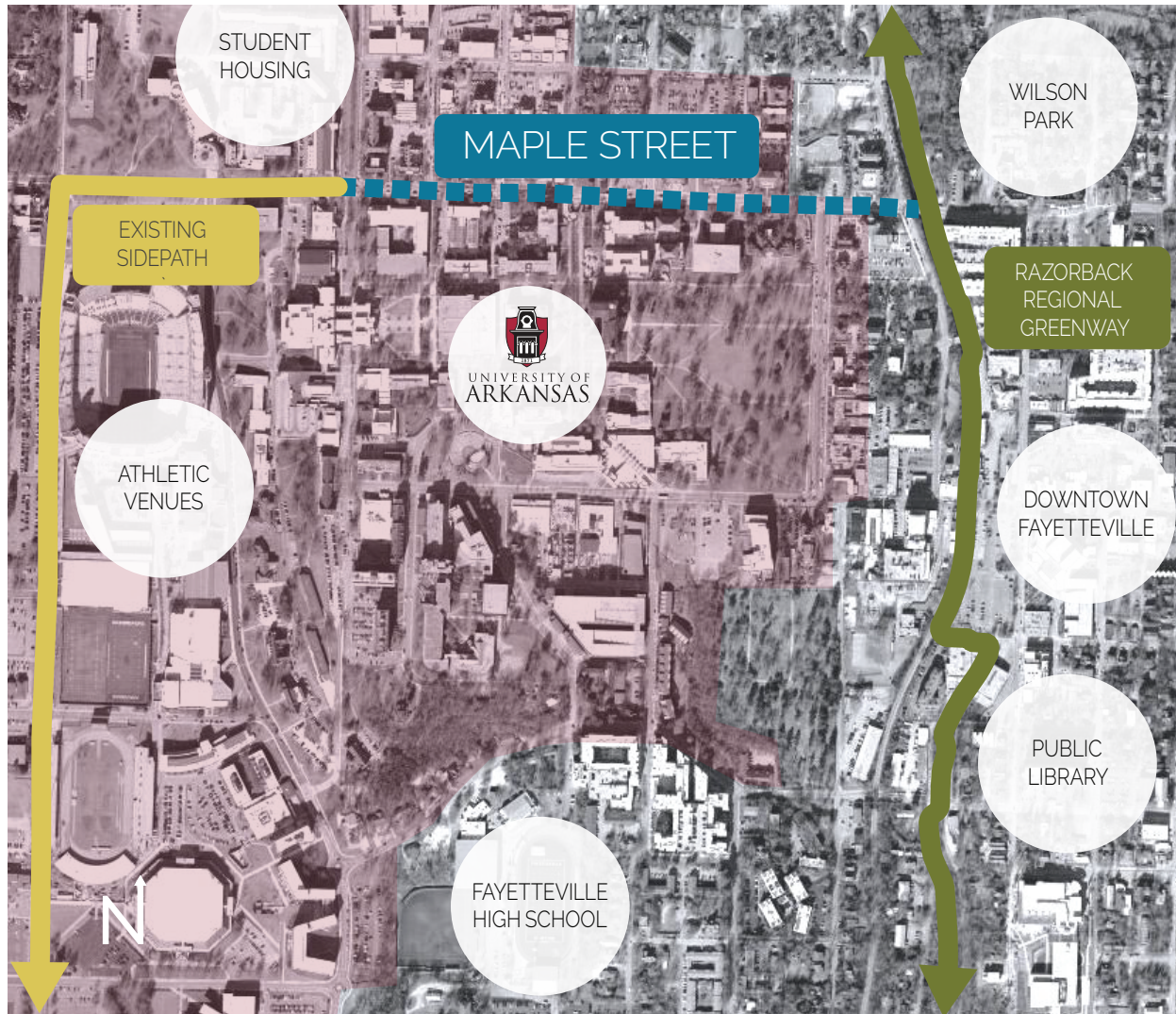


Figure 9. A map demonstrating how the project will complete a safe and connected trail loop and link to the larger community.

## Location Details

The project begins at the intersection of Maple St. and N. Gregg Ave. on the east extending to the intersection of Maple St. and Garland Ave. on the west.

Western Terminus:  
Lat 36.070332 Long -94.175518  
Eastern Terminus:  
Lat 36.070098 Long -94.166785

## AREA OF PERSISTENT POVERTY & HISTORICALLY DISADVANTAGED COMMUNITY

Census Tract	Median Age	Per Capita Income	Median Household Income	% Persons Below Poverty Line	Mean Travel Time to Work	Total Households
113	20.4	\$9,048.00	\$21,136.00	59%	13.9	1,960
107.01	24	\$14,469.00	\$23,708.00	39%	15.5	3,663
Average	22.2	\$11,759.00	\$22,107.00	46%	14.7	N/A

Figure 10. The general demographic indicators in two Census Tracts along Maple St.  
(Source: 2021 US Census Data)

Maple Street is the boundary line between two Census tracts: Census Tract 113 to the south, and Census Tract 107.01 extending northward through a large high-density residential area.<sup>6</sup> Both Census tracts are identified as Areas of Persistent Poverty and Census Tract 107.01 is also designated as a Historically Disadvantaged Community<sup>7</sup> by the U.S. Census Bureau.

Residents in these low-income neighborhoods have rely heavily on free public transit services and active transportation as car ownership rates are low. These neighborhoods are within close proximity to the regional shared-use paved trail network, the UA campus, employment centers, entertainment options and open spaces; however, without safe connected infrastructure, residents are not able to safely access nearby amenities and services. The Complete Maple Street is a critical investment in increased affordable transportation choices and access to housing, jobs, opportunities and recreation for the entire Northwest Arkansas region and delivers the greatest benefits to the most vulnerable populations.

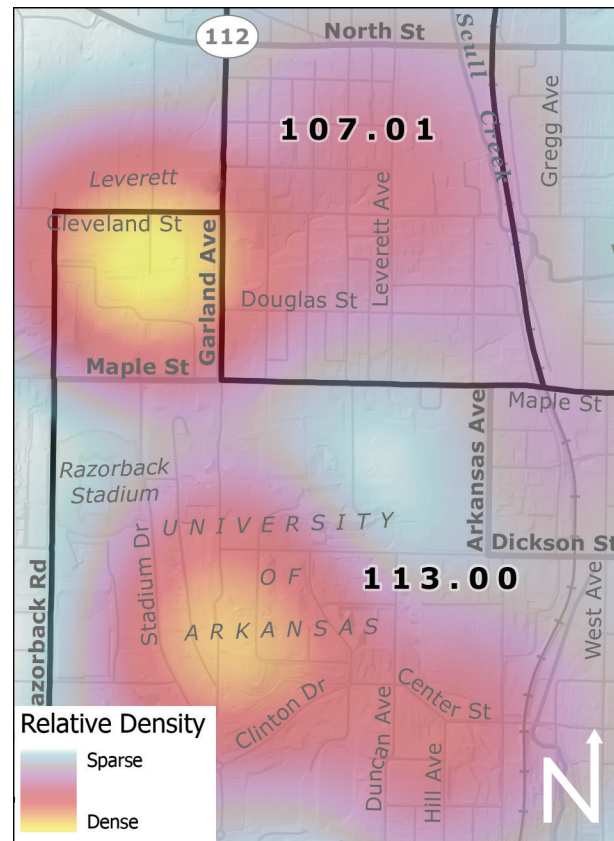


Figure 11. The population density within two Census Tracts along Maple St. is the highest in Northwest Arkansas.

6 [https://www2.census.gov/geo/maps/dc10map/tract/st05\\_ar/c05143\\_washington/DC10CT\\_C05143\\_001.pdf](https://www2.census.gov/geo/maps/dc10map/tract/st05_ar/c05143_washington/DC10CT_C05143_001.pdf)

7 <https://datahub.transportation.gov/stories/s/tsyd-k6ij>



# TRAIL CONNECTIVITY

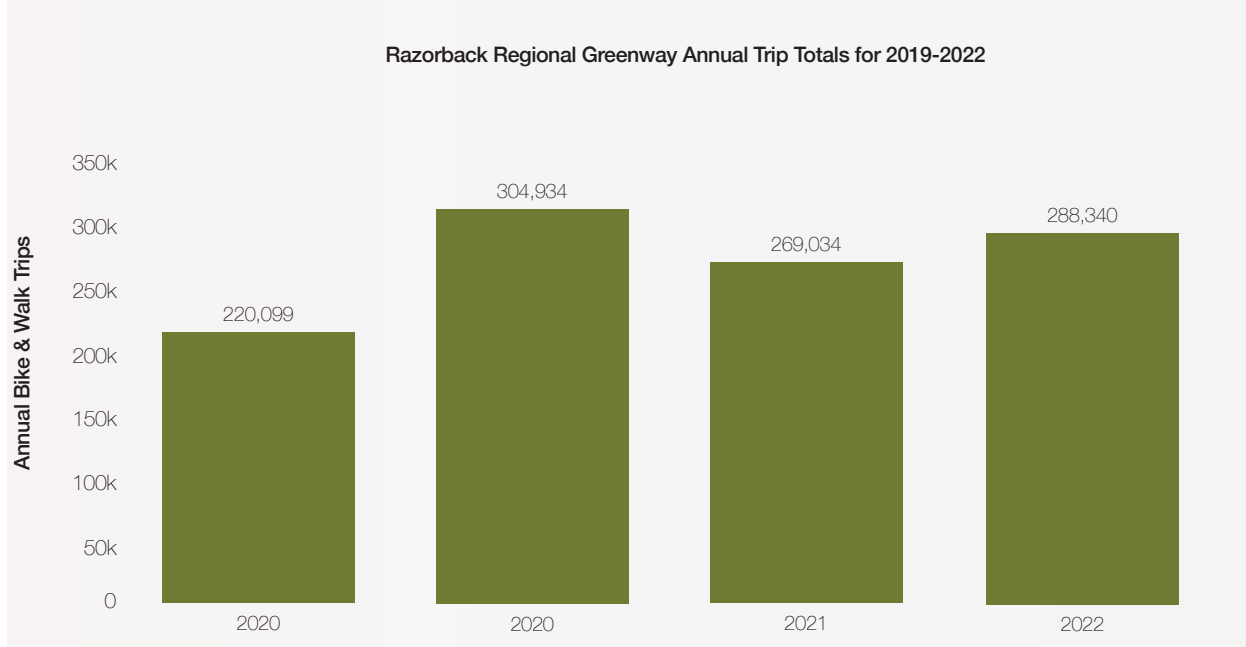


Figure 12. Annual trail usage for Razorback Greenway.

## Regional Bicycle/Pedestrian Activity

The project connects to the Razorback Regional Greenway immediately east of the Maple Street bridge over the Arkansas Missouri Railroad tracks.<sup>8</sup> The importance of this project's connection to the greenway cannot be overstated. The region-wide greenway brings thousands of students, faculty and staff to campus on a weekly basis. This connection increases usage of the greenway and active transportation mode

share for UA commuters. Trail counts are conducted continuously 24-7/365 on the greenway at the North St. trail crossing ½ miles north of this project. Over a four year period from 2019 to 2022 the City's trail counter measured a total of 1,082,416 total trips for an average of 741 trips per day. A peak in trail activity in 2020 coincided with the COVID-19 pandemic and associated shutdowns.



Figure 13. Community members using the Greenway near campus.



# TRAIL CONNECTIVITY

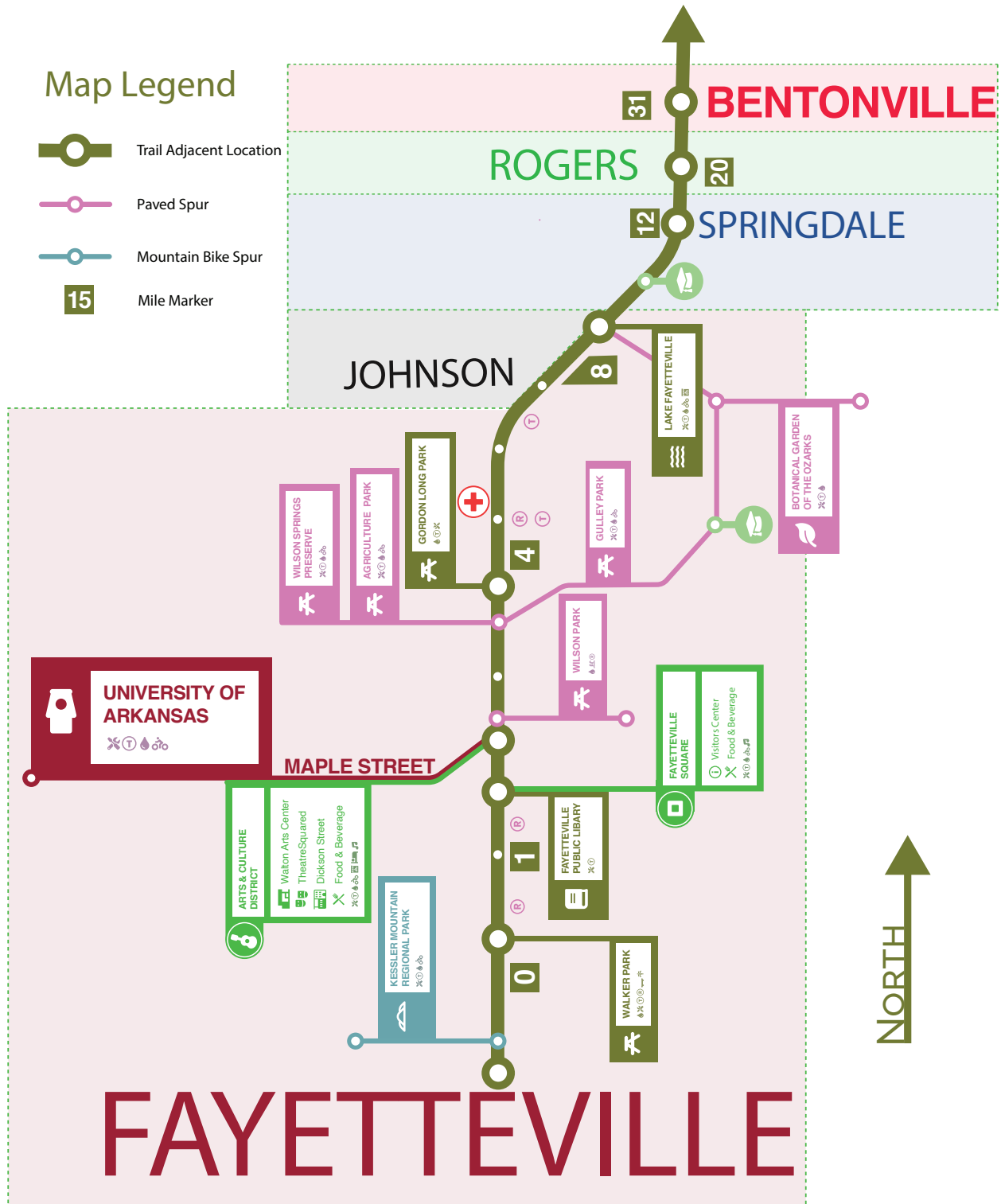


Figure 14. Map of the Razorback Regional Greenway with Fayetteville trail spurs and seamless connection to the other cities within Northwest Arkansas.

# TRANSIT ACCESSIBILITY

## Transit Accessibility

The project directly connects to the region's largest and busiest central transit station, the Intermodal Transit & Parking Facility, located adjacent to the Arkansas Union building the project also includes enhancements to three transit stops:

- Eastbound stop in front of the Plant Sciences Building. This stop is served by both Transit Routes 17 and 26.
- Southbound stop along Leverett at Maple St., Transit Route 26
- Eastbound stop in front of Carnall Hall, Transit Route 17

Transit Route 26 serves a densely populated area of multi-family student housing north of the UA campus extending all the way to the NWA Mall on the north side of town.<sup>9</sup> Transit Route 26 had an annual ridership of 355,847 in 2019 and 307,229 during the pandemic year of 2020. Transit Route 26 terminates at Union Station in the heart of

campus where riders can switch buses to access the rest of the Razorback Transit service area.<sup>10</sup>

Transit Route 17 runs from Union Station on Garland Ave. east along Maple and then south on a downtown loop. This is primarily a route through downtown to the Fayetteville Public Library and back. This route had 37,983 annual rides in 2019, with slightly decrease ridership of 28,383 in 2020.

## Downtown Connectivity

This project partially falls within the Fayetteville Downtown Master Plan<sup>11</sup> area which is supportive of increased multi-modal connectivity between the UA campus and downtown. The project supports many of the Downtown Master Plan key principles including; creating a superbly walkable environment, encouraging downtown living, creating smart parking solutions, creating special places and supporting an experience-based economy.



Figure 15. A community member loading his bicycle onto a Razorback Transit bus.

9 [https://parking.uark.edu/\\_resources/documents/Transit/Route26.pdf](https://parking.uark.edu/_resources/documents/Transit/Route26.pdf)

10 <https://parking.uark.edu/transit-services/transit-operations/maps-and-schedules.php>

11 <https://www.fayetteville-ar.gov/DocumentCenter/View/22479/Fayetteville-Downtown-Master-Plan>





### III. GRANT FUNDS, SOURCES, AND USE OF PROJECT FUNDING



# FUNDING ALLOCATION

## Grant Funds, Sources and Uses of all Project Funding

All RAISE grant funding shall be solely allocated to the estimated \$10 million in construction costs and have been budgeted based on the 100% construction plans and specifications. Not included in the budget are previously incurred design costs of \$414,000 which were shared between the UA and the City with matching funds provided by Walton Family Foundation grant funding. Additional previous cost incurred are \$11,500 for environmental

approval and \$46,000 for the preparation of the Benefit Cost Analysis. No additional funding is necessary to move the project into construction. No previous federal funding has been awarded to this project. It is recognized that none of the cost incurred prior to award is eligible for federal funding. All rights-of-way have been acquired and the project is ready for construction upon award of funding for construction.

Summary Estimation of Cost - March 2022	
Line Item Description	Total Estimated Price
Construction Management Items	\$1,050,000
Clearing, Grubbing, & Demolition	\$250,000
Excavation and Subgrade	\$250,000
Roadway Pavement & Base Material	\$1,100,000
Pavement Striping & Signs	\$50,000
Curb	\$800,000
Storm Drainage	\$900,000
Concrete Sidewalks, Driveways & Base Material	\$700,000
Pedestrian Scale Light Poles (21)	\$300,000
Landscaping	\$250,000
Hexagon Asphalt Pavers, Cobblestone & Base Material	\$1,500,000
Water/Sewer Adjustments	\$300,000
Signals, Crosswalk Lights and Totem Counter	\$242,000
Project Cost Escalation from 12/2020 Estimate - 30%	\$2,308,000
<b>Total:</b>	<b>\$10,000,000</b>
<b>RAISE funding request:</b>	<b>\$8,000,000</b>
<b>University of Arkansas Match 10% (Non-Federal):</b>	<b>\$1,000,000</b>
<b>City of Fayetteville Match 10% (Non-Federal):</b>	<b>\$1,000,000</b>

Figure 16. Table of itemized estimated project construction cost.





## IV. MERIT CRITERIA



**"This award will improve the safety of the many Arkansans who cycle to and from the UA, as well as provide a dramatic upgrade to one of the most important and iconic campus streets in Fayetteville."**

***- Senators John Boozman, Tom Cotton, & Congressman Steve Womack***



# SAFETY

This project's innovative complete street cross-section incorporates the latest in best practices for design and planning to offer the safest possible design for all travel modes, particularly for non-motorized users. The project integrates roadway design to slow vehicular traffic and uses proven technology to directly reduce the rates of injuries, fatalities and property damage. Table 13 in the benefit-cost analysis shows that the project brings an anticipated 47% reduction of pedestrian and bicycle crashes.

Data collected from the Arkansas Department of Transportation from 2015-2019 shows that over this 5-year period there were 148 total reported crashes on the project corridor. Of these, 6 involved pedestrians and bicycles. Data from the Arkansas Department of Transportation does not reflect the two fatal pedestrian crashes that occurred in 2019 and 2020 within ¼ mile of the project.

The project combines traffic calming elements with curb-separation, landscaped buffering and signal enhancements for maximum safety for non-motorized users. To slow traffic the project narrows transit/vehicular lanes, lowers speed limits from 25 to 20 mph, and adds street trees. The project narrows the overall vehicular portion of the roadway from 36 to 22 feet. This reduction in travel lane space shortens pedestrian crossing distances and by nearly 40% which is a preferred practice recommended by the Federal Highway Administration. The project uses passive-detection



Figure 17. Upgraded crosswalk designed with pedestrian safety features. (UA FM Planning and Design, 2019)

bollards to activate Rectangular Rapid Flashing Beacons (RRFBs) for all mid-block crosswalks to actively alert drivers every time a person approaches a crosswalk. The separated cycle track provides a fully protected space for people riding bicycles and e-scooters.

A 2019 traffic study conducted by Olsson Engineering indicated very high pedestrian activity with as many as 1,300 pedestrians an hour at a single intersection. The project's safety improvements directly benefit vulnerable roadway users in this Federally designated Area of Persistent Poverty and Historically Disadvantaged Community. The existing poor condition of the roadway and sidewalks combined with a disjointed and varying street cross-section makes this area very unsafe for all users and modes of travel. Accordingly, the safety of pedestrians and cyclists, the most vulnerable roadway users, is the primary focus of this project.

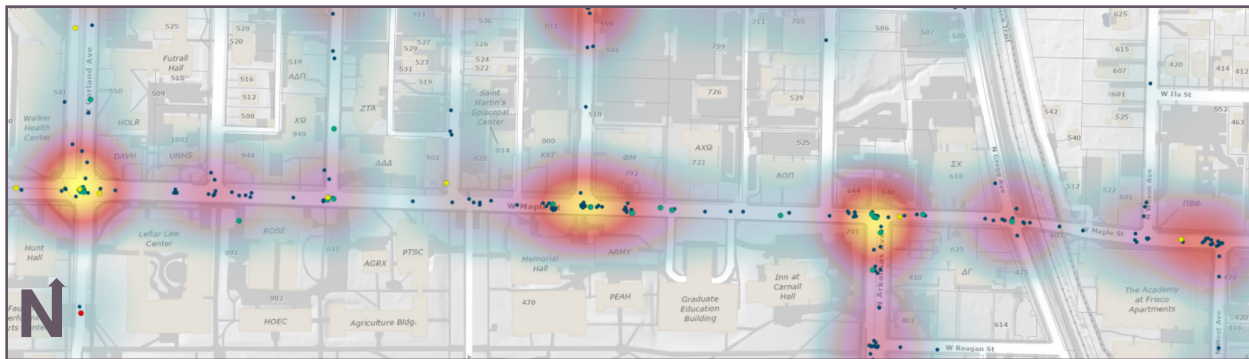


Figure 18. A map demonstrating collisions from 2014-2019. "Hotter" areas represent a higher density of collisions. (Source: <https://maps.fayetteville-ar.gov/engineering/crashes/>)



# ENVIRONMENTAL SUSTAINABILITY

By reprogramming the existing inefficient hardscape with multimodal transportation features and increasing the amount of permeable greenspace the Complete Maple Street project brings significant stormwater and air quality related environmental benefits. Added vegetated greenspace offers storm water infiltration reducing the environmental impacts from flash flooding and stormwater runoff into adjacent waterways. The added greenspace and street trees also reduce the urban heat island effects associated with the current hardscape conditions. Landscape plans for this project include planting of native flowering grasses and milkweed which provide important habitat for pollinator species and monarch butterflies. Air quality will also be positively impacted with this multimodal street cross section through reductions in transportation related air pollution and greenhouse gas emissions, reductions in vehicle miles traveled (VMT), and increased active transportation mode share. The addition of the cycle track, widened sidewalks,

improved transit stops serves to promote more energy- efficient transportation options including active transportation, mass transit and micromobility. The benefit cost analysis for this project projects a reduction of 28.2 million VMT over a 30-year period. Lowered VMT reduces transportation-related greenhouse gas emissions of 11,260 MTCDE. The project is supported by both the City of Fayetteville and the UA's climate action plans' targeted climate change mitigation goals and strategies. The UA's 2018 Climate Action Plan includes a mid-term goal of returning to 1990 emission levels (125,000 MTCDE) by 2021, and a long-term goal of achieving net carbon neutrality by 2040.<sup>16</sup> The City of Fayetteville's Energy Action Plan includes transportation specific goals of reducing per capita vehicle miles traveled to 2010 levels by 2030 and achieving a 25% bike/walk/ transit mode share by 2030.

The project is supported by both the City of Fayetteville and the UA's climate action plans' targeted climate change mitigation goals and strategies. The UA's 2018 Climate Action Plan includes a mid-term goal of returning to 1990 emission levels (125,000 MTCDE) by 2021, and a long-term goal of achieving net carbon neutrality by 2040.<sup>12</sup> The City of Fayetteville's Energy Action Plan includes transportation specific goals of reducing per capita vehicle miles traveled to 2010 levels by 2030 and achieving a 25% bike/walk/transit mode share by 2030.<sup>13</sup>



Figure 19. Rendering of environmentally sound streetscape improvements.  
(UA Community Design Center, 2019)

12 [https://sustainability.uark.edu/\\_resources/pdfs/university-of-arkansas-2018-climate-action-plan.pdf](https://sustainability.uark.edu/_resources/pdfs/university-of-arkansas-2018-climate-action-plan.pdf)

13 [https://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan\\_Final-Draft-?bidId=](https://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan_Final-Draft-?bidId=)

# QUALITY OF LIFE



Figure 20. Rendering of the final project with Razorback Transit bus.  
(UA Community Design Center, 2019)

Fayetteville is an economically and culturally vibrant city, consistently rated as one of the top places to live work and play.<sup>14</sup> However, Fayetteville also has neighborhoods that are identified as Areas of Persistent Poverty and Historically Disadvantaged Communities that would benefit from improved connectivity and expanded access to educational facilities, essential services, jobs, health care and other critical destinations. The City of Fayetteville Community Equity Profile<sup>15</sup> from 2018 focused on five key equity indicators: demographics, economic vitality, educational preparedness, health & wellbeing, and transportation & housing. The profile highlights the Maple Street project area, specifically Census Tracts 113 and 107.01, as having lower rates of car ownership and persistent poverty. This project helps to address some of these economic and systemic disparities, by removing transportation mode choice barriers, increasing accessibility

to jobs and educational opportunities, and reducing transportation costs for underserved communities.

Project planners explicitly and purposefully designed this project to enhance the quality of life for residents in the surrounding neighborhoods and for the commuters traveling through these areas. Underserved, overburdened and disadvantaged residents of this area will directly benefit from the improved connectivity and expanded equitable access this project will provide. These improvements proactively address income disparities and remove many of the barriers for individuals to access transportation, jobs, housing and opportunities. The “complete streets” focus of this project ensures that the improvements enhance the unique characteristics of this neighborhood and corridor to serve all users regardless of travel mode, socio-economic status or physical ability.

14 <https://realestate.usnews.com/places/arkansas/fayetteville>

15 <https://fayetteville-ar.gov/DocumentCenter/View/16670/2018-Fayetteville-Equity-Profile>



## MOBILITY AND COMMUNITY CONNECTIVITY

This project connects the community's largest center of employment and pedestrian activity, the UA campus, directly to the largest paved trail network in Arkansas. This project greatly increases accessibility for all users, particularly non-motorized travelers as it facilitates individuals to move freely without a car. The project greatly increases affordable transportation choices and revitalizes a street corridor that encourages people to live, work, and play within a walkable and bikeable urban environment. This project is a critical step towards aligning our campus into the broader community efforts to create a bicycle-friendly environment where everyone can share pathways together.

The UA developed a Campus Transportation plan<sup>16</sup> in 2015 through a data driven iterative process. More than 5,000 people participated in the plan development process through online surveys, stakeholder meetings, interactive project website and maps, open houses and workshops. The plan identifies the changing travel trends of young people primarily towards reduced driving trips and increased walking, biking, and transit trips. One of the key recommendations of the Campus Transportation Plan was to redesign major campus gateways to prioritize them towards walking, biking, and transit. The Plan identifies Maple Street as the "most direct and grade-friendly corridor" for connecting to the regional active transportation system and identified the leading campus gateway strategy as "creating last mile bicycle network connections".

The project connects to the Razorback Regional Greenway multi-purpose paved trail immediately east of the Maple Street bridge over the Arkansas Missouri Railroad tracks.<sup>17</sup> The importance of this project's connection to the greenway cannot be overstated. The region-wide greenway provides thousands of students, faculty and staff accessible

and affordable pedestrian and bicycle access to and from campus. Continuous shared-use paved trail counts show 265,000 total users. The project also increases accessibility and affordability for users identified as underserved, overburdened or disadvantaged by improving access to Razorback Transit. Razorback Transit is fare-free for all users and each bus is equipped to transport bicycles. Specifically, this complete street increases pedestrian and bicycle accessibility to and from three primary Razorback Transit stops. (See pg. 13 for more information.)

The project also connects with the Fayetteville Traverse natural surface trail which connect campus with surrounding neighborhoods, multiple city parks along its 20 mile course. The trail provides extra options for daily commutes and enhances the city and campus landscape to provide a one-of-a-kind experience that is uncommon throughout the nation.

In 2022, the University of Arkansas received a planning grant from the Walton Family Charitable Support Foundation to support efforts to become the preeminent university in the area of "smart mobility". Smart mobility – autonomous, electrified, interconnected and shared – is revolutionizing how we move goods and people and will disrupt transportation sector business models. This vision focuses on advancing next-generation transportation options and enabling technology. The work the UA is leading will transform traditional supply chains and fundamentally change transportation options. This project will further expand the campus and community transportation infrastructure and improve multi-modal access for students, faculty, staff and community members with the potential for providing a testing ground for small-scale autonomous vehicles<sup>20</sup>.

16 [https://planning.uark.edu/campus\\_planning/content/2015\\_transportation\\_plan\\_smry.pdf](https://planning.uark.edu/campus_planning/content/2015_transportation_plan_smry.pdf)

17 <https://www.nwarpc.org/razorback-regional-greenway/>

18 [https://parking.uark.edu/\\_resources/documents/Transit/Route26.pdf](https://parking.uark.edu/_resources/documents/Transit/Route26.pdf)

19 <https://parking.uark.edu/transit-services/transit-operations/maps-and-schedules.php>

20 <https://news.uark.edu/articles/60349/grant-to-develop-roadmap-for-smart-mobility-initiatives>

# ECONOMIC COMPETITIVENESS

This project supports economic competitiveness and opportunity through strategic investment in infrastructure to service a major regional economic engine. The UA drives many sectors of the regional economy as Fayetteville's largest employer with 4,841 high-quality good-paying jobs and an annual payroll of \$388.6 million.<sup>21</sup> The UA Center for Business and Economic Research estimated the University's economic activity was \$2.2 billion in 2018. This estimate included \$1.5 billion in recurring operational impacts and \$714 million in one-time construction impacts. Researchers estimated that each dollar appropriated to the UA from the state generated an economic return of \$13.56. Additionally, student expenditures in Northwest Arkansas were estimated at \$435 million in 2018. The bulk of this spending was for rent, utilities, transportation, food, fuel and entertainment. Student expenditures on items subject to sales tax such as restaurants, clothing, books, etc. amounted to \$138 million with an estimated \$9 million collected in state sales tax. Sales tax collected by local governments on these purchases was estimated at \$4.5 million.<sup>22</sup>

The project increases opportunities for burgeoning bicycle tourism and micromobility industries which benefit from this project. The project provides a safe route for people to ride bicycles and e-scooters to major sporting events, concerts and other events that regularly attract thousands of visitors to the UA campus.

The project is designed to be responsive to current vehicular throughput needs of 12,000 vehicles per day while also predictive of a bicycle and pedestrian future. Consistent UA growth and demand for additional parking and building spaces is resulting in an intentional park-once-and-walk paradigm. As this area continues to densify the need and desire for active transportation infrastructure also intensifies. Ultimately, this project provides students, staff and visitors with safe, reliable and timely access to UA campus. The designed transportation efficiencies inherent in this complete street cross section increase productivity and access to high-quality educational opportunities and jobs further improving the economic strength of Fayetteville and the Northwest Arkansas region.



Figure 21. International jobs fair at the Arkansas Union adjacent to Maple Street

21 <https://www.uark.edu/about/economic-impact/>

22 <https://www.uark.edu/about/economic-impact/resources/Economic-Impact-of-University-of-Arkansas.pdf>



# STATE OF GOOD REPAIR



*Figure 22. Inadequate stormwater infrastructure on Maple St. is overwhelmed by a common ½ inch rain event.*

Maple Street is part of the original street grid surrounding the UA campus, established in 1871, and has not undergone major renovation in over 60 years. As such many of the components of the street need repair or replacement. This project restores and modernizes this core infrastructure asset and improves access to vulnerable and underserved communities.

Maple Street currently has degraded subbase under the roadbed, non-compliant ADA ramps and slopes, and no accommodations for bicycles. The weakened roadbed combined with the large volume of transit and vehicular traffic requires more frequent pavement maintenance than other similar streets. City engineering staff has rated Maple Street with a Pavement Condition Index (PCI) of below 55 placing it in the ‘poor’ category. The sub-standard condition of the street, if left in disrepair, could impair the larger transportation network and limit mobility and economic growth for surrounding areas. Ultimately, the poor condition of this street and the lack of multi-

modal equity creates a situational weakness that unduly burdens the areas underserved and economically disadvantaged community that rely on walking, bicycling, and Razorback Transit for transportation. Upgrading and restoring the street to state of good repair addresses these vulnerabilities.

This project uses high-quality construction materials and methods to create an enduring street that can be affordably maintained through partnership between the UA and the City. Both the UA and City are adequately staffed and committed to the continued maintenance of street surfaces, landscaping and bicycle and pedestrian facilities. Long-term financial impacts of the project include a minor increase in maintenance costs for the University associated with the landscaping which shall be funded by the UA Facilities Maintenance Division. The reduction in pavement width from 36 to 22 feet eliminates over 36,000 square feet of asphalt and reduces long-term maintenance costs by \$126,000 over 30 years.

## PARTNERSHIP AND COLLABORATION



Figure 23. UA Chancellor and Fayetteville Mayor leading a community ribbon cutting event for a public bikeshare program in 2018

From its inception, this project has been a collaborative partnership between the City of Fayetteville, the University of Arkansas, the UA Center for Community Design and the Walton Family Foundation. This strong collaboration is demonstrated by the planning, design, administrative, budgetary, legal work and the political will necessary to get this project to its current “shovel-ready” state.

This project has earned broad community support from numerous governing bodies, advocacy groups and elected officials such as; Fayetteville Mayor Lioneld Jordan, UA Facilities Management Division, UA Associated Student Government Senate, Fayetteville City Council and Transportation Committee, the Northwest Arkansas Council, the Northwest Arkansas Regional Planning Commission, the UA Walton College of Business, Governor Hutchinson’s Advisory Council on Cycling, Bike NWA, State Representative Whitaker, U.S. Senator Tom Cotton, U.S. Senator John Boozman and U.S. Congressman Steve Womack.

An inclusive and extensive process of stakeholder engagement aided the planning of this project. The project incorporated input from more than 5,000 community

members during the University of Arkansas Transportation Master Plan process and the Fayetteville Mobility Plan. The final design was a collaborative process that utilized professional design guidance from Nelson Nygaard, Alta Planning and the UA Center for Community Design. The multi-year design process resulted in a project that incorporates input gathered from disadvantaged communities through the adoption of a Complete Street cross-section which addresses the immediate needs of underserved residents as well as the transportation demands of a growing region.

This project is entirely within existing right-of-way which minimizes disruption and helps to maintain community cohesion. The City of Fayetteville is responsible for bidding and project delivery. The construction management and quality control supervision of the selected contractor is a joint effort between the City of Fayetteville Public Works Department and the UA Facility Management team. The bidding process makes considerations for equity that meet or exceed the State and Federal requirements for Disadvantaged Business Enterprises and Davis Bacon Wage Rates.



# INNOVATION

The Complete Maple Street project employs innovative technological, financial and project delivery strategies to create an adaptable and resilient street that is safer, more sustainable and equitable for all users. The existing condition generates many vehicle and pedestrian conflicts that are addressed through innovative street cross-section design, travel mode separation, and equitable use of the right-of-way. The design presents opportunities to integrate cutting-edge conflict detection and mitigation technologies to create a safer and more efficient street. The project also utilizes data collection technology that measures travel mode usage and safety.

## **Innovative Technology:**

Technologies deployed in this project drive safety, equity and resilience for under served communities, those with disabilities, and all vulnerable roadway users.

Intersection signalization is designed to prioritize pedestrian, bicycle and other non-vehicular users. Signalized intersections include automatic pedestrian detection and use 3-second minimum leading pedestrian intervals (LPI's) for prioritization of pedestrians. Mid-block pedestrian crossings are enhanced with Rectangular Rapid Flashing Beacons alerting motorists of crossing pedestrians. These beacons (unlike push-button versions) are activated by infrared passive detection sensors located in bollards preceding the crossing. Dedicated bicycle traffic signals are used where the cycle track crosses a signalized street intersection. An "eco-totem" counter is utilized to record and display the number of bike and pedestrian users on the cycle track and sidewalk. Data collected from the counter shall be used to

demonstrate and measure the long-term impact of the project and help inform future street design projects.

## **Innovative Project Delivery:**

Management of the projects' construction process is a collaborative partnership between the UA and City construction management teams. Construction is phased to allow pedestrian, bike and transit use throughout the construction timeline while the vehicular traffic is detoured to adjacent streets.

This project serves as the catalyst for shifting travel mode behavior in favor of walking, biking, micro-mobility, and transit. Vehicular traffic is anticipated to be reduced due to traffic calming design, increasing congestion and the emphasis on alternative transportation modes. This aligns with the City's Energy Action Plan goals of reduced vehicle miles traveled and vehicle trips per day.<sup>23</sup>

The project is entirely within the existing right-of-way and meets NEPA requirements for a categorical exclusion which expedites the permitting process.

## **Innovative Financing:**

Design for the project was funded through a public-private partnership that included the UA, City of Fayetteville and the Walton Family Foundation. The University of Arkansas Community Design Center donated professional services in the refinement of the final design including the creation of complete digital graphic renderings. Financing for the project construction is also a collaborative partnership using a combination of University of Arkansas capital improvement funds and City of Fayetteville bond funding to provide the \$2 million in matching funds.

23 [https://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan\\_Final-Draft-?bidId=](https://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan_Final-Draft-?bidId=)



## V. PROJECT READINESS



**"This project features world-class design features that will enhance the safety, access, and appeal of the State's largest University for generations to come."**

*- Joe Jacobs, Chairperson, Arkansas Governor's Advisory Council on Cycling*



# PROJECT READINESS

As described throughout this application, the project is truly “shovel ready” as the project is located within existing public ROW with 100% construction designs complete and all matching funds secured. Environmental, technical and financial risks to this project are considered to be very low and indicate a high likelihood of a successful project.

## Environmental Readiness

NEPA documents are prepared for submittal to the Arkansas Department of Transportation (ARDOT) pending successful application and award of DOT RAISE grant funding. The project is pre-approved for categorical exclusion from ARDOT as all construction is planned within existing paved street ROW.

## Technical Readiness

The City of Fayetteville and University of Arkansas both have ample experience working with Federal agencies including the Federal

Highway Administration and USDOT. Both the City and UA possess the technical expertise, and dedicated resources and the capacity to successfully deliver the project in compliance with all Federal requirements.

## Financial Readiness

Availability of matching funds is guaranteed and obligated by the voter-approved transportation bond funding from the City of Fayetteville and through dedicated capital improvements funds from the University of Arkansas, an institution of the State of Arkansas. Construction pricing reflects actual bid prices from Emery Sapp & Sons construction firm using the 100% plans and specifications. Ongoing increases in construction costs have been factored into the updated budget with a 30% escalation for both labor and materials. Both the UA and City are appropriately capitalized to provide additional funds in the event that bids exceed the ten-million-dollar budget.

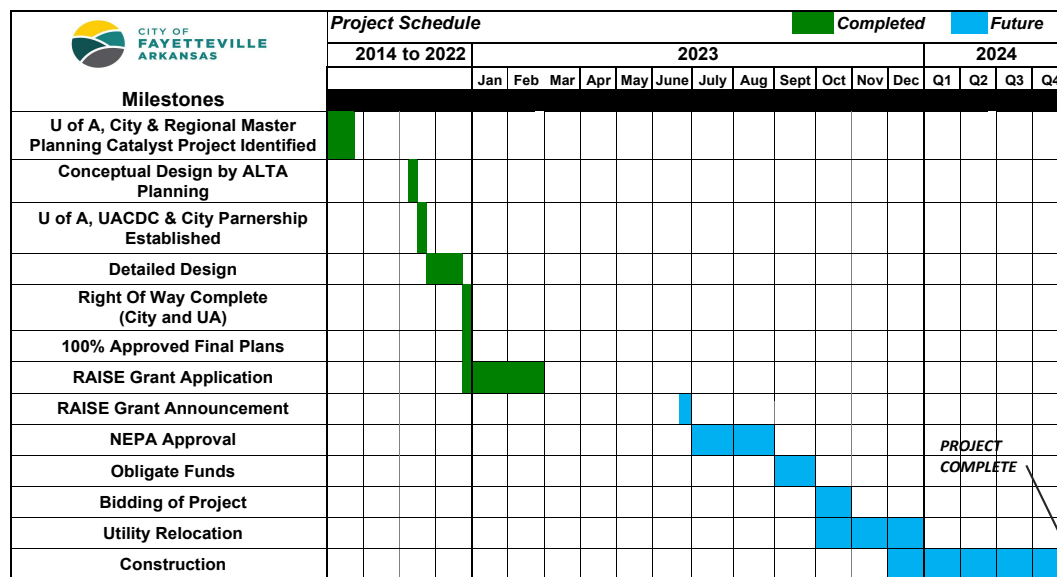


Figure 24. Project schedule and timeline.



## VI. BENEFIT-COST ANALYSIS





# BENEFIT-COST ANALYSIS

## Project Schedule

The 30-year benefit-cost analysis for the Maple St. Multi-Modal Connectivity Project was conducted in accordance with the methodology outlined by the U.S. Department of Transportation's February 2021 "Benefit-Cost Analysis Guidance for Discretionary Grant Programs" document. This benefit-cost analysis quantifies the projects impact in measurable ways such as: vehicular emissions reductions, vehicular operating cost savings, safety benefits, quality of life/health benefits, and operating and maintenance cost savings. This benefit-cost analysis omits benefits that are not quantifiable such as: increased transit usage, reductions in crashes due to enhancements, recreational benefits, or stormwater and drainage improvements. Escalation in construction costs between 2021 and 2022 did increase the project budget. The Benefit-Cost Ratio has been kept static as the value of the project's benefits are assumed to increase proportionally with inflation.

## 2021 Summary of Return on Investment

Benefit-Cost Ratio: 2.72

### Benefits Over 30-Year Period

#### Environmental

- Vehicular emission reductions from mode share shift - \$1.23 million
- Greenhouse Gas (CO<sub>2</sub>) reductions of 10,396 metric tons.

#### Quality of Life

- Healthcare savings from increased active transportation mode share - \$50.8 million

#### Safety

- Collision cost savings – \$5.7 Million

#### State of Good Repair

- Reductions in vehicle miles traveled due to mode-share shifts - \$12.1 million
- Roadway maintenance savings - \$142,431

#### Qualitative Benefits

- Reductions in stormwater flooding
- Parking reduction cost savings
- Increased use of public transportation
- Cycle track quality of life and economic development benefits



Figure 25. Rendering of the Oakland and Maple St. intersection. (UA Community Design Center, 2019)