

FY 2022 RAISE Discretionary Grant Program
U.S. HIGHWAY 127 CORRIDOR OPTIMIZATION PROJECT
DUNLAP, TENNESSEE



City of Dunlap, TN
Clinton P. Huth, Mayor
15595 Rankin Ave, Dunlap, TN 37327
mayorhuth@cityofdunlap.com
423.949.2115

CONTENTS

I.	Project Description.....	1
II.	Project Location.....	5
III.	Grant Funds, Sources and Uses of Project Funds.....	6
IV.	Merit Criteria.....	7
	a. Safety	
	b. Environmental Sustainability	
	c. Quality of Life	
	d. Improves Mobility and Community Connectivity	
	e. Economic Competitiveness and Opportunity	
	f. State of Good Repair	
	g. Partnership and Collaboration	
	h. Innovation	
V.	Project Readiness: Environmental Risk.....	25
	a. Project Schedule	
	b. Required Approvals	
	c. Assessment of Project Risks and Mitigation Strategies	
VI.	Benefit Cost Analysis.....	29
VII.	Appendix.....	A.1

CONTRIBUTORS:

Benjamin B. Farmer, ASLA, PLA, AICP
Principal and Managing Partner
Farmer | Morgan LLC



Lonnie Lanners, PE
Civil Engineer



David Dudley, PMP, PE
Civil Engineer and Project Manager

PROJECT DESCRIPTION

The U.S. Highway 127/Rankin Avenue corridor is a fast-growing socioeconomic center that serves the entire rural region. In addition to serving the residents, non-residents drive to the corridor from the surrounding counties to work and shop (including the only Wal-Mart in five counties), attend schools and churches, visit doctor's offices, pharmacies, banks, auto repair shops and other facilities offering professional services, patronize eateries and access the library, post office and other governmental facilities. Because of this significance, U.S Hwy 127 has experienced increases in traffic related accidents and fatalities, especially in recent years. According to TITAN crash data collected between 2011-2021, there were 459 motor vehicle collisions on Rankin Avenue within the project area (4,250 linear feet from the intersection of Old Highway 8 to the intersection of Highway 28 junction). Along this primary corridor, are multiple businesses and community amenities pedestrians and motorists attempt to access everyday with no protected buffer from traffic, non-continuous sidewalks, and limited access management to safely accommodate users. With the transportation improvements proposed in this grant application, the City is committed to improve safety conditions for all corridor users. **The total project cost has been estimated at \$15,411,906.11 and the City is requesting 14,641,310.80 (95%) in RAISE grant funding and is committed to provide a 5% local match of \$770,595.31**

In addition, Sequatchie County Schools (K-12) Campus is located adjacent to this busy rural thoroughfare. At the U.S. Hwy 127 / Hwy 28 intersection next to the campus, the plan proposes pedestrian improvements, including crosswalks, bike lanes, ADA sidewalks, lighting, and a "peanut" roundabout to calm traffic at this junction, where school children walk and bike to school from nearby low-and-moderate income neighborhoods. The Sequatchie County Schools campus houses elementary, middle school, and high school students, and has a 9% minority student population. The areas surrounding the campus lack sufficient pedestrian infrastructure to safely accommodate schoolchildren who walk and bike to and from school, or for those in need. With the complete streets interventions proposed in this project, children will have safe access to on-campus amenities and Accessible routes to adjacent neighborhoods. These improvements will serve local minority and low-income populations by creating increased Accessibility options through sidewalk and bikeway improvements as well as greater access to bus services, fostering equity and eliminating barriers to opportunity. Improvements along the corridor would tie into the bike and walking trail being proposed in the Integrated Campus Master Plan for Sequatchie County Schools currently underway. (Existing Facilities Map can be found in the Appendix)

Another challenge this project will address is flood conditions along the Rankin Avenue corridor. Because of Dunlap's location within the steep Sequatchie River basin, Dunlap is a severely flood-prone area. The historic flooding event of February 2019 significantly impacted residents and city services. These floods caused substantial damage to businesses and community infrastructure located along the Rankin Avenue corridor. Extensive damage occurred at schools, the senior center, the chamber, the local food bank, as well as many businesses. FEMA declared Sequatchie County a Presidential Disaster area due

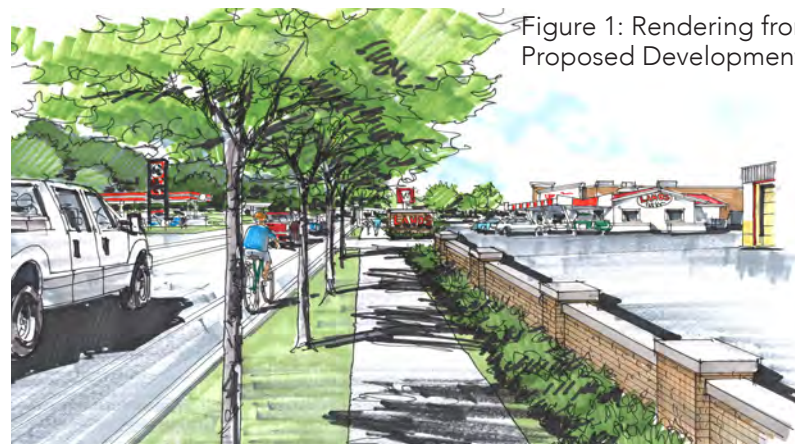


Figure 1: Rendering from Proposed Development

to the unprecedented floods. In summary, the U.S. Highway 127 Corridor Optimization Project will address multiple challenges for a rural community by achieving the following:

Economic Vitality and Job Creation - This project is critical to the efficient and safe movement of employees and commuters moving in and around the U.S. 127/Rankin Avenue corridor daily who access employment centers within the city, by providing multimodal transportation options in the form of dedicated bike lanes, improved sidewalk connectivity and Accessibility, and vital connections to public transportation to and from industrial and commercial areas, and the central business district.

Safety - The bridge reconstruction will replace the Coops Creek bridge that has a poor sufficiency rating and is a major conflict point for pedestrians and motorists. Pedestrian crosswalks, bike lanes and continuous ADA sidewalks will improve connectivity and provide safe, Accessible routes for all pedestrian users and provide protection from vehicular and truck traffic. The roundabout proposed at the U.S. 127/28 junction adjacent to the school campus will include traffic calming improvements alleviating a major conflict point/approach where traffic diverges at a high-intensity vehicle and pedestrian location, thereby making the area safer for all roadway users and reducing traffic-related accidents and fatalities.

Climate Change and Environmental Justice - The project addresses direct environmental impacts through the use of low maintenance design of project elements that tap into environmental sustainability. The project introduces LID principles for stormwater management along the corridor to help absorb excess flooding during extreme weather events and helps offset potential impacts to environmental justice populations within the planning area.

Racial Equity and Barriers to Opportunity The proposed project will provide increased Accessibility and mobility options through sidewalk and bikeway improvements as

well as greater access to public transportation services to and from nearby schools, the downtown, and adjacent LMI neighborhoods.

Connectivity and Reliability The project will provide improved access management solutions at intersections to reduce back-ups along the corridor and reduce congestion on a route that connects the downtown central business district to nearby neighborhoods and schools, and provides movement of goods and services, as well as a diverse labor force for Dunlap from the surrounding rural areas.

The Project consists of **SEVEN** discrete elements:

1. Re-engineered intersection of U.S. Highway 127 ("US 127") and State Route 28 ("SR 28") into a "peanut" roundabout to accommodate safer vehicle, bicycle and pedestrian interactions at a nearby school and commercial node
2. Re-designed right-of-way to include bicycle lanes and Americans with Disability Act (ADA)-compliant accessible pathways, in addition to vehicle lanes of travel
3. Best management practice (BMP) features for stormwater runoff management, including installation of 13,000 square feet of permeable pavers and 25,000 square feet of bioretention cells/planters with trees
4. New curbs and rationalized curb cuts to provide safe vehicle access management to and from the corridor roadway
5. Connections creating a new network of pedestrian walks, including 39 fully accessible crossing points, crosswalks, midblock crossings, pedestrian bridges, and pedestrian lighting and seating in the public right-of-way.
6. New Intelligent Transportation Systems (ITS) infrastructure consisting of linked video cameras to improve data collection for incident response by emergency coordinators
7. New wireless broadband infrastructure to provide high-speed Internet accessibility throughout the corridor.

THE PROJECT WILL HELP ADDRESS COMPLEX PUBLIC CHALLENGES IN A RURAL AND DISADVANTAGED REGION.

In recent years, the City of Dunlap has struggled with both transportation-related and non-transportation-related challenges, including:

- + Outdated US 127 corridor design supports a vehicle thoroughfare and does not accommodate current multimodal needs, including pedestrian and bicycle routes. The corridor has evolved over decades into an economic hub from its origin as a simple route leading out of the City. Continuing sprawl threatens a future dependence on vehicle transportation for corridor users, exposes them to associated traffic congestion problems and safety risks, and contributes to public health and environmental challenges. Without action, expected population growth will continue to worsen corridor vehicle congestion and preventable public health challenges.
- + The minor pedestrian infrastructure that exists in the corridor fails to meet U.S. Department of Justice Civil Rights Division ADA standards for accessible pathways within and to public facilities (<https://www.ada.gov/smtown.htm>). This infrastructure condition is particularly underserving when considering more than one in five Dunlap residents under 65 has a physical challenge and many who need to travel to healthcare facilities on the corridor do not have access to traditional transportation means. Additional information on health issues is provided in Section "Selection Criteria," Quality of Life.
- + Limited available funding through existing state and local infrastructure programs does not allow for transportation network development on a scale that provides efficient outcomes. Instead, investment cycle limitations force inefficient sub-phasing of projects in ways that may create further hazards or lead to undesirable and underserving projects that would create fragmented traffic lanes or pedestrian zones.
- + The current half-million square feet of impervious roadway surface in the Project area intensify stormwater management and flooding challenges for already-overburdened stormwater and sanitation systems, as well as impact drinking water sources. Recent significant flooding events have exacerbated these local conditions.
- + Brownfield sites on the corridor remain unoccupied because all of the major industries that have located in the region have chosen to build on greenfield sites beyond the corridor, thus exacerbating low-density development and sprawl.
- + Rural residents seeking broadband access are often forced to pay for expensive satellite-based services or fiber optic cabling to locations distant from existing nodes. Currently, when traveling to the corridor, these users seeking broadband high-speed Internet access must access these services at the public library or directly through a facility on the corridor; there is no available broadband Internet service in public spaces.
- + Repairing dilapidated corridor infrastructure through individual projects may cost more than efficiently coordinating work through this single project.
- + Recent economic developments have added manufacturing jobs to the region, and development pressures to the corridor. The corridor's recent designation as an Opportunity Zone will likely provide additional benefits and costs to the corridor.

The City of Dunlap is committed to addressing aforementioned challenges, which will require redesign of the corridor. The City's vision for the corridor's future development is to ensure that it can accommodate continued and projected growth as well as the anticipated increase in the number and type of transportation users. In fulfilling this vision, the City seeks to implement smart growth development policies in its core commercial district, anchored by the corridor. Effectively, the Project will change the character of the entire City to a bicycle and pedestrian-friendly community by creating the spine of a network linking to orphaned bike lanes and pedestrian pathways throughout the City. This will lead to vastly improved connections between people and facilities in Dunlap and the surrounding region. Future phases of this project, roughly estimated at \$30 million, can extend the redesigned corridor north along the full 2.5-mile US 127 corridor within Dunlap.

Recently, the City of Dunlap has focused on creating more transportation routes to safely accommodate pedestrians and bicyclists. Due to funding limitations, many of these projects are small and disconnected from each other. This project will create the core of a network that ties these previous successful projects together. Many of these projects were completed with financial assistance from the Tennessee Department of Transportation (TDOT).

The proposed project is part of a larger economic investment strategy in transportation, broadband and stormwater infrastructure. The result will be a **higher quality of life with better access to the corridor for all users, reduced healthcare costs, improved environmental conditions and longer-term economic stability.** In addition, the project will serve as a regional standard for rural communities that serve sparsely populated, outlying areas. Map to the right illustrates these projects in relation to US 127

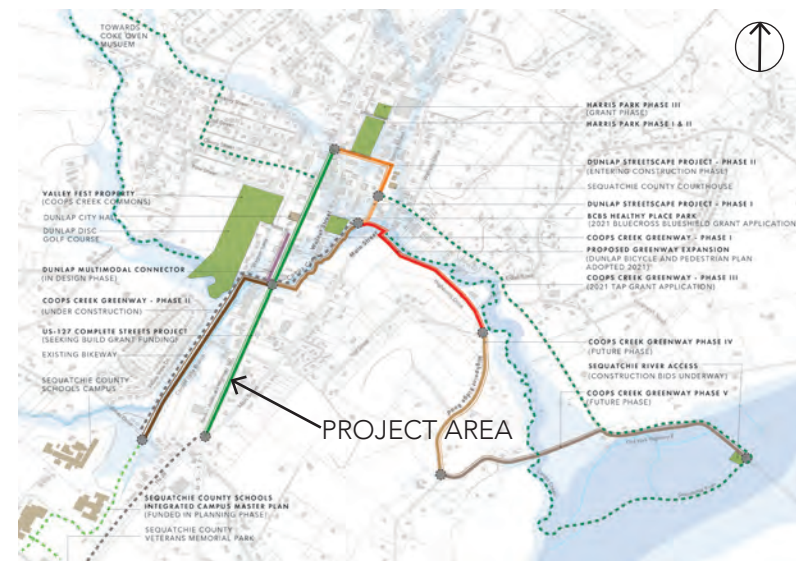


Figure 2: Map of Project Locations - also available in Appendix

Project Name	Project Description	Status
Harris Park Phase II	The \$1.5M Phase II adds a farmers' market, splash-pad and green space	Under Construction
Coops Creek Greenway Phase II	Construction of off-street path within TDOT right of way and privately donated easements along abandoned railroad right of way; crosses over Project area and connects the school campus	Completed 2018
Coops Creek Greenway Phase I	Construction of pedestrian bridge over Coops Creek; stops just before connecting to the Project area	Completed June 2016
SR 28 Bike Lanes	Construction of 3.4 mile segment of bike lanes along State Route 28 in Dunlap	Completed Spring 2016
Dunlap Streetscape Project Phase II	Connects Harris Park to Sequatchie County Courthouse	Currently under construction
Dunlap Streetscape Project Phase I	\$300,000 TDOT-grant funded project provides improved pedestrian access and drainage improvements along City right-of-way connecting Sequatchie County Courthouse to Coops Creek Greenway	Completed October 2015
Harris Park Phase I	\$800,000 project provides a public pavilion, green space and outdoor performance venue, as well as public restrooms, trees, and a walking track around park. Project has created the de facto city center for civic gatherings within the Business District	Completed 2015

Details on the Scope of Work are provided in "Project Readiness" Section

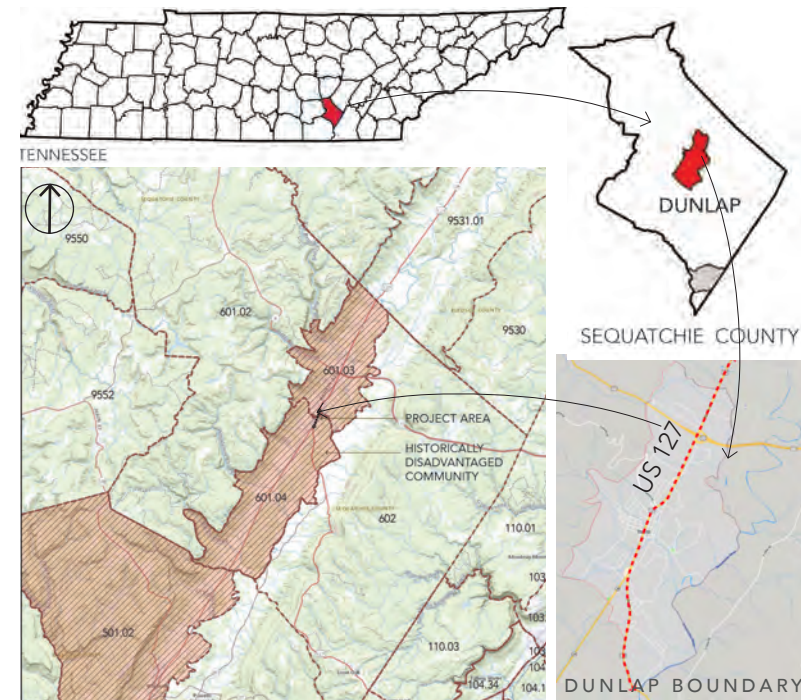


Figure 3: Project Locations with respect to Dunlap and US 127 Highway Locations

PROJECT LOCATION

The Project is located on TDOT-owned right of way at the southern end of US 127 in Dunlap, TN. The project area starts just south of the intersection of SR 28 (35°21'37.1"N 85°23'44.1"W) and continues north on US 127 to Church Street (35°22'22.9"N 85°23'23.8"W). US 127 continues south to Chattanooga, TN, and SR 28 continues southwest to Jasper-South Pittsburgh. Corridor users traveling north past the project area reach the US 111 overpass. US 111 links to Cookeville further north. To the east-southeast, US 111 extends to Highway 27, connecting just south of this intersection. Additional details on the Project location are provided in Figure 2, above.

Economic and Cultural Significance

The US 127 corridor bisects the City of Dunlap and serves as the major transportation and commercial corridor to the more than 5,000 residents of nearby neighborhoods on both sides of the corridor, and travelers from outlying areas of Sequatchie County, TN and surrounding counties. Commerce at businesses along the 2.5-mile US 127 Corridor in Dunlap typically produce roughly 95% of the \$1.1 million in annual sales tax revenues that are shared between the City of Dunlap and the State of Tennessee.

Historically Disadvantaged Community: The Project falls in Census Tract (CT) 601.01. According to the USDOT Transportation maps, CT 601.01. is recognized as a historically disadvantaged community also called transportation disadvantaged community. The census tract has a Transportation Access disadvantage, economic disadvantage, resilience disadvantage, and health disadvantage. (These disadvantaged factors are explained in further sections throughout the document).

GRANT FUNDS, SOURCES AND USES OF PROJECTS FUNDS

This section addresses project costs, sources and amounts of funding, and breakdown of project cost. A detailed budget is also provided in the Appendix. The City of Dunlap is requesting a RAISE Discretionary Grant in the amount of **14,641,310.80 (95%) and is committed to provide a 5% local match of \$770,595.31**. The City is committed to continue improving quality of life for residents across the region, by achieving the beneficial outcomes in transportation, social, economic and environmental areas that will be afforded by the Project. (Detailed Budget in Appendix)

U.S. HIGHWAY 127 CORRIDOR OPTIMIZATION PROJECT BUDGET			
Item	Local Match	RAISE Grant Funds	TOTAL
Preliminary Engineering Design (PE)	\$115,589.30	\$2,196,196.62	\$2,311,785.92
Right-of Way Utilities	\$12,843.26	\$244,021.85	\$256,865.10
Construction	\$642,162.75	\$12,201,092.34	\$12,843,225.09
TOTAL	\$770,595.31	\$14,641,310.80	\$15,411,906.11

If awarded, the City intends to undertake the Project through partnering with TDOT Local Programs Office. This method allows for time-tested procedures for coordinating work with TDOT, the right-of-way owner. The historical efficiency of this method ensures current FHWA and TDOT standards will be met and that appropriate accountability, and design and construction procedures will be followed. The City of Dunlap has managed many state- and federally-funded projects successfully. These projects were funded by such sources as Housing and Urban Development – Community Development Block Grants/Appalachian Region Commission funds, U.S. Department of Agriculture Rural Development, TDOT and Tennessee Department of Environment and Conservation- Local Parks and Recreation Fund funds. Each of these funding sources carries unique project management and construction requirements to complete the project successfully. The City has experience managing TDOT Transportation Alternatives Program (TAP) funding and currently has one TAP grant-funded construction project. In addition, The City has two TAP program grant projects in the preliminary engineering phase.

MERIT CRITERIA: SAFETY

SAFETY RISKS PERTAINING TO US 127

- + The US 127 corridor in Dunlap was designed for automobiles, with no safety features or accessibility for pedestrians and bicyclists. As the region's population has grown, the highway now has a dual role as both an arterial route and as a collector road, meaning vehicles are constantly turning on and off the road in the midst of through traffic. These turns occur in many locations, as few curbs/curb cuts exist along the right-of-way.
- + Pedestrians and bicyclists perceive safety risks on the corridor to be so high that they largely decline to use it. More than 42% of respondents to a recent survey of corridor users felt that it is "not safe at all" to walk along US 127. Another 35% felt it is "somewhat safe." Only 21% felt it was "sufficiently safe" and 3% felt "very safe" walking on the corridor. Survey results are provided in Appendix - "Corridor User Survey Results"
- + A fatal vehicle-pedestrian incident on US 127 in 2018, within the 2.5-mile economic corridor, but just outside of the Project's Phase I area, served as an unfortunate reminder of these safety risks for the community. In a news report on the fatal crash in the local paper, Dunlap Police Chief Clint Huth noted that "There are no sidewalks or marked crosswalks in the area" (<http://www.dunlapnews.com/article/?ID=1044>).
- + Sidewalks in much of the Project area are non-existent or badly in need of repair. Even in the densest part of the corridor, the right-of-way has neither consistent setbacks with paved sidewalks nor ADA-compliant/accessible curb ramps. The right-of-way lacks safe pedestrian crossings. Further, the lack of consistent bicycle lanes on the corridor forces vehicles and bicycles to share the right-of-way in areas where bicycles may not be expected. These conditions highlight that Safe routes to schools don't exist in Dunlap. Only recently have portions of U.S. 127 outside the Project area begun to include bike lanes, but they are not contiguous.
- + The Dunlap Police Department collects vehicle-related incident data in its TITAN Crash Data system. This data is used to inform decisions on vehicle-related safety risks.



Figure 4: Scene of the fatal crash



Figure 5: With no curb in the Project area, vehicles can enter the sidewalk at any place.



Figure 6: Separate bike lanes are not available, forcing mixed traffic.

Safety data indicate steady growth in the level of safety risk due to vehicle crashes consistent with long-term population growth in the region. City officials expect this trend to continue unless these safety risk factors are addressed.

US 127 Project will help improve safety for all corridor users

Through the Project, the City has identified opportunities to reduce safety risks for all corridor users. Primarily, the Project will provide separate lanes of travel for all types of corridor users. This alone will go a long way toward reducing safety hazards, even with anticipated growth in traffic.

Year	Total Crashes	Property Related	Injury Related	Total Injured	Fatality
2020 and 2021	124	79	45	71	0
2019	42	24	18	23	2
2018	24	17	5	9	3
2017	56	46	10	18	0
2016	45	37	8	10	0
2015	54	44	10	15	0
2014	42	28	14	20	0
2013	40	26	14	22	0
2012	32	21	11	18	0
TOTAL	459	322	135	206	5

The proposed peanut-shaped roundabout intersection at the southern end of the Project area where US 127 meets SR 28 offers the following benefits:

- + Reduces conflict points compared to a traditional intersection.
- + Lends harmony to a crossroads gateway to the downtown area.
- + Enables traffic calming and signals drivers to be on the lookout for pedestrians and bicyclists in the upcoming more densely populated area.
- + Accommodates the unusual dimensions of the US 127/SR 28 wide-angle intersection.
- + Adds four new safe pedestrian crossings for nearby elementary school students

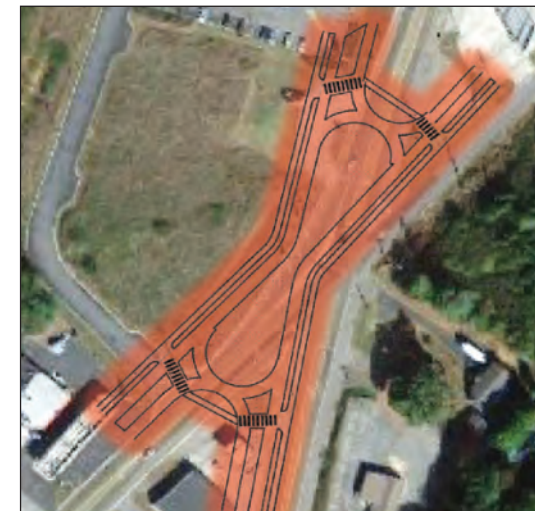
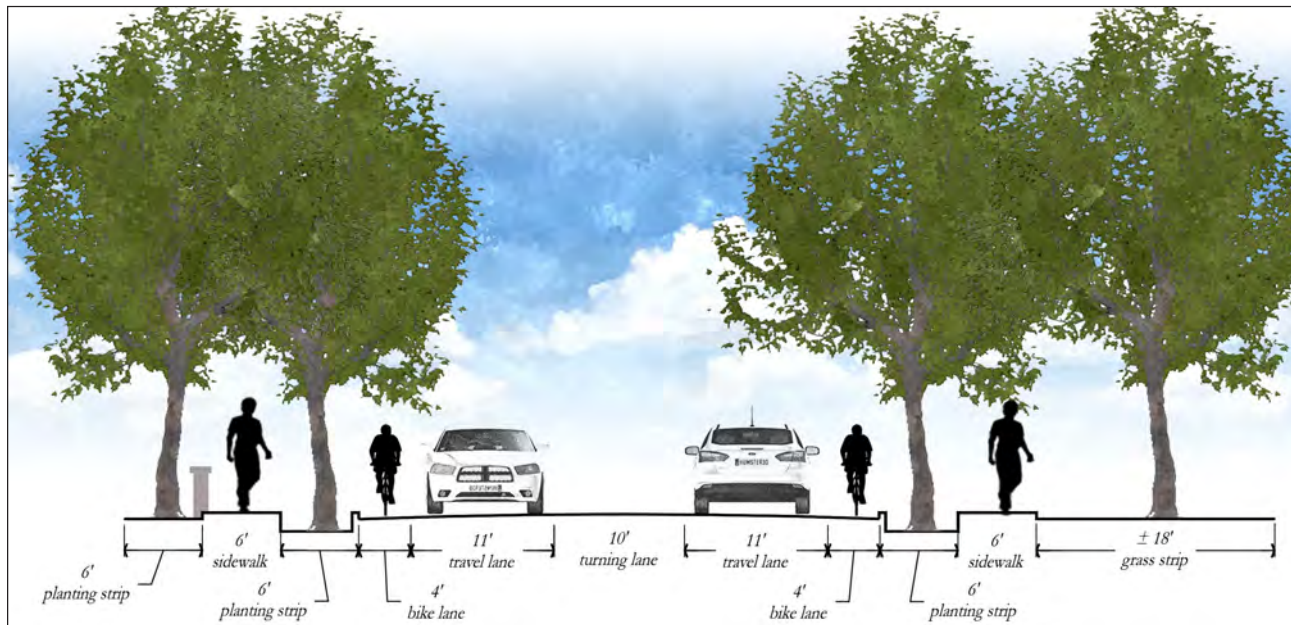


Figure 7: the peanut design will reduce conflict points at the intersection

Safer for vehicles: As mentioned, the Project will provide traffic separation for vehicles, bicycles and pedestrians. It also will provide curbs and limit curb cuts to force vehicles to enter and exit the roadway only in specific driveways. This will help reduce the number of potential conflict points with vehicles traveling along the right of way, while preserving access to each of the facilities on the corridor.

At the southern end of the corridor, the “peanut” design roundabout will reduce conflict points at the busy intersection of SR 28 and US 127. This design is expected to improve traffic flows and safety radically.

Safer for pedestrians: The Project will lead to significantly safer conditions for pedestrians using the corridor. The design will include 39 new ADA-compliant, accessible pedestrian crossing points along the corridor. In addition, the peanut redesign of the SR 28/US 127 intersection will provide a safer pedestrian route to the adjacent Sequatchie County Schools elementary school campus, particularly during daytime school and work hours. According to the Sequatchie County Schools Director, not many safe bike and walking routes to the school and other educational assets exist in Dunlap and this project helps connect many students from nearby LMI neighborhoods as explained in the Integrated Campus Master Plan for Sequatchie County Schools. The letter is provided in Appendix -“Letter from Sequatchie County School Director”



The improvements will help increase safety for all corridor users.

Figure 8: New bike lane designs

The Project will reduce the number, rate and consequences of crashes, fatalities and injuries among transportation users in the corridor.

One of the Project's primary goals is to transform the corridor to optimize its use for all types of users, including vehicles, bicycles and pedestrians. When successfully implemented, project planners anticipate that a modal shift will occur, allowing and encouraging people to make many local trips to and through the corridor on foot, or by bicycle. This will lower exposure rates for vehicle incidents and improve safety incident rates for all modes of travel in the corridor because the right-of-way will be re-engineered to promote best practices for safety. These design improvements and features include:

- + Replacing the wide-angle signalized intersection at US 127/SR 28 with a peanut roundabout with four pedestrian crossings
- + Adding 39 accessible pedestrian crossing points
- + Constructing delineated lanes of travel for vehicles, pedestrians and bicycles
- + Managing vehicle access to the corridor through curb installations and limited curb cuts
- + Installing audible and tactile crosswalks at each of the critical intersections
- + Installing appropriate warning and traffic signage within the Project area

These design features will lead to a reduction in overall safety risks as well as a more efficient flow of all types of traffic through and within the corridor. As detailed in the Benefit-Cost Analysis in Appendix, the Project will lead to safety improvements with an estimated total savings of \$81,211,788 in traffic-related incidents.

The Project may contribute to prevention of the unintended release of hazardous materials

The Project is not expected to have a significant impact on the prevention of unintended release of hazardous materials. Some of these shipments travel along the corridor, but it is unknown to what extent. The City has found that transportation accidents present the highest risk for hazardous material incidents and carry extensive costs for evacuation and cleanup (*Multi-Jurisdictional Hazard Mitigation Plan*, <https://sites.google.com/a/plansandmorellp.com/sequatchie-county-tn-hazard-mitigation-website>).

MERIT CRITERIA: ENVIRONMENTAL SUSTAINABILITY

The Project will reduce energy consumption and stormwater runoff, and achieve other benefits for the environment, such as brownfields redevelopment

The Project fosters significant environmental protection benefits, including improved energy efficiency and the resulting reduction in oil dependency, stormwater runoff mitigation and brownfield redevelopment, as described below. It is unlikely to lead to outcomes such as streamlined environmental reviews, avoidance of adverse environmental impacts to endangered species, and groundwater recharge in an area of water scarcity, especially in light of recent historic storm events.

Protection of the environment is valued in Dunlap, where the rural community is dealing with growth challenges, aging infrastructure and a desire to protect natural resources, including drinking water. For example, a recent survey of corridor

users indicated that more than 70% of respondents believe it is “critical” or “very important” that any major upgrades to U.S. 127 include stormwater protections to help reduce the flow of pollutants into Coops Creek. The survey results are provided in Appendix. This important watershed also generates recreational and tourism opportunities, as it was recently stocked with trout for fishing (<http://www.dunlapnews.com/article/?ID=1140>).

The Project will improve energy efficiency and reduce dependence on oil, while reducing congestion-related emissions

The Project will lead to lower dependence on oil, as other modes of transportation are supported in the corridor. As described in Section “Quality of Life,” many transportation users are likely to take advantage of options to utilize less energy-intensive modes of travel, such as walking or biking. These modes of travel are far less energy-intensive, and do not depend on oil as an energy source (<https://truecostblog.com/2010/05/27/fuel-efficiency-modes-of-transportation-ranked-by-mpg>). While some reduction in congestion-related emissions is expected, the Project’s impact is difficult to quantify, due to several factors, including vehicle traffic growth projections; modal shift patterns that result from the Project; and rate of change in vehicle technology impacting emissions, including changes in varieties of vehicle fuels/power sources used.

The Project will improve stormwater run-off management and water quality.

As described in further detail in Section IV.1.e, State of Good Repair, the City has significant stormwater runoff infrastructure challenges. Dunlap’s geological location in the basin of the Sequatchie Valley, combined with an unusually high water table, naturally intensifies the impacts of rainfall and floods are common. Flooding along Coops Creek identified in the 2013-2018 Dunlap-Sequatchie County Multi-Jurisdictional Hazard Mitigation Plan as the most frequently occurring identified hazard and greatest threat to its commercial and residential areas (<https://sites.google.com/a/plansandmorellp.com/sequatchie-county-tn-hazard-mitigation-website>). This is explained on page 34 of the report. “Furthermore, the extreme elevation from the top of ridge to the bottom of valley brings the storm drainage from the farthest reaches of the watershed into concentrated areas at a very quick rate. This unique watershed condition, combined with undersized culverts and channels, results in widespread areas impacted by flash flooding in and around the City of Dunlap.”

For infrastructure projects within the City of Dunlap, the City’s Stormwater Management Plan recommends the use of best management practices (BMPs), including permeable pavement, rain gardens, bioretention areas, constructed wetlands, cisterns, green roofs, and other similar practices that provide for cleaning the first inch of stormwater within a given storm (*Dunlap, TN Stormwater Management Assessment Report*” USDA Rural Business Development Grant, June 23, 2017, pages 39-40).



Figure 9: Coops Creek

The Project includes several of these features as appropriate, allowing the infiltration of stormwater, and thereby recharging the groundwater and providing water quality benefits of cleaning various pollutants from the first flush of a storm. These features will promote the on-site management of stormwater as opposed to sending it downstream along with any surface pollutants washed from the roadway. In addition, Dunlap Utilities Department Director Brandon Williford notes, (see Appendix), that using these BMPs, the Project can add critical capacity as a stormwater runoff management solution.

Specifically, the Project will contain more than 13,000 square feet of permeable pavers and 25,000 square feet of bioswales and planters that allow increased infiltration of stormwater and greater runoff mitigation capacity. These features reduce direct pollutants entering Coops Creek and the Sequatchie River watershed, a drinking water source.

Across the Project area, these BMP features provide a capability to manage the first 330,000 gallons of stormwater runoff from the right of way per rain event, saving this runoff from the overburdened city wastewater treatment infrastructure, from adjacent properties and from drinking water sources.

The Project will lead to Brownfield redevelopment and other environmental benefits

The corridor contains several Brownfield sites that have been passed over for redevelopment on many occasions due to factors such as cleanup costs or flood risks. The City is committed to redeveloping these infill sites along the corridor, and the Project will help incentivize their redevelopment. It accomplishes this by creating infrastructure to support a dense, walkable, bike-able commercial corridor, and relieving some of the stormwater runoff burden the roadway currently passes along to adjacent property owners.

In addition, the Project's streetscape design will allow for trees planted along the right of way to mitigate vehicle noise that can be heard in facilities immediately adjacent to the right-of-way. The trees will provide shade for pedestrians and air quality improvements for the region.

MERIT CRITERIA: QUALITY OF LIFE

The Project radically increases transportation choices for rural residents of the region, expands access and connectivity, facilitates broadband high-speed Internet access and reduces health risks.

The Project increases transportation choices for individuals and provides more freedom in making transportation decisions

The Project, at its core, provides significantly more transportation choices – for people who take the more than 15,000 daily trips on the corridor – including more than 5,000 local residents and others traveling from remote areas of rural Sequatchie Valley and beyond. Currently, people traveling to facilities on the corridor are forced to use vehicles as the sole method of travel. The Project will present new opportunities to walk or bike safely, to or between corridor facilities.

One class of corridor users will be particularly impacted by the project – specifically, pedestrians. Currently, the corridor does not adequately accommodate pedestrians, including differently-abled individuals, elderly or youth. According to U.S. Census Bureau data, the rate of people under age 65 with a physical challenge is 18.6% in Sequatchie County – 50% higher than the state average rate of 11.2%. In the City of Dunlap, this rate is 21.8%, or more than one in five residents under age 65 (<https://www.census.gov/quickfacts/fact/table/dunlapcitytennessee,sequatchiecountytennessee,tn/PST045217>). Further, the median age of Sequatchie County residents continues to increase, compounding demand for accessible transportation routes (<https://www.nrc.gov/docs/ML1219/ML12192A626.pdf>). In a majority of the Project area, there are no accessible crosswalks, pedestrian connections or bicycle lanes that encourage or establish standards for transportation uses other than vehicles.

Dunlap health care facility managers point to accessibility challenges that their patients endure with the lack of accessible routes on the corridor. Dr. Debbie Daniel, MD, and physical therapy provider Jennifer Ashley state that some of their patients lack traditional transportation needs to safely access their facilities on the corridor. Letter of support from Tennessee Department of Health is provided in Appendix. Future project phases may address transportation accessibility of the new \$32 million emergency clinic planned for the corridor outside the Project area. In all, the Project will have a major quality of life impact for the regional population by improving pedestrian accessibility on the corridor.

The Project expands access to essential services for rural communities and improves residents' connectivity to jobs, healthcare, and other critical destinations and services

As described in detail in Project Description, and Project Location, Dunlap is the county seat and socioeconomic center of the entire rural region. The Project corridor contains approximately 93 facilities, listed below.

- + 4 government buildings: U.S. Post Office, City Hall, public library and public meeting hall
- + Over 20 medical service providers and pharmacies
- + 2 churches
- + 3 banks and other financial service providers
- + 10 restaurants
- + 11 automotive sales, fuel and service
- + 7 health and beauty-related service providers
- + 2 real estate and other professional service providers
- + 7 specialty retail stores
- + 3 general retail merchandisers



Figure 10: Improved multimodal streets and Accessible sidewalks

The Project corridor also includes other social and business-related organizations, such as the Girl Scouts and the Chamber of Commerce. Other corridor facilities in the project area include parking lots, abandoned lots and private residences. The Sequatchie Public Schools elementary school campus is on the south end of the corridor, within feet of the proposed peanut-designed roundabout. Future phases of the corridor optimization project will extend to connect the only Walmart department store within five surrounding counties and a new emergency medical facility serving three counties.

A recent survey of corridor users revealed that 80% of respondents access the corridor to patronize restaurants; more than 61% avail themselves of professional services; nearly 56% receive medical services; and nearly 56% attend religious, social or civic services at facilities on the corridor. Survey results are provided in Appendix.

After completion of the Project, access to a vehicle will no longer be a pre-requisite to accessing essential services along the corridor for local residents. In addition, for those traveling by vehicle to the corridor, it will be possible to walk or bike between destinations on the corridor.

On the whole, the Project will improve connections between rural Americans and resources and services that contribute positively to quality of life.

The Project will allow concurrent installation of broadband deployment as an essential service

Recently, facilities along the corridor secured fiber-based broadband access (<http://www.timesfreepress.com/news/business/aroundregion/story/2016/sep/11/bledsoe-telephone-coop-adds-gig-service-sequa/385686>). The Project builds on this achievement by including the installation of wireless Internet access points throughout the project area in the corridor. This will give corridor users public access to the Internet without having to pay for expensive satellite-based or fiber optic cabling to locations distant from existing nodes. Wireless broadband availability will benefit residents of surrounding counties who access the corridor regularly for essential services and other socioeconomic purposes.

Public wireless broadband Internet access will make the corridor an even more attractive place to be and will spur economic activity. Furthermore, wireless connectivity will enhance an initiative by local schools to provide each student with an Internet-capable device. The City has secured a commitment from the broadband service provider, Bledsoe Telephone Cooperative Inc., to install appropriate equipment in conjunction with the Project and offer the wireless broadband service. A letter from Bledsoe Telephone Cooperative, Inc. is provided in Appendix.

The Project will improve quality of life for corridor users by providing improved opportunities to reduce health risks

The Project will decrease health risks substantially within the City of Dunlap and Sequatchie County by providing sound transportation alternatives. 28.7% of the adults living in Census Tract 601.01 have a disability. In Sequatchie County 21.9% of the community have a disability. In 2021 there were 9400 premature deaths in the County, 37% adults have obesity, and 25% are physically inactive and only 34% of the population have access to exercise opportunities. The Project will aid in improving health, provide fitness and exercise opportunities, thereby reducing health risks.

More than 36% of respondents intend to bike on the corridor, at least weekly, if safe biking lanes are made available, and 55% of respondents would bike on the corridor, at least monthly, under the same circumstances. These recent findings are consistent with previous community surveys that found corridor users will engage in more physical activity – including hiking and walking – if adequate infrastructure were in place to support these activities. In a 2016 City of Dunlap survey of preferred recreational activities, results showed that 53.2% of all survey respondents supported the development of hiking/walking trails in Dunlap (*City of Dunlap, Recreational Needs Assessment Analysis- Survey Results,* Farmer Morgan LLC, April 4, 2016).

The City of Dunlap is committed to designing and implementing The Project in a manner that will impact the health of residents, visitors and commuters positively. According to the Benefit Cost Analysis for the Project, the estimated annual health benefits of walking and biking within the proposed project area will save an estimated \$45,151,519 in healthcare costs within the Project area.

MERIT CRITERIA: IMPROVES MOBILITY AND COMMUNITY CONNECTIVITY

The Project will provide safe Accessible routes to schools, employment centers and improve the health and vitality of the community

Improved infrastructure for walking and biking provides numerous benefits for residents, workers and visitors. Accessible sidewalks, bike lanes and paths make walking and biking safer and more appealing, encouraging more people to try it. Traveling to work, school or stores on foot or by bike lets people work physical activity into their daily routines, which can improve their physical and mental health. As of 2021, 31% children in Sequatchie County were living in poverty and it is very important that a safe route to schools be provided to children so that they can access education, healthy meals, and access to exercise opportunities. Creating more transportation options makes it easier for workers to get to their jobs and lets people choose not to drive, which reduces congestion and emissions. From a business standpoint, many neighborhood-oriented retail and service establishments also see increased sales when access by bike or on foot is improved (<http://www.brookings.edu/research/papers/2012/05/25-walkable-placesleinberger>). The City has recently adopted its Bicycle and Pedestrian Plan (attached in Appendix) to focus on the health and access needs of its community which shows the commitment towards improving health factors for the City. The City recognizes that simply building infrastructure doesn't guarantee that people will use it. Additionally, a recent survey of Project corridor users found that nearly half of respondents would walk on the corridor at least once a week, if safe pedestrian facilities were available, Nearly 24% of respondents claim they would walk daily on the corridor under the same circumstances. Survey results are provided in Appendix.

The Project will have positive impacts on the movement of goods and people, efficiency of movement, reducing the cost of doing business, improving local and regional freight connectivity, reducing burdens of commuting and improving overall well-being

In addition to improving connectivity within the City of Dunlap, the Project will better connect the outlying regions of

Sequatchie County and surrounding counties with the primary socioeconomic center that rural residents depend on, with positive impacts to economic competitiveness as described below.

Decreased costs, improved access and overall well-being: The Project will reduce transportation costs and improve access for the rural community, through reliable and timely access to employment centers and job opportunities. In some locations on the Project corridor, the inefficient roadway design with few curbs and curb cuts, means vehicles can enter or exit the corridor at just about any point– sometimes unpredictably. Combined with the high usage of the roadway approximately average 15,000 vehicles per day – 12,566 AADT on the south end of corridor and 14,517 AADT on north end, this design feature is familiar to all local residents who know how difficult it sometimes can be to make a left turn onto the corridor (Source: <https://www.tn.gov/content/dam/tn/tdot/maps/2021-traffic-maps-with-aadt/SequatchieCounty2021Combined.pdf>). The Project will provide vehicle queuing at organized and predictable ingress and egress points, thus improving traffic flows. This will reduce trips times for all users of the corridor. Corridor users will bear fewer costs due to decreased congestion, modal choice (allowing for less expensive forms of transportation, such as walking or biking).



Figure 11: Congestion backups on the corridor

MERIT CRITERIA: ECONOMIC COMPETITIVENESS AND OPPORTUNITY

The Benefit Cost Analysis for this project predicts total savings of nearly \$36,434,430 in a 20 year period of project use owing to shorter trip times attributable to decreased congestion on this busy roadway. In addition, local residents biking or walking to corridor destinations can enjoy a predictable, less expensive and less burdensome commute, even if the trip ultimately takes longer. According to a recent survey of corridor users, half of the respondents replied that they access the corridor to commute to their job. Survey results are provided in Appendix.

The Project will improve long-term efficiency and reliability and will lower costs for the movement of workers or goods.

Long-term, sustainable benefits: As described above, the Project also will improve long-term efficiency, reliability and costs in the movement of workers or goods. These benefits are sustainable. After the turn of the Century, Sequatchie County became the fastest-growing of the 13 counties in the Southeast Tennessee/Northwest Georgia region, with a population growth rate of 19.4% during the 2000-2010 (<https://www.census.gov/quickfacts/fact/table/dunlapcitytennessee/PST045217>). While growth rates in Dunlap have slowed since that time with 10.8% growth between 2010 and 2020, they continue to be positive over the long-term.

The Project will accommodate anticipated long-term growth by maximizing both efficiency and capacity of right-of-way to accommodate all users. This will be done by expanding multimodal access and eliminating a portion of local vehicle trips

on the corridor. This corridor optimization will benefit both worker and supply chain movements through the corridor, as it will require fewer of them to depend on vehicle travel and will ensure the continued ability to accommodate growth of overall use of corridor. The result will be lower costs of transportation for workers and for the movement of goods.

City officials expect continued population growth, with proportional traffic increases, as described in Benefit Cost Analysis. They believe the City must act now to address these coming challenges, to ensure sustainable growth without sacrificing quality of life.

Increased economic productivity of land, capital and labor: The Project will increase economic productivity (land/capital/labor) by encouraging more concentrated, higher-density development along the corridor. This will lead to higher land productivity as lots are infilled, creating less space between them along corridor. In turn, businesses themselves will see increased productivity as suppliers can be more closely aligned to local businesses. Further, customers accessing facilities along the corridor will have improved accessibility to these facilities without having to drive to each individual building.

These Project goals are consistent with federal smart growth principles, specifically, "Encouraging business growth in specific locations, such as historic downtowns or other core activity centers, can help improve the overall quality of life for existing and future residents, workers, and visitors. This improved quality of life also translates into a competitive advantage for local businesses and is critical for strengthening the local economy (https://www.epa.gov/sites/production/files/2016-01/documents/small_

Summary of Improved Transportation Experiences for Corridor Users			
Traffic types	Less congested experience due to fewer vehicles making local trips	Choice of transportation options (walking, biking, driving)	Safer travel experience
Vehicle traffic	✓		✓
Bicycle traffic	✓		✓
Corridor visitors driving from outside the area (including commuters)	✓	✓ (Modal choice presented after arrival in corridor, e.g., walking to lunch or running errands to other destinations in the corridor)	✓
Local residents accessing corridor (including commuters)		✓	✓

town_econ_dev_tool_010516.pdf). Further, the ability to increase density allows for efficient use of the water, wastewater and other utility infrastructure, rather than extending the utility system to distant greenfield locations.

The Project will result in long-term job creation and other economic benefits

Long-term job creation and other economic benefits: The Project is likely to lead to long-term job creation and other economic opportunities, by several means, as described below.

- + **Creation of economic hub:** The project will provide infrastructure that will encourage further development by enabling efficient access for consumers to facilities and businesses on the corridor. There is direct evidence of economic success of similar projects in nearby Pikeville, TN, and the City of McMinnville, TN (https://www.tn.gov/content/dam/tn/health/documents/learningopportunities/TRRTN_Navigating_Our_Future_2013.pdf). In addition, the Pikeville, TN, project serves as TDOT's leading example of rural downtown redevelopment (https://www.tn.gov/content/dam/tn/tdot/documents/TDOT_CTPG_FactSheets_CompleteStreets.pdf). These examples demonstrate a precedence for cultural acceptance in the region of successful rural infrastructure improvement projects spurring economic development.
- + **Co-location of jobs and workers:** By enhancing quality of life for users of the corridor, including pedestrian and biking options, the Project will attract businesses to corridor and residents to nearby housing. This works two ways by ensuring a competitive labor pool for businesses located on corridor and access to jobs for local residents.
- + **Local supply chain development:** In addition to the local labor pool, large businesses in the region will benefit from local suppliers, as vendors take advantage of opportunities to provide goods and services to nearby large developments. These developments include the recent 100-worker expansion of the Precision Military Aerodynamics manufacturing site (<http://www.areadevelopment.com/newsItems/8-1-2016/precision-military-aerodynamics-dunlap-tennessee.shtml>), the recent announcement of the development of the Hubner Manufacturing Corporation plant to add 135 new jobs (number updated), and the new \$32 million Erlanger Emergency Clinic, a partnership between County/City and private sector planned for the northern end of the corridor. These developments and others will create economic opportunities for small businesses on the corridor.
- + **Developer incentives:** The Project's stormwater mitigation benefits will help incentivize concentrated development in brownfield sites on the corridor by helping adjacent property owners deal with flood risks and alleviating them of some of burden of dealing with stormwater runoff caused by the existing roadway infrastructure. The need to address stormwater runoff has an impact on pro formas for these vacant areas, hurting the competitiveness of these sites for development.

The Project will help the U.S. compete in a global economy by facilitating freight movement

Maximizing efficiency: The Project will help maximize efficiency of the existing infrastructure, making the rural region more competitive and improving the quality of life. Experts have cited rural America's ability to compete in a global economy, if sufficient infrastructure is in place. Such infrastructure includes broadband internet access and supply chain access

The Project supports local and regional economic competitiveness by bridging gaps in service in rural areas and attracting private economic development but it does not address congestion in a major urban area – whether through the use of congestion pricing or the deployment of advanced technology

The Project will result in the repair and upgrade of infrastructure needed to serve a vibrant, growing rural community for future decades. Broadband Internet upgrades providing service along the corridor to wireless users, development of pedestrian and bicycle accommodations, and stormwater runoff mitigation features – all will attract commerce and development to the corridor. As described above in the Pikeville, TN example, there is recent precedent for the success of this kind of infrastructure project in

the region. With the Erlanger Hospital giant in the Chattanooga area, just 35 minutes away, the Dunlap downtown commercial district supports a regional culture of health the area is known for. Erlanger Sequatchie Valley is located in Dunlap within the project area and serves residents of this dynamic region with 24/7 emergency services, as well as cutting-edge primary and specialized care. The clinic staff consists of board-certified cardiology, orthopedic, women's health, and primary care physicians

MERIT CRITERIA: STATE OF GOOD REPAIR

Sidewalks: The City of Dunlap currently is undertaking an audit to determine compliance with the Americans with Disabilities Act (ADA) standards for accessibility identified in the newly adopted Bicycle and Pedestrian Plan(attached in Appendix). Many of the community's sidewalks were designed and installed pre-ADA. This means they lack curb ramps and accessible crossings that can accommodate persons with disabilities. To keep up with expected continued growth of the community's aging populations, this project must address ADA compliance or pedestrian users of the corridor. The failure of existing infrastructure to keep up with current and future projected demand is underscored by the large number of Dunlap's residents who may require ADA-accessible facilities, as described in Section Quality of Life.

Bicycle lanes: The project area does not include any delineated bicycle lanes to ensure traffic separation and provide a cushion of safety. Demand for bicycle use on the corridor continues to grow, and the City of Dunlap has funded projects to include these features on adjacent portions of the corridor. Both the Parks and Recreation Master Plan and the Bicycle and Pedestrian Plan (attached in Appendix) recognize the project area as a Complete Streets project vital for connecting parks, residences, schools and downtown Dunlap. Additionally, a 2017 corridor management plan calls for any future improvements to U.S. 127 to include bicycle lanes (*Sequatchie Valley Scenic Byway Corridor Management Plan, June 2017*).

Stormwater Infrastructure: As detailed in Section IV.1.b, Environmental Sustainability, the stormwater infrastructure in the Project area needs repair. The right-of-way includes more than half a million square feet of impervious surface. This surface exacerbates stormwater runoff challenges for the City's already overburdened stormwater and sanitation systems as well as facilities adjacent to the right of way. According to City officials, deficiencies in the stormwater and wastewater systems are limiting economic growth for the city of Dunlap (*Dunlap, TN Stormwater Management Assessment Report," USDA Rural Business Development Grant, June 23, 2017, and Municipal Floodplain Zoning Ordinance, City of Dunlap*). The corridor's failure to manage stormwater runoff compounds stormwater management challenges for adjacent properties, which, in turn, impacts the competitiveness of these sites for redevelopment. Businesses interested in locating along the corridor must consider the burden of managing stormwater runoff from both the corridor roadway and their own property.

The impacts of flooding on the economy are evident in property damage and loss of revenue. Since 1998, the National Oceanic and Atmospheric Administration (NOAA) has listed 34 events as flash flood, flood, hail or heavy rain events in the area with one flood related death in 2011. These events combined for an estimated \$5,681,000 in property, life and crop damage. Five of these incidents were declared Federal Emergency Management Administration (FEMA) disasters. However, since 1978, the year FEMA started tracking payment statistics, Sequatchie County has received only \$117,119 in federal aid.

It must be noted, however, that the most recent flooding events in Sequatchie County have not been updated as entered by NOAA's National Weather Service (NWS). As recent as October of 2021, The state of Tennessee (particularly Sequatchie County and surrounding counties) were hit with historic torrential rains and storms that flooded and damaged homes, farmland, and businesses. In February 2019, roads, schools, and businesses were closed and the area was declared a Presidential Disaster Area. Dunlap was particularly affected due to its location within the Sequatchie River Valley basin. Shelters were set up along Rankin Avenue/U.S. 127 for the hundreds of families affected (Source: <http://www.dunlapnews.com/article/?ID=1866>; and <https://www.wrcbtv.com/story/40014222/multiple-dunlap-residents-being-evacuated-due-to-flooding>). According to the City Director of Utilities, 73% of the water treated at the City wastewater facility is stormwater runoff, and not strictly sewage. This inadequate stormwater infrastructure results in higher costs of water treatment and it taxes the existing infrastructure. To maximize labor efficiencies, the Project will be coordinated with additional stormwater infrastructure improvements the City has programmed in future years. This will obviate the need to continue to dig up these pipes for repair or maintenance purposes – thus providing savings to the City.

Broadband infrastructure: Recently corridor area facilities have secured broadband access through direct fiber connections to their facilities. However, many visitors to the corridor who come from outlying regions, including students, are limited in their access to these broadband internet services or must use those provided at the public library. The Project will expand access to broadband internet without the high cost of installing fiber optic cable from distant nodes to residences in outlying areas. Instead, corridor users will be able to access the Internet anywhere within the Project corridor, including in common areas.



Figure 12: Sidewalks in need of repair



Figure 13: Sidewalks lack ADA-complaint crossings



Figure 14: Inadequate Stormwater Infrastructure



Figure 15: February 23, 2019 flood impacting Dunlap commercial district - Flooding on Cherry Street, in downtown Dunlap (courtesy of the Sequatchie County Highway Department).

If left unimproved, the poor condition of the Project corridor will threaten future transportation network efficiencies, mobility of goods and accessibility, mobility of people and economic growth

Failure to address the current and future challenges posed by the corridor's state of infrastructure will have negative consequences for the Dunlap community and the entire region. These include continued sprawl and congestion along the corridor as the region's population grows, inefficiency of trips and use of the network, increased flood risks due to stormwater runoff, and a lack of infrastructure resilience. Additional consequences of this inaction include supply chain disruptions and continued inefficient economic development, promoting further reliance on vehicle trips.

The Project underscores the importance of preserving future mobility/network efficiency through incentivized development in the Project area, which will enable more efficient pedestrian and bicycle trips. Lack of adequate access to the corridor by these users constrains mobility and forces unnecessary vehicle trips. Many rural communities around the country have failed to address sprawl and are now

struggling with inefficient land use, inadequate infrastructure and degraded quality of life. The City of Dunlap is committed to implementing smart growth principles, in order to avoid such outcomes.

If awarded, the Project will be well-capitalized up front and will use asset management approaches that optimize its long-term cost structure

The project has strong support from elected officials and the community. The City has a history of delivering related projects, in partnership with the TDOT. This partnership includes both administrative, technical and funding participation. However, TDOT's existing programs for these types of infrastructure projects are limited in size. Maximum awards for TDOT's federally funded Transportation Alternatives Grant Program are around \$1 million and average award sizes are much less in monetary value. The TDOT Multimodal Access Grant program likewise is limited to \$1 million project sizes (<https://www.tn.gov/tdot/multimodal-transportation-resources/multimodal-access-grant.html>). These limits make RAISE grant funding a critical resource to complete the construction phase of the Project.

The City is committed to implementing an asset management plan to ensure long-term cost structure optimization. Also, it will fund continued operations and maintenance from its budget and sales tax revenues, 95% of which come from commerce along the corridor. The City expects that the Project will lead to economic development of the corridor and a corresponding increase in commerce/growth/tax revenues. This expectation is based on trends nationwide with projects of this type, growth patterns of the City of Dunlap and examples of success in nearby towns, as described in Section "Economic Competitiveness."

The Project includes a plan to maintain the transportation infrastructure in a state of good repair, including good condition of transportation infrastructure that supports commerce and economic growth

As described above, the City plans to develop and execute an asset management plan to maintain project infrastructure in a state of good repair, as part of its existing transportation infrastructure management program. This plan will include weekly maintenance of the corridor for removal of debris and for traffic control device inspection. In addition, the City will conduct annual inspection and maintenance, including watering and maintaining trees and plants in bioswales, and ensuring that pavement, markings, signage and traffic signals are functional.

As described in Project Description, the US 127 Corridor serves an important role in commerce and economic growth for both the local community and the broader region. The Project will further facilitate commerce and economic growth, as described above in Section Economic Competitiveness.

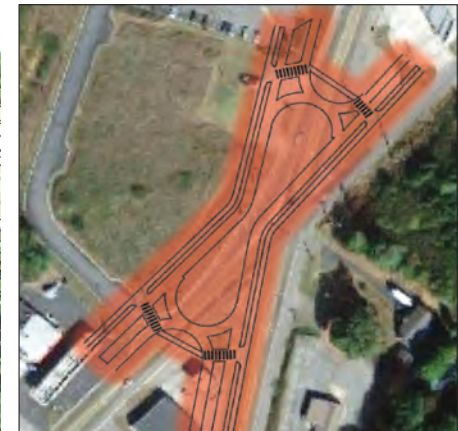


Figure 16: the peanut design will reduce conflict points at the intersection, increase safety and provide alternative means of transportation

MERIT CRITERIA: PARTNERSHIP

The Project involves a myriad of partners committed to the Project's common goals. These partnerships build upon previous stakeholder experiences concerning similar infrastructure projects already delivered by the City. Due to these successful experiences, City officials recognize the value of these partnerships and the importance of technical and other non-funding resources partners can provide in delivering infrastructure projects. Project partners are listed below.

Entity	Project Role
City of Dunlap	Applicant: Will take responsibility for project planning and delivery as well as ongoing maintenance of the Project.
Tennessee Department of Transportation	Technical and administrative partner: Will provide technical and construction management oversight services to deliver the Project, pursuant to federal funding requirements. Agency has provided funding to related project components with previous grants.
Sequatchie County	Partner: Will provide improved emergency response services in the Project area by utilizing ITS infrastructure components of the Project.
Bledsoe Telephone Cooperative, Inc.	Partner: Will coordinate to install infrastructure for wireless broadband access in the Project area.
Dunlap Utilities Department	Sister agency of Applicant: Will coordinate on design and construction of stormwater runoff management infrastructure elements of the Project.

The Project is expected to lead to additional economic growth in the corridor, which, in turn, will help generate additional non-federal revenue through sales tax collections. While the amount and timing of this funding is difficult to predict with certainty, the City intends to use these funds for transportation needs, including ongoing maintenance of the Project. In any case, the City expects to bear the burden of ongoing Project maintenance.

In addition to the technical and funding partners listed above, the City of Dunlap is pleased to work with other organizations and officials that provide leadership and support for the Project to the City and its development efforts. These include letters of support from some of these valuable partners are included in Appendix.

INNOVATION

Innovative technologies, project delivery and financing

The Project does not involve innovative project delivery or financing elements; however, it does involve several innovative elements pertaining to technology and design, as described below.

Toward autonomous and semi-autonomous vehicle infrastructure: The Project infrastructure design principles involve separating pedestrian lanes of travel from vehicle lanes within the right-of-way. This design can serve as a precursor to autonomous or semi-autonomous vehicle usage by providing a physical layer of safety to reinforce software-based technology. The Project design involves the use of sidewalks elevated from the roadway, and additional planting strips and bioswales to create space between vehicles and pedestrians.

Low Impact Development (LID) features: The use of LID features, such as permeable pavers and bio-retention cells, is unusual for rural southeastern U.S. communities, largely due to cost. However, the City of Dunlap is committed to the Project and has embraced a culture of environmental sustainability in all development projects it pursues.

Intelligent Transportation Systems: The Project involves installation of ITS infrastructure to allow the Sequatchie County Emergency Response Agency to improve monitoring of higher-risk vehicle crash sites in the project area. The improved monitoring technology will allow first responders to gain incident intelligence before deploying and provide appropriate service to keep the traveling public safe and traffic moving.

Broadband deployment: As described in Section "Quality of Life," the City is seeking to provide wireless broadband services to corridor users, a relatively innovative initiative for the rural community. **With recent economic development announcements for the area, this will be more important than ever for Dunlap and the project area.** The COVID-19 pandemic has taught us that access to broadband services is critical to organize and manage community in during emergencies. Employment, medicine, education, and health all are tied to the internet these days making broadband services a critical infrastructure. To empower the disabled, children and people with limited mobility, broadband services are vital and Dunlap wants to invest in the health and well being of its residents by providing these services through this project.

ENVIRONMENTAL RISK

PROJECT SCHEDULE

The Project concept plan and estimated project cost template illustrate the project components and provide unit quantities to undertake construction activities. The Project will require full preliminary engineering and TDOT approvals for design and environmental review. In addition, the Project will require TDOT right-of-way review and approvals for bid specifications and the engineer's cost estimate. The concept plan and Project cost template – together with the details on phase activities, below – serve as the detailed description of the scope of work for this application. The Project currently is in the Design Phase, described on the Project Schedule, below, based on previous public planning efforts. Designs/renderings are provided in Appendix.

Statement of Work Elements

Preliminary Engineering and Right-of-Way Preparation Tasks

- + Secure agreement with TDOT to provide contractor oversight/management services
- + Perform surveys/layouts for project area
- + Secure any necessary federal, state or local permits
- + Develop and complete Plans, Specifications & Estimates (PS&E) document
- + Develop right-of-way (ROW) design plans
- + Acquire any necessary ROW for the Project
- + Secure any necessary license agreements and easements, and ensure recordation of any deed filings
- + Develop preliminary design plans for the Project, up to 80% completion
- + Coordinate with Bledsoe Telephone Cooperative to develop plans for installation of equipment to support public Wi-Fi hotspots (labor only)
- + Develop and secure any utility relocation and certifications (only if not affected as a direct result of the Project)
- + Advertise the Project for public bid, and complete bidding phase of the Project, following federal and state procurement standards

Most, if not all, of the project will be built within existing state right-of-way. The Project will obtain authorization to build within the public right-of-way through the Tennessee Department of Transportation's (TDOT) license agreement review process, which will be coordinated by the Regional TDOT Right-of-Way Office. Based on the City's experience on previous projects, this review process typically concludes within six months.

Construction Phase Tasks

- + Conduct Stage 1 site preparation and demolition activities, including removal of obstructions, removal of concrete sidewalks, removal of asphaltic concrete pavement, and other tasks as needed
- + Conduct Stage 2 site preparation and demolition activities, including clearing, grubbing and removal of obstructions
- + Secure construction items/materials for project features, including seat wall, earthwork (e.g., general, drainage, structural excavation and backfill), curbs and gutters, concrete sidewalks, catch basins, pedestrian bridges, pedestrian ADA ramps, permeable pavers, striping for crosswalks and stop bars, striping for parallel parking, crosswalk signals, mast bar stop lights, ITS Signals / 911 Call Center Camera, and peanut roundabout
- + Secure landscaping materials, including trees, mulch, native species plantings, topsoil and seeding/sod
- + Secure materials for pedestrian amenities, including pedestrian lighting, lighting conduit and wiring, benches and bike racks
- + Perform Stage 3 construction tasks, including earthwork, curb and gutter construction, pouring of concrete/asphalt, installing ADA accessibility features, striping, and installing conduit and wiring for lighting and public Wi-Fi facilities
- + Perform Stage 3 construction tasks involving vertical structures and installing light poles (including foundations)
- + Perform Stage 3 landscaping tasks, including trees, shrubs, mulch, topsoil and seeding/sod
- + Install pedestrian amenities, including pedestrian lighting and bike racks

It is anticipated that this project will qualify for a NEPA Categorical Exclusion, as the project will not include significant impacts to planned growth or land use, will not require the relocation of significant numbers of people, will not have a significant impact on travel patterns and will not have any significant environmental impacts. Based on the City's previous experience, the Categorical Exclusion (CE) process typically takes 6-8 weeks to complete, and city staff are trained and experienced in submitting these requests. The project will be built within the TDOT ROW, a previously disturbed condition. All project components will only positively impact the environment through a reduction in impervious surfaces and utilization of sustainable Low Impact Development practices.

PROJECT SCHEDULE

The Project schedule delineates the required steps to move the project into the construction phase. The schedule follows previously experienced design, environmental reviews and right-of-way approvals for similar or more complex projects. There are no anticipated delays that would prevent the project from being complete on or before December 31st, 2028

REQUIRED APPROVALS

The City anticipates receipt of all environmental approvals within the enclosed schedule that follows the June 30, 2026, RAISE

Grant obligation deadline. The Project is located within an existing TDOT right-of-way that is in use and will be contained solely within the existing right-of-way. The initial step of defining the National Environmental Policy Act (NEPA) area of potential effect (APE) has been completed along with public involvement meetings related to the project. The NEPA review will require 20% preliminary plans for approval. Therefore, the NEPA review and permitting will be closely tied to a Categorical Exclusion (CE) due to the project causing lesser or mitigated social, economic or environmental impacts. The D-List Categorical Exclusion request will focus on the impacts having higher potential but still considered minor in nature thus allowing the proposed action to meet the criteria for a CE.

In 2017, the City of Dunlap held a charrette to solicit public input in developing a Sequatchie-Bledsoe Tourism Asset Development Plan. As part of this charrette, the City held several of public

RAISE IMPLEMENTATION SCHEDULE

Design Phase	Month	Year
Advertise for Consultant Engineering Services	November	2023
Select Consultant	November	2023
Verify that Consultant is on DOT pre-approved list	November	2023
Design Phase Public Involvement Meeting	February	2024
Meeting Notes to DOT Local Programs	February	2024
Completion of Preliminary Plans	October	2024
Submit Environmental Documents to DOT for Review	October	2024
Obtain Environmental Permits	November	2024
Submit Environmental Documents for Approval	December	2024
Right-of-Way Phase		
Hold ROW Public Involvement Meeting	January	2025
Meeting Notes to DOT Local Programs	January	2025
Submit Final Design Plans for Approval	March	2025
Submit Bid Specifications for Approval	March	2025
Advertisement for Construction Bids Reviewed	April	2025
Submit Engineer's Detailed Cost Estimate for Approval	May	2025
Utility Certifications Obtained	August	2025
Right-of-Way Certification obtained from DOT Right-of-Way Office	November	2025
Construction Phase		
Construction Phase Public Involvement Meeting	January	2026
Date of Advertisement for Construction Bids	May	2026
Date of Public Bid Opening	June	2026
Date Requesting DOT Concurrent	September	2026
Date to Begin Construction	January	2027
Project Completion	December	2028

meetings/visioning sessions regarding the use of the US 127 corridor. During these sessions, several issues arose about pedestrian safety (including roundabout design) in the corridor. In addition, the City conducted a brief survey of potential corridor user preferences in 2018. The survey results are provided in Appendix.

While the Project currently is not listed on the State Transportation Improvement Plan, there is clear recognition of the project need by state and local transportation planning officials at all levels, including by the Tennessee Department of Transportation Commissioner, as indicated in the letter from TDOT Interim Commissioner Joe Galbato, provided in Appendix. Public participation in decisions on the corridor has been strong. Project design principles and major project elements have been included in several corridor planning documents, including:

- + **Sequatchie Valley Scenic Byway Corridor Management Plan**, <https://sites.google.com/a/plansandmorellp.com/sequatchie-county-tn-hazard-mitigation-website>
- + **Sequatchie County and City of Dunlap Multi-Jurisdictional Hazard Mitigation Plan** <https://sites.google.com/a/plansandmorellp.com/sequatchie-county-tn-hazard-mitigation-website>
- + **Sequatchie Bledsoe Tourism Asset Development Plan**
- + **Dunlap, TN Stormwater Management Assessment Report**, Funding Provided Through USDA Rural Business Development Grant, June 23, 2017
- + **City of Dunlap 10 – Year Park and Recreation System Wide Master Plan** Completed in 2021
- + **Dunlap Bicycle and Pedestrian Plan**, adopted in August 2021 (attached in appendix)

The Project has broad public support, as evidenced by the many letters of support provided in Appendix and the survey results of corridor users, provided in Appendix. An existing and proposed projects' map is available in the Appendix.

ASSESSMENT OF PROJECT RISKS AND MITIGATION STRATEGIES

There are no known material risks that would prevent the Project from being constructed. The City of Dunlap has been through multiple design reviews for previously received grants that have followed a similar schedule as the Project. To eliminate potential delays, the City will engage and follow standard DOT Local Government Guidelines for design and bidding of the Project.

There are no known environmental uncertainties related to the project being in a previously constructed right-of-way that is in use. There are no known real estate acquisition costs with the Project taking place within the TDOT right-of-way and within municipal right-of-way. There are no known or expected procurement delays, including unusual materials proposed within the project area. Lastly, there are no legislative approvals required for the project once approved by USDOT.

BENEFIT-COST ANALYSIS

The U.S. Hwy 127 Corridor Optimization Project will provide several benefits to the City of Dunlap including: time savings for travelers passing through the economic corridor, injury reductions by reducing the potential for crashes through access management and provision of pedestrian and bicycle facilities, reductions in property damage causing crashes through access management and road diet strategies, and an increase in pedestrian and bicycle activity providing health benefits. The U.S. Hwy 127 Corridor Optimization Project has the potential to reduce the travel time through the site by implementing access management strategies and providing multimodal transportation options. This time reduction will save between 48,321 hours in the first year of project use to 49,189 hours in 20th year of project use with a total value of \$30,434,430. Additionally, these strategies will reduce crashes as a whole including those causing injuries and property damage. Savings from prevention of injuries and property damage crashes will be \$81,211,788 and \$811,505 respectively. This project will increase pedestrian and bicycle connectivity through the provision of delineated sidewalks and both dedicated and shared bike lanes. Through this increased use of alternate forms of transportation, additional bicycle use is valued at \$15,108,332 and increased walkability is valued at \$30,043,187. These gross benefits add up to a total of \$45,151,519. The total costs associated with the project are \$15,411,906, including an estimate for Operations & Maintenance of \$462,798. When compared, the **Gross Benefit : Cost ratio comes out to 10.2:1.**

In addition to these quantitative benefits, the U.S. 127 Complete Streets Project will qualitatively benefit the City of Dunlap through providing opportunities for community interaction, increasing outdoor exercise options, and shifting transportation modes to a more balanced street system that supports automobiles, bicyclists, and pedestrians in an equitable manner. Through the provision of multimodal opportunities, automobile trips can be reduced thereby saving time, and money. This project will improve connectivity, access, safety, health, and the general aesthetic of the community. By connecting with the other improvement projects in Dunlap such as the Dunlap Streetscape Project, Coops Creek Greenway, SR-28 Bike Lanes, and Harris Park improvements, the Corridor Optimization Project will provide the backbone for pedestrian and bicycle connectivity for the City of Dunlap. Overall, the U.S. 127 Corridor Optimization Project will benefit the City of Dunlap and commuters who pass through the corridor greatly by saving valuable time, protecting public safety and private property, increasing the general health of the community, and protecting the environment through the cleaning of stormwater.

BENEFIT		
Travel Time Savings	\$	30,434,430
Safety Savings	\$	81,211,788
3% NPV CO ₂	\$	2,156
Property Damage Prevention Savings	\$	811,505
Bicycling Health Savings	\$	15,108,332
Walking Health Savings	\$	30,043,187
Operations & Maintenance Costs	\$	(462,798)
TOTAL BENEFIT	\$	157,148,600

COST		
BUILD Funding Request	\$	14,178,953.62
City Match (8%)	\$	1,232,952.49
TOTAL COST	\$	15,411,906

BENEFIT : COST = 10.2:1

Benefit Cost = 10.2 : 1

Calendar Year	Project Year	Total Value of Time Saved (\$2018) ³	Total Value of Injuries Prevented ⁶	Total Value of Fatalities Prevented ²⁵	Property Damage Crashes Prevented ⁸	Health Benefits of Additional Bicycling ¹⁰	Health Benefits of Additional Walking ¹²	Initial Costs (\$2018) ¹⁷	Operations & Maintenance Costs (\$2018) ¹⁸	7% NPV Total Benefits ²²	3% NPV Total Benefits ²³	Total Gross Benefits (No Discount) ²⁴
2019	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15,411,906		\$ (14,403,651)	\$ (14,963,016)	\$ -
2020	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -
2021	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -
2022	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -
2023	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -
2024	6	\$ 1,169,811	\$ 855,213	\$ 1,948,628.59	\$ 30,343	\$ 1,373	\$ 26,009		\$ 77,060	\$ 2,634,929	\$ 3,311,678	\$ 4,031,377
2025	7	\$ 1,164,946	\$ 851,656	\$ 1,942,281.36	\$ 30,217	\$ 2,740	\$ 51,909		\$ 77,060	\$ 2,470,255	\$ 3,225,281	\$ 4,043,749
2026	8	\$ 1,160,101	\$ 848,114	\$ 1,935,960.52	\$ 30,091	\$ 4,101	\$ 77,702		\$ 77,060	\$ 2,315,820	\$ 3,141,067	\$ 4,056,069
2027	9	\$ 1,155,276	\$ 844,586	\$ 1,929,665.98	\$ 29,966	\$ 5,457	\$ 103,387		\$ 77,060	\$ 2,170,991	\$ 3,058,983	\$ 4,068,338
2028	10	\$ 1,150,471	\$ 841,074	\$ 1,923,397.61	\$ 29,842	\$ 6,807	\$ 128,966		\$ 77,060	\$ 2,035,175	\$ 2,978,978	\$ 4,080,556
2029	11	\$ 1,145,686	\$ 837,576	\$ 1,917,155.32	\$ 29,718	\$ 8,151	\$ 154,438		\$ 154,119	\$ 1,871,203	\$ 2,845,332	\$ 4,092,724
2030	12	\$ 1,140,921	\$ 834,092	\$ 1,910,938.98	\$ 29,594	\$ 9,490	\$ 179,804		\$ 154,119	\$ 1,754,168	\$ 2,770,957	\$ 4,104,840
2031	13	\$ 1,136,176	\$ 830,623	\$ 1,904,748.50	\$ 29,471	\$ 10,823	\$ 205,065		\$ 154,119	\$ 1,644,416	\$ 2,698,466	\$ 4,116,907
2032	14	\$ 1,131,451	\$ 827,169	\$ 1,898,583.77	\$ 29,348	\$ 12,151	\$ 230,221		\$ 154,119	\$ 1,541,497	\$ 2,627,814	\$ 4,128,923
2033	15	\$ 1,126,745	\$ 823,729	\$ 1,892,444.68	\$ 29,226	\$ 13,473	\$ 255,272		\$ 154,119	\$ 1,444,989	\$ 2,558,956	\$ 4,140,889
2034	16	\$ 1,122,059	\$ 820,303	\$ 1,886,331.11	\$ 29,105	\$ 14,789	\$ 280,219		\$ 462,357	\$ 1,250,083	\$ 2,299,765	\$ 4,152,806
2035	17	\$ 1,117,392	\$ 816,891	\$ 1,880,242.98	\$ 28,984	\$ 16,100	\$ 305,062		\$ 462,357	\$ 1,172,058	\$ 2,239,962	\$ 4,164,672
2036	18	\$ 1,112,745	\$ 813,494	\$ 1,874,180.16	\$ 28,863	\$ 17,406	\$ 329,802		\$ 462,357	\$ 1,098,878	\$ 2,181,662	\$ 4,176,490
2037	19	\$ 1,108,117	\$ 810,110	\$ 1,868,142.56	\$ 28,743	\$ 18,706	\$ 354,439		\$ 462,357	\$ 1,030,243	\$ 2,124,829	\$ 4,188,258
2038	20	\$ 1,103,509	\$ 806,741	\$ 1,862,130.07	\$ 28,624	\$ 20,001	\$ 378,973		\$ 462,357	\$ 965,872	\$ 2,069,430	\$ 4,199,978
TOTALS		\$ 17,045,408	\$ 12,461,369	\$ 28,574,832.20	\$ 442,135	\$ 161,567	\$ 3,061,265	\$ 15,411,906	\$ 3,467,679	\$ 10,996,925	\$ 25,170,143	\$ 61,746,576
								\$ 18,879,585				

* For a more detailed breakdown of the Benefit-Cost Analysis, see the Appendix & attachment "Dunlap_BUILD_Benefit Cost Analysis_2020.xlsx"

3 Hours at \$17.90 for All Purposes Personal Travel * 1.67 people per vehicle average occupancy for Passenger Vehicles (All Travel). From Benefit-Cost Analysis Guidance for Discretionary Grant Programs.

6 Value of Injury is based on Monetized Value of Injury Crash with a value of \$284,100. From Benefit-Cost Analysis Guide for Discretionary Grant Programs.

7 Crashes causing Property Damage were based on 2011-2021 Local Data of a 0.16% chance of property damage per car. (233 property damage crashes/146,734 AADTC { from 2011-2021} / 10 years)

8 Total Value of Property Damage Crashes Prevented was based on a \$4,500 value per vehicle. From Benefit-Cost Analysis Guidance for Discretionary Grant Programs.

10 Health Benefits of Additional Bicycling = Bicycles Utilizing Project * 1.6 miles/day (average trip length) * \$0.19/mile (Incorporating Health Objectives Into Transportation Planning by Todd Litman.) * 200 good weather days/year

12 Health Benefits of Additional Pedestrians = Pedestrians Utilizing Project * 1.8 miles/day (average trip length) * \$0.48/mile (Incorporating Health Objectives Into Transportation Planning by Todd Litman) * 200 good weather days/year

17 See Opinion of Probable Cost (OPC) Spreadsheet

18 2026-2030=Initial Costs * 0.005; 2031-2035= Initial Costs * 0.01; 2036-2045 = Initial Costs * 0.03

22 Undiscounted Benefits/(1.07^Project Year)

23 Undiscounted Benefits/(1.03^Project Year)

24 Total Gross Benefits = Total Value of Time Saved + Total Value of Injuries Prevented + Total Value of Property Damage Crashes Prevented + Health Benefits of Additional Cycling + Health Benefits of Additional Walking + NPV CO2 Costs @ 3% Avg SCC

25 Fatality risk per year baseline risk projected based on local crash data: 5 Operator and 1 Pedestrian fatality from 2011-2021 in expanded corridor; reduction of 28% in pedestrian risk due to Project based on national average of complete streets project outcomes (<https://smartgrowthamerica.org/app/uploads/2016/08/safer-streets-stronger-economies>); and expected consequences of fatality: \$12,071,000 per incident, per USDOT "Benefit-Cost Analysis Guidance for Discretionary Grant Programs"

APPENDIX

City of Dunlap, Tennessee | FY 2022 RAISE | Discretionary Grant Program

A. Letter of Introduction	2
B. Resolution	3
C. Budget.....	4-5
D. Corridor Users Survey Results	6-9
E. Letter from Sequatchie County School Director.....	10
F. Letter from Brandon Williford , Dunlap Utilities Department Director.....	11
G. Letters of Support	12-19
H. Existing Facilities Map	20
I. Existing and Proposed Projects	21
J. Designs/Renderings.....	22-30
K. Benefit Cost Analysis.....	31-40
L. Dunlap Bicycle and Pedestrian Plan.....	41-65



**THE CITY OF
DUNLAP, TENNESSEE**

15595 Rankin Avenue
P.O. Box 546
Dunlap, Tennessee 37327

CLINT HUTH
Mayor

Telephone 423-949-2115
Fax 423-949-3359
Email: cityofdunlap@bledsoe.net

Commissioners

BECKY CARD
BRYAN HARMON
JEFF HARMON
JUDY H. LAYNE

April 13, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg,

The City of Dunlap, Tennessee is pleased to submit a 2022 Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant application for our "U.S. Highway 127 Corridor Optimization Project." We believe this is a unique opportunity for the USDOT to partner with rural Tennessee on an infrastructure project that will make a substantial and positive impact on the lives of our citizens and visitors throughout the surrounding region.

The City of Dunlap is requesting \$14,641,310.80 in RAISE grant funding (95% of the Total Project Cost), and is committed to providing an 5% match, or \$770,595.31, for a Total Project Cost of \$15,411,906.11 for the U.S. Highway 127 Corridor Optimization Project. The funding will go toward "Complete Streets" interventions, including ADA-compliant sidewalks, bike lanes, and pedestrian crosswalks to improve safety for disadvantaged populations and those in need, a roundabout at a major intersection adjacent to our school, a bridge replacement across Coops Creek deemed unsafe for pedestrians and motorists, and stormwater management infrastructure to help absorb excessive flooding along our primary commercial corridor, U.S. Highway 127 (Rankin Avenue), that runs through the heart of our historic downtown.

The U.S. Highway 127/Rankin Avenue corridor is a fast-growing socioeconomic center that serves the entire rural region. In addition to serving our residents, non-residents drive to the corridor from the surrounding counties to work and shop (including the only Wal-Mart in five counties), attend our schools and churches, visit doctor's offices, pharmacies, banks, auto repair shops and other facilities offering professional services, patronize our eateries and access the library, post office and other governmental facilities. Because of this significance, U.S Hwy 127 has experienced increases in traffic related accidents and fatalities, especially in recent years. According to TITAN crash data collected between 2011-2021, there were 417 motor vehicle collisions on Rankin Avenue within the project area (4,250 linear feet from the intersection of Old Highway 8 to the intersection of Highway 28 junction). Those collisions consisted of 298 accidents with property damage, 117 collisions which caused injuries, and 4 collisions which involved fatalities. The 117 collisions with injuries consisted of 183 total individuals injured. The collisions which involved fatalities consisted of 6 total persons killed, in which one of those was a pedestrian attempting to cross the roadway. As is evident, these are significant numbers within a ten-year span. Along this primary corridor, are multiple businesses and community amenities pedestrians and motorists attempt to access everyday with no protected buffer from traffic, non-continuous sidewalks, and limited access management to safely accommodate users. With the transportation improvements proposed in this grant application, we are committed to improve safety conditions for all corridor users.

In addition, our Sequatchie County Schools (K-12) Campus is located adjacent to this busy rural thoroughfare. At the U.S. Hwy 127 / Hwy 28 intersection next to the campus, we have proposed pedestrian improvements, including crosswalks, bike lanes, ADA sidewalks, lighting, and a "peanut" roundabout to calm traffic at this junction, where school children walk and bike to school from nearby low-and-moderate income neighborhoods. The Sequatchie County Schools campus houses elementary, middle school, and high school students, and has a 9% minority student population. The areas surrounding the campus lack sufficient pedestrian infrastructure to safely accommodate

schoolchildren who walk and bike to and from school, or for those in need. With the complete streets interventions proposed in this project, our children will have safe access to on-campus amenities and Accessible routes to adjacent neighborhoods. These improvements will serve local minority and low-income populations by creating increased Accessibility options through sidewalk and bikeway improvements as well as greater access to bus services, fostering equity and eliminating barriers to opportunity.

Another challenge this project will address is flood conditions along the Rankin Avenue corridor. Because of our location within the steep Sequatchie River basin, Dunlap is a severely flood-prone area. The historic flooding event of February 2019 significantly impacted our residents and city services. The city experienced severe flooding with local roads completely submerged and many people evacuating the area. These floods caused substantial damage to businesses and community infrastructure located along the Rankin Avenue corridor. Extensive damage occurred at schools, the senior center, the chamber, the local food bank, as well as many businesses. Downtown municipal buildings and businesses were submerged and sustained significant water damage. FEMA declared Sequatchie County a Presidential Disaster area due to the unprecedented floods. In response to increased intensity and frequency of storm events, and corresponding with our local Hazard Mitigation Plan, any new infrastructure planning for our city must prepare for the impact of climate change on our local utility systems. By implementing Best Management Practices and Low Impact Design principles for stormwater management along the corridor, we are committed to address and offset the multiplier effects of climate change on our environment.

In summary, we feel the U.S. Highway 127 Corridor Optimization Project will address multiple challenges we have as a rural community by achieving the following overall goals:

- **Economic Vitality and Job Creation** – This project is critical to the efficient and safe movement of employees and commuters moving in and around the U.S. 127/Rankin Avenue corridor daily who access employment centers within the city, by providing multimodal transportation options in the form of dedicated bike lanes, improved sidewalk connectivity and Accessibility, and vital connections to public transportation to and from industrial and commercial areas, and the central business district.
- **Safety** – The bridge reconstruction will replace the Coops Creek bridge that has a poor sufficiency rating and is a major conflict point for pedestrians and motorists. Pedestrian crosswalks, bike lanes and continuous ADA sidewalks will improve connectivity and provide safe, Accessible routes for all pedestrian users and provide protection from vehicular and truck traffic. The roundabout proposed at the U.S. 127/28 junction adjacent to the school campus will include traffic calming improvements alleviating a major conflict point/approach where traffic diverges at a high-intensity vehicle and pedestrian location, thereby making the area safer for all roadway users and reducing traffic-related accidents and fatalities.
- **Climate Change and Environmental Justice** – The project addresses direct environmental impacts through the use of low maintenance design of project elements that tap into environmental sustainability. The project introduces LID principles for stormwater management along the corridor to help absorb excess flooding during extreme weather events and helps offset potential impacts to environmental justice populations within the planning area.
- **Racial Equity and Barriers to Opportunity** – The proposed project will provide increased Accessibility and mobility options through sidewalk and bikeway improvements as well as greater access to public transportation services to and from nearby schools, the downtown, and adjacent LMI neighborhoods.
- **Connectivity and Reliability** – The project will provide improved access management solutions at intersections to reduce back-ups along the corridor and reduce congestion on a route that connects the downtown central business district to nearby neighborhoods and schools, and provides movement of goods and services, as well as a diverse labor force for Dunlap from the surrounding rural areas.

Taken together, we believe these improvements proposed in the U.S. 127 Corridor Optimization Project will address significant safety, economic, and environmental needs throughout the transportation system, and will bring about a transformative change in the way we plan, address, and overcome pervasive challenges in local planning efforts toward a more inclusive environment and transportation for all.

As a community, we are committed to address these challenges head-on through local planning efforts such as this, and we hope you will closely consider this application as you have in the past. We look forward to the opportunity to partner with the USDOT to make a lasting difference in the lives of our Sequatchie Valley residents and visitors for many years to come.

Sincerely,

Clinton P. Huth
Mayor, City of Dunlap

Resolution No. 2022-4

A RESOLUTION OF THE CITY OF DUNLAP FOR A
2022 USDOT RAISE Discretionary Grant Program
GRANT APPLICATION
U.S. HIGHWAY 127 CORRIDOR OPTIMIZATION PROJECT

WHEREAS, the City of Dunlap desires to improve safety and efficiency of the existing right-of-way of U.S. Highway 127 by replacing the existing bridge across Coops Creek and adding sidewalks, shared vehicle/bicycle lanes, pedestrian lighting, roundabout, and LID principles for decreasing stormwater runoff into Coops Creek. This proposed complete street intervention will improve safety, circulation, economic vitality, and the environmental impact of the right-of-way within the economic corridor of U.S. Highway 127.

WHEREAS, the City of Dunlap is eligible to apply to the United States Department of Transportation (USDOT) for Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant funding.

WHEREAS, engineers have estimated a total project cost of \$15,411,906.11; and

BE IT THEREFORE RESOLVED, by the Board of Mayor and Commissioners of the City of Dunlap, Tennessee, that the Board authorizes the mayor to submit an application, including all the understandings and assurances contained therein, to the United States Department of Transportation (USDOT) for Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant funding not to exceed \$14,641,310.80 and is committed to provide an five percent (5%) match not to exceed \$ 770,595.31.

BE IT FURTHER RESOLVED, that after the solicitation for engineering services is performed, and should Farmer | Morgan not be selected for the project engineering services, the City shall pay a 3% fee of the grant amount in compensation for preparation and services of the grant application.

BE IT EVEN FURTHER RESOLVED that this resolution shall become effective immediately upon approval and adoption by the Commission, the public welfare requiring it.

Adopted this the 7th day of April, 2022

ATTEST:


Norman D. Hatfield, City Recorder


Clinton P. Huth, Mayor



BUDGET: U.S. Highway 127 Corridor Optimization Project 2022 RAISE Discretionary Grant Application

ESTIMATED PROJECT COST

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL	95% RAISE FUNDS	5% LOCAL EXPENSE
------------------	------	----------	------------	-------	-----------------	------------------

Stage I – Preliminary Engineering/Design (PE)

Preliminary Design Plans (up to 80%)	LS	1		\$ 1,849,428.73	\$ 1,756,957.30	\$ 92,471.44
Local, State and Federal Permits	LS	1		\$ 231,178.59	\$ 219,619.66	\$ 11,558.93
Plans, Specs & Estimates (PS&E) Document Completion	LS	1		\$ 231,178.59	\$ 219,619.66	\$ 11,558.93
SUBTOTAL of PE expenses				\$ 2,311,785.92	\$ 2,196,196.62	\$ 115,589.30

Stage II – Right-of-Way/Utilities

ROW Design Plans	LS	1		\$ 154,119.06	\$ 146,413.11	\$ 7,705.95
ROW Acquisition	LS	1		\$ 51,373.02	\$ 48,804.37	\$ 2,568.65
License Agreements, Easements, Recording Fees	LS	1		\$ 51,373.02	\$ 48,804.37	\$ 2,568.65
SUBTOTAL of ROW Expenses				\$ 256,865.10	\$ 244,021.85	\$ 12,843.26

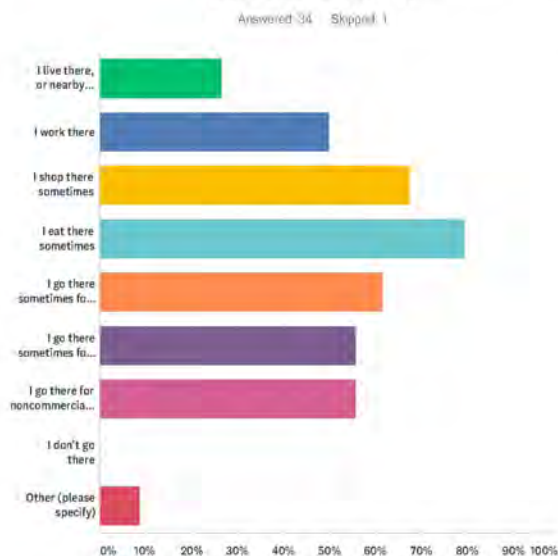
TDOT LINE ITEM #	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL	95% RAISE FUNDS	5% LOCAL MATCH
------------------	------------------	------	----------	------------	-------	-----------------	----------------

Stage III – Construction (CNST.) All projects must be competitively bid and awarded to the lowest responsive bidder

	Site Preparation & Demolition:						
	Removal of Obstructions	LS	1	\$ 101,000.00	\$ 101,000.00	\$ 95,950.00	\$ 5,050.00
	Removal of concrete sidewalks	SY	10327	\$ 20.00	\$ 206,540.00	\$ 196,213.00	\$ 10,327.00
	Removal of asphaltic concrete pavement	SY	2181	\$ 30.00	\$ 65,430.00	\$ 62,158.50	\$ 3,271.50
	Removal of bridge structure	LS	1	\$ 200,000.00	\$ 200,000.00	\$ 190,000.00	\$ 10,000.00
	Construction Items:						
	Seat Wall	LF	2000	\$ 100.00	\$ 200,000.00	\$ 190,000.00	\$ 10,000.00
	Earthwork (including general, drainage and structural excavation and backfill)	LS	1	\$ 100,000.00	\$ 100,000.00	\$ 95,000.00	\$ 5,000.00
	Curb and Gutter	CF	710	\$ 600.00	\$ 426,000.00	\$ 404,700.00	\$ 21,300.00
	Concrete Sidewalk	SF	62909	\$ 8.00	\$ 503,272.00	\$ 478,108.40	\$ 25,163.60
	Catch Basin	EA	50	\$ 3,000.00	\$ 150,000.00	\$ 142,500.00	\$ 7,500.00
	Pedestrian Bridges	SF	1200	\$ 300.00	\$ 360,000.00	\$ 342,000.00	\$ 18,000.00
	Pedestrian ADA Ramp	SF	3000	\$ 25.00	\$ 75,000.00	\$ 71,250.00	\$ 3,750.00

	pavement	SY		\$ 30.00	\$ 65,430.00	\$ 62,158.50	\$ 3,271.50
	Removal of bridge structure	LS	1	\$ 200,000.00	\$ 200,000.00	\$ 190,000.00	\$ 10,000.00
	Construction Items:						
	Seat Wall	LF	2000	\$ 100.00	\$ 200,000.00	\$ 190,000.00	\$ 10,000.00
	Earthwork (including general, drainage and structural excavation and backfill)	LS	1	\$ 100,000.00	\$ 100,000.00	\$ 95,000.00	\$ 5,000.00
	Curb and Gutter	CF	710	\$ 600.00	\$ 426,000.00	\$ 404,700.00	\$ 21,300.00
	Concrete Sidewalk	SF	62909	\$ 8.00	\$ 503,272.00	\$ 478,108.40	\$ 25,163.60
	Catch Basin	EA	50	\$ 3,000.00	\$ 150,000.00	\$ 142,500.00	\$ 7,500.00
	Pedestrian Bridges	SF	1200	\$ 300.00	\$ 360,000.00	\$ 342,000.00	\$ 18,000.00
	Pedestrian ADA Ramp	SF	3000	\$ 25.00	\$ 75,000.00	\$ 71,250.00	\$ 3,750.00
	Permeable Pavers	SF	13646	\$ 50.00	\$ 682,300.00	\$ 648,185.00	\$ 34,115.00
	Striping (Crosswalk & Stop Bars)	LF	1660	\$ 25.00	\$ 41,500.00	\$ 39,425.00	\$ 2,075.00
	Striping (Parallel Parking)	LF	605	\$ 15.00	\$ 9,075.00	\$ 8,621.25	\$ 453.75
	Crosswalk Signals	EA	22	\$ 30,000.00	\$ 660,000.00	\$ 627,000.00	\$ 33,000.00
	Mast Bar Stop Lights	EA	7	\$ 100,000.00	\$ 700,000.00	\$ 665,000.00	\$ 35,000.00
	ITS Signals / 911 Call Center Camera	LS	1	\$ 80,000.00	\$ 80,000.00	\$ 76,000.00	\$ 4,000.00
	Vehicular Bridge	LS	1	\$ 1,326,132.21	\$ 1,326,132.21	\$ 1,259,825.60	\$ 66,306.61
	Peanut Roundabout	LS	1	\$ 2,146,152.22	\$ 2,146,152.22	\$ 2,038,844.61	\$ 107,307.61
	**Landscaping:						
	Trees	EA	100	\$ 500.00	\$ 50,000.00	\$ 47,500.00	\$ 2,500.00
	Mulch	CY	240	\$ 35.00	\$ 8,400.00	\$ 7,980.00	\$ 420.00
	Native Species Plantings	EA	450	\$ 75.00	\$ 33,750.00	\$ 32,062.50	\$ 1,687.50
	Topsoil	CY	475	\$ 75.00	\$ 35,625.00	\$ 33,843.75	\$ 1,781.25
	Seeding/Sod	SF	22000	\$ 2.00	\$ 44,000.00	\$ 41,800.00	\$ 2,200.00
	Pedestrian Amenities:						
	Pedestrian Lighting	EA	106	\$ 3,000.00	\$ 318,000.00	\$ 302,100.00	\$ 15,900.00
	Public Wi-Fi Hotspots (Labor Only)	EA	8	\$ 2,000.00	\$ 16,000.00	\$ 15,200.00	\$ 800.00
	Lighting Conduit/Wiring	LF	8500	\$ 35.00	\$ 297,500.00	\$ 282,625.00	\$ 14,875.00
	Benches	EA	10	\$ 1,800.00	\$ 18,000.00	\$ 17,100.00	\$ 900.00
	Bike Racks	EA	8	\$ 1,200.00	\$ 9,600.00	\$ 9,120.00	\$ 480.00
	Mobilization and Traffic Control Costs:						
	Contractor Mobilization	LS	1	\$ 200,000.00	\$ 200,000.00	\$ 190,000.00	\$ 10,000.00
	Traffic Control	LS	1	\$ 150,000.00	\$ 150,000.00	\$ 142,500.00	\$ 7,500.00
	Construction Contingency	10%	of construction		\$ 921,327.64	\$ 875,261.26	\$ 46,066.38
	SUBTOTAL of Itemized Quantities above				\$ 10,134,604.07	\$ 9,627,873.87	\$ 506,730.20
	Mobilization and Administration Costs:						
	CNST. Survey & Layout	LS	1	\$ 175,000.00	\$ 175,000.00	\$ 166,250.00	\$ 8,750.00
	TDOT Oversight	5%	of construction		\$ 506,730.20	\$ 481,393.69	\$ 25,336.51
	Construction Engineering Inspection (CEI)	20%	of construction		\$ 2,026,920.81	\$ 1,925,574.77	\$ 101,346.04
	TOTAL of construction expenses				\$ 12,843,255.09	\$ 12,201,092.34	\$ 642,162.75
	TOTAL of ALL expenses				\$ 15,411,906.11	\$ 14,641,310.80	\$ 770,595.31

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

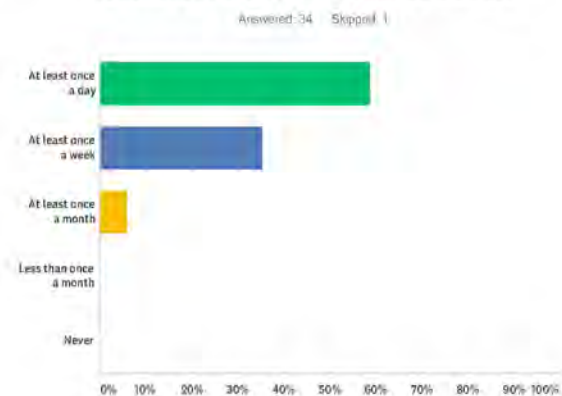
Q1 What is your connection with the Dunlap Central Business District?
(Check all that apply)

ANSWER CHOICES	RESPONSES	
I live there, or nearby within walking distance	26.47%	9
I work there	50.00%	17
I shop there sometimes	67.65%	23
I eat there sometimes	79.41%	27
I go there sometimes for professional services (i.e., legal, automotive, banking, etc.)	61.76%	21
I go there sometimes for medical/pharmacy services	55.88%	19
I go there for noncommercial reasons (i.e., church, civic or social clubs and activities, etc.)	55.88%	19
I don't go there	0.00%	0
Other (please specify)	8.82%	3
Total Respondents: 34		

1 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

Q2 Currently, how often do you or members of your household visit locations in the central business district?

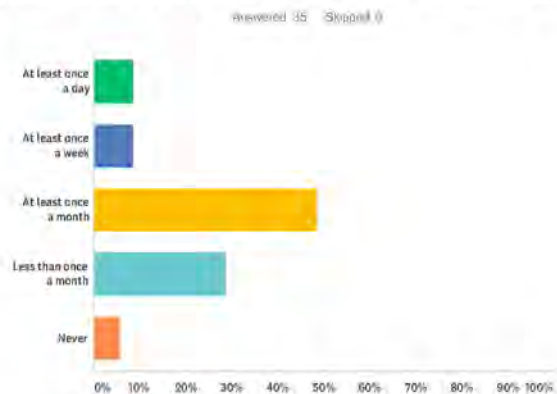


ANSWER CHOICES	RESPONSES	
At least once a day	58.82%	20
At least once a week	35.29%	12
At least once a month	5.88%	2
Less than once a month	0.00%	0
Never	0.00%	0
TOTAL		34

2 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

Q3 How often do you or members of your household visit locations in the Central Business District for health care/pharmacy services?

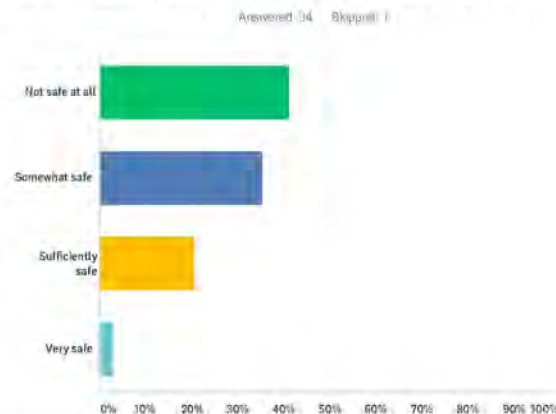


ANSWER CHOICES	RESPONSES
At least once a day	5.57%
At least once a week	5.57%
At least once a month	48.57%
Less than once a month	28.57%
Never	5.71%
TOTAL	35

3 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

Q4 Generally speaking, how do you feel about the level of pedestrian safety when walking along Route 127 in the Central Business District?

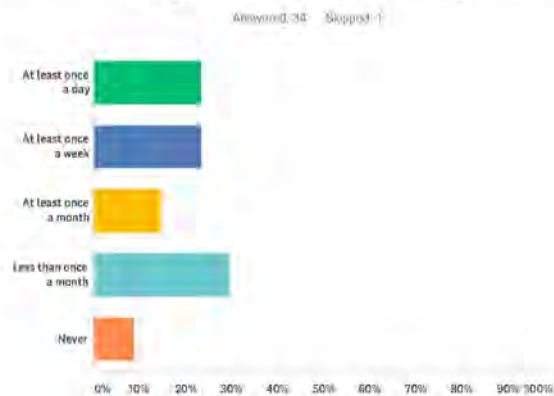


ANSWER CHOICES	RESPONSES
Not safe at all	41.18%
Somewhat safe	35.29%
Sufficiently safe	20.59%
Very safe	2.94%
TOTAL	34

4 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

Q5 If Route 127 in the Central Business District were safer to walk or bike, i.e., had sidewalks clearly separated from the roadway and well-marked, traffic signal-controlled or bridge pedestrian crossings, how often would you or members of your household walk to or between locations along this route instead of driving?

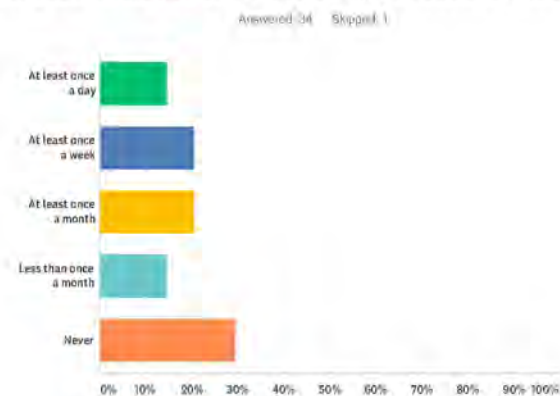


ANSWER CHOICES	RESPONSES	
At least once a day	23.53%	8
At least once a week	23.53%	8
At least once a month	14.71%	5
Less than once a month	29.41%	10
Never	8.82%	3
TOTAL		34

5 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

Q6 If Route 127 in the Central Business District included bicycle paths, how often would you or members of your household use them?



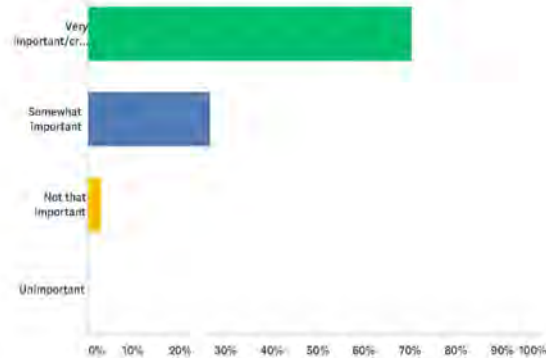
ANSWER CHOICES	RESPONSES	
At least once a day	14.71%	5
At least once a week	20.59%	7
At least once a month	20.59%	7
Less than once a month	14.71%	5
Never	29.41%	10
Total Respondents: 34		

6 / 7

Safety & Mobility Assessment of Rankin Avenue (U.S. 127) - Community Survey

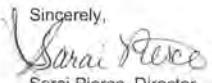
Q7 How important to you is it that any major project to upgrade Route 127 include stormwater protections to help reduce the flow of pollutants into Coops Creek?

Answered: 34 Skipped: 1



ANSWER CHOICES	RESPONSES	
Very important/critical	70.59%	24
Somewhat important	26.47%	9
Not that important	2.94%	1
Unimportant	0.00%	0
TOTAL:		34

Letter from Sequatchie Co Schools-Director of Schools Sarai Pierce

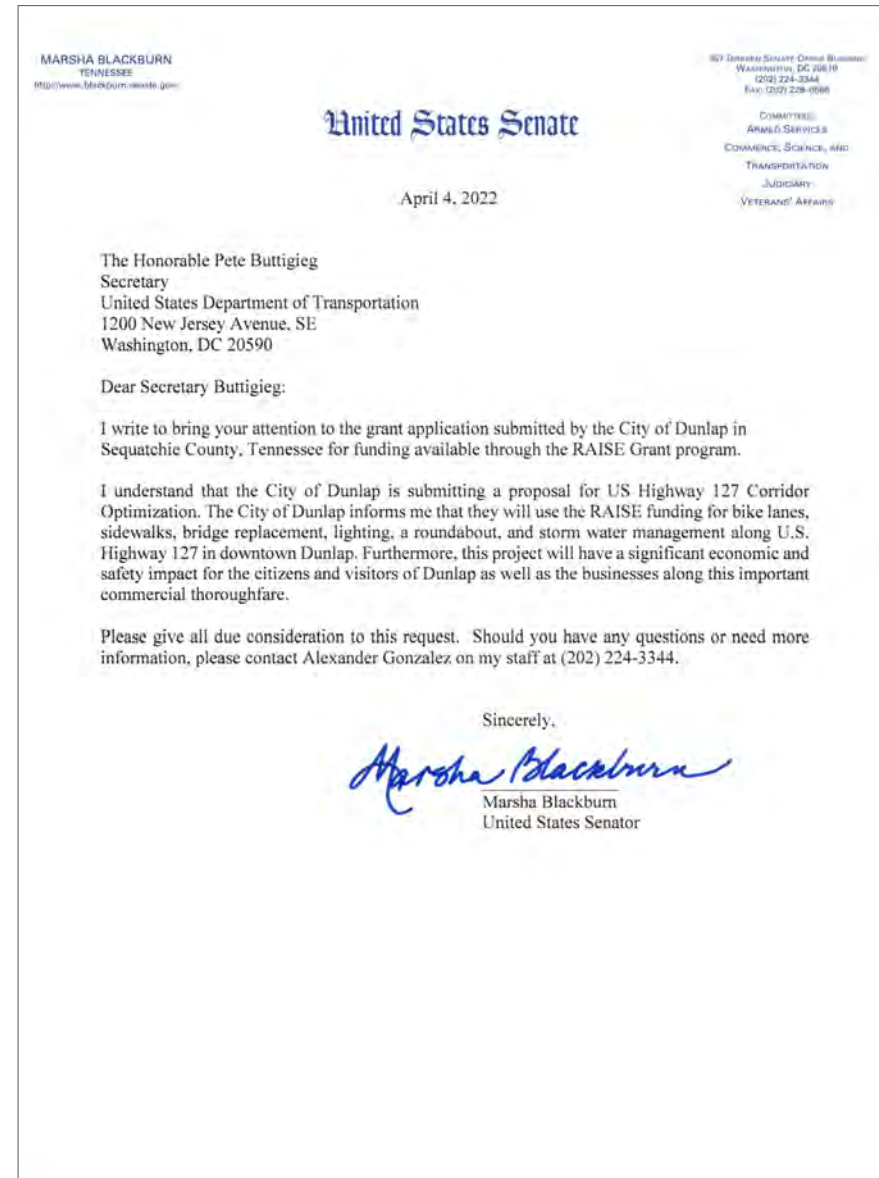
 Sequatchie County Schools Achieving Tomorrow's Excellence Today		
SEQUATCHIE COUNTY BOARD OF EDUCATION		
SHELLI DODSON Chairman	SARAI PIERCE, DIRECTOR OF SCHOOLS P.O. Box 488 878 Cordell Drive Dunlap, Tennessee 37327	BOARD MEMBERS Debbie Adams Gregory T. Dawson Rachel Hixson Gregory K. Johnson JoAnn Shepherd Felisha Snyder Christy Vandergriff
SAM HUDSON Vice-Chairman	Phone (423) 949-3617 FAX (423) 949-5257	
March 30, 2022		
The Honorable Pete Buttigieg Secretary United States Department of Transportation 1200 New Jersey Avenue SE Washington, DC 20590 Dear Secretary Buttigieg: As the Director of Schools for Sequatchie County, I would like to offer my support for the City of Dunlap's application to provide funding for the U.S. Highway 127 Corridor Optimization Project. The grant funding will connect our rural transportation system within our city to our central school campus and the city business district and adjacent neighborhoods. This connection coupled with the proposed telecommunication system investments will greatly assist in connecting our students physically and remotely within our city and county. In Dunlap today, school children have limited safe and accessible routes to school and the surrounding areas. This project will provide residents and children with safe and accessible routes in which they can walk or bike to school and the other educational assets within our community. It is my honor to write this letter of support. My commitment to the project and the opportunities it will create for our students, parents, and citizens is substantial. Sincerely,  Sarai Pierce, Director Sequatchie County Schools		

Letter from Brandon Williford, Dunlap Utilities Department Director

CLINT HUTH Mayor Telephone 423-949-2115 Fax 423-949-3359 Email: cityofdunlap@btdsoe.net April 8, 2022 The Honorable Pete Buttigieg Secretary United States Department of Transportation 1200 New Jersey Avenue SE Washington, DC 20590 Dear Secretary Buttigieg: I am writing to you regarding the City of Dunlap's U.S. Highway 127 project application through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program. As the director of utilities for the City of Dunlap, I have witnessed flooding and storm events for years and their impact they have had on our already-overburdened sanitation system. We have had to replace several pumps at our water treatment facility due to aging infrastructure and leaking and cracked clay pipes that have outlived their capacity and have caused severe I/I issues, which is a significant cost burden to the city. Maintenance and replacement for pumps being over fatigued before their typical life expectancy costs the city approximately \$14,000 per year, this does not include the overuse of utilities, such as the electricity needed to run the pumps more often than needed, as well as the extra man hours required to keep the plant functional during and after storm events. Data shows our treatment plant is only treating about 27% of the actual total volume of sanitary waste. The City of Dunlap believes a more integrated stormwater system is necessary to handle the amount of water we receive. The stormwater management solutions proposed in the U.S. 127 project can absorb the first 1" of stormwater within the project area and can save the city tens of thousands of dollars in replacement and utility costs a year. We very much appreciate your constant consideration of this important project and its benefit to our city. Sincerely,  Brandon Williford City of Dunlap Utilities Department	 THE CITY OF DUNLAP, TENNESSEE 15595 Rankin Avenue P.O. Box 546 Dunlap, Tennessee 37327 Commissioners BEGGY GARD BRYAN HARMON JEFF HARMON JUDY H. LAYNE
--	--

Letters of Support The City of Dunlap is working with other organizations and officials that provide leadership and support for the Project to the City and its development efforts. Letters of support from some of these valued partners are included in this Appendix.

Support Officials and Organizations
U.S. Senator Marsha Blackburn (R-TN)
U.S. Senator Bill Hagerty-JR Senator
US Representative Scott Desjarlais
USDA State Director Arlisa Armstrong
State Senator Janice Bowling-Deputy Speaker
State Representative Ron Travis
TDOT Interim Commissioner Joe Galbato
TDEC Commissioner-David W. Salyers
TN Dept of Health-Kelly Ware
Sequatchie County Executive Cartwright
Chamber of Commerce
Southeast TN Development District-Sarah Murray
Bike Walk TN
BTC Fiber
Mountain Valley Bank-Dunlap



BILL HAGERTY
TENNESSEE

RUSSELL SENATE OFFICE BUILDING
SUITE 210
WASHINGTON, DC 20010-4200
(202) 224-4944

United States Senate
WASHINGTON, DC 20510

April 8, 2022

The Honorable Pete Buttigieg
Secretary of Transportation
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg,

I write today in support of the City of Dunlap, Tennessee's application for funding through the U.S. Department of Transportation's RAISE grant program. Dunlap's proposed plan, the U.S. Highway 127 Corridor Optimization Project, will improve safety, economic, and environmental conditions along the U.S. 127/Rankin Avenue corridor and increase mobility opportunities to minority populations within the project area to achieve inclusive transportation planning for all. The project will address the Department's priorities for the RAISE program in the following ways:

- **Economic Vitality and Job Creation** – By providing multimodal transportation options in the form of dedicated bike lanes, improved sidewalk connectivity and accessibility, and vital connections to public transportation to and from industrial and commercial areas and the central business district, this project is critical to the efficient and safe movement of employees and commuters moving in and around the U.S. 127/Rankin Avenue corridor daily.
- **Safety** – The bridge reconstruction will replace the Coops Creek Bridge that has a poor sufficiency rating and is a major conflict point for pedestrians and motorists. Pedestrian crosswalks, bike lanes and continuous ADA sidewalks will improve connectivity and provide safe, accessible routes for all pedestrians by mitigating vehicular traffic. The included traffic calming improvements will make the area safer for all roadway users.
- **Climate Change and Environmental Justice** – The project addresses direct environmental impacts due to increased storm intensities and frequencies affecting the corridor through the use of low maintenance design of project elements that tap into environmental sustainability. The project introduces LID principles for storm water management along the corridor to help absorb excess flooding during extreme weather events and helps offset potential impacts to environmental justice populations within the planning area.
- **Racial Equity and Barriers to Opportunity** – The proposed project will provide increased accessibility and mobility options for nearby low-to-moderate income neighborhoods through sidewalk and bikeway improvements and greater access to public transportation services to and from nearby schools and the downtown area.
- **Connectivity and Reliability** – The project will provide improved access management solutions at intersections that will thereby reduce back-ups along a route that connects the downtown central business district to nearby neighborhoods and schools. Additionally, the corridor serves as a major route for the movement of goods and services; therefore, with the enhanced access management solution, the diverse labor force for Dunlap from the surrounding rural areas stands to benefit greatly.

I thank you in advance for your careful consideration of the City of Dunlap's U.S. Highway 127 Corridor Optimization Project. Should you have any further questions, do not hesitate to contact my office at (202) 224-4944.

Sincerely,



Bill Hagerty
United States Senator

CHATTANOOGA
JOEL W. SOLOMON
FEDERAL BUILDING
900 GEORGIA AVENUE
SUITE 200
CHATTANOOGA, TN 37402
(623) 752-5037

CORKEVILLE
L. CLIVE MORFON
FEDERAL BUILDING
9 E BRIDGES ST
THIRD FLOOR
CORKEVILLE, TN 38003
BY APPOINTMENT
(601) 981-4874

JACKSON
ED JONES
FEDERAL BUILDING
100 S HOLLAND AVE
SUITE 216
JACKSON, TN 38201
BY APPOINTMENT
(731) 234-1050

KNOXVILLE
HOWARD H. BAKER, JR.
U.S. COURTHOUSE
300 MARKET STREET
SUITE 112
KNOXVILLE, TN 37902
(606) 545-4253

HAGERTY.SENATE.GOV

MEMPHIS
CLIFFORD DAVIS-DOBBS
HARTON FEDERAL BUILDING
167 NORTH MAIN STREET
SUITE 1000
MEMPHIS, TN 38103
(901) 544-4224

NASHVILLE
3322 WEST END
ASTORIE
SUITE 120
NASHVILLE, TN 37203
(615) 736-5129

TRI-CITIES
TRI-CITIES REGIONAL
AIRPORT
2525 HARPWAY 75
SUITE 101
BLOOMSBURY, TN 37617
(423) 325-6240

A Letter of Support from Representative Scott DesJarlais (4th District, Tennessee) has been sent directly to Secretary Buttigieg.

LETTERS OF SUPPORT



United States Department of Agriculture

Rural Development April 7, 2022

Office of the
State Director

3322 West End Ave
Suite 300
Nashville, TN
37203

615-783-1300
800-342-3149
Fax 855-776-7057

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

I am writing to give my full support for the City of Dunlap's application for funding through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grant program. It is my understanding that the city intends to use the funding for 4250 linear feet of complete streets; including bike lanes, ADA-compliant sidewalks, bridge replacement, pedestrian lighting, a roundabout, broadband infrastructure and stormwater management along U.S. Highway 127 in downtown Dunlap.

As State Director of Rural Development at USDA, I support infrastructure projects that I believe will enhance economic conditions for rural communities and businesses throughout Tennessee. I have good reason to believe the U.S. Highway 127 Corridor Optimization Project will do just that. This project will provide safety and accessibility for patrons of Dunlap's downtown business community, as well as easier access to other public facilities and activities.

Thank you for your consideration of this proposal. If you have any questions, please contact my office at 615-783-1300.

Sincerely,


ARLISA ARMSTRONG
State Director
Tennessee



GOVERNMENT OPERATIONS
2ND VICE-CHAIR

ENERGY, AGRICULTURE &
NATURAL RESOURCES

SENATE CHAMBER
JANICE BOWLING
DEPUTY SPEAKER
16TH SENATE DISTRICT

COFFEE, FRANKLIN, GRUNDY, MARION SEQUATCHIE,
VAN BUREN, AND WARREN COUNTIES

JOINT EDUCATION, HEALTH
& GENERAL WELFARE
SUBCOMMITTEE
CHAIR

TRANSPORTATION

March 31, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

This letter is written to express my strong support of the City of Dunlap's application for 2022 RAISE Grant Funds to improve the city's infrastructure by constructing street enhancements along the U.S. Highway 127 Corridor in Downtown Dunlap. The project comprises 4,250 linear feet of complete streets, including bike lanes, sidewalks, bridge replacement, lighting, broadband infrastructure, and stormwater management from the intersection of Rankin Avenue and Church Street to the junction of U.S. 127 and U.S. 28.

The US Highway 127 Corridor Optimization Project will provide the residents of Dunlap and surrounding areas with safe, comfortable, and convenient access to community destinations. The proposed improvements will be a significant enhancement to the area's economy and the quality of life for its residents.

Thank you in advance for your attention to this matter. I sincerely appreciate your commitment to providing opportunities such as these to rural areas like those located within my district. I pledge my full support to Dunlap's notable efforts to enhance the overall livability of their community and improve the quality of life for their citizens. The City has been committed to this project for multiple years and is sincerely appreciative of your consideration.

Sincerely,


Deputy Speaker Janice Bowling

CORDELL HULL BUILDING, SUITE 718, 425 REP. JOHN LEWIS WAY N., NASHVILLE, TENNESSEE
37243
SEN.JANICE.BOWLING@CAPITOL.TN.GOV OFFICE: (615) 7416694 FAX: (615) 253-0260

Ron Travis
State Representative
31st District
Bledsoe, Sequatchie, Rhea, VanBuren

425 Rep. John Lewis Way N.
Suite 534 Cordell Hull Bldg.
Nashville, TN 37243



House of Representatives
State of Tennessee

Nashville, Tennessee

Committees
Agriculture & Natural Resources
Naming & Designating

Phone: (615) 741-1450
Fax: (615) 253-0262
rep.ron.travis@capitol.tn.gov

March 31, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

I would like to offer my full support of the City of Dunlap's US 127 Corridor Optimization Project utilizing and their application for funding using the RAISE Discretionary Grant program with United States Department of Transportation. I strongly encourage the USDOT to fund this effort within the City of Dunlap. The impact the proposed US 127 Corridor Optimization Project can have on connectivity, safety, health and economic vitality of Dunlap would be transformative for our community and the region.

As the representative of Dunlap, I get the opportunity to visit the city frequently and work closely with the people of Dunlap and its local leadership. I have worked with the City of Dunlap on a number of municipal projects and have been able to see Dunlap transition toward a more sustainable community. This project would further this mission of safety and sustainable development for all residents.

It is my honor to once again write a letter of support for this project. My commitment to the City of Dunlap is 100% and I am willing to provide technical assistance where it is necessary. This assistance may include coordinating regional and state leadership. I am very proud of the City of Dunlap and look forward to its continued growth. Thank you for your consideration of this project.

Sincerely,

State Representative Ron Travis
Tennessee House District 31



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

COMMISSIONER'S OFFICE
SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-2848

JOSEPH GALBATO, III
INTERIM COMMISSIONER

BILL LEE
GOVERNOR

April 5, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Re: City of Dunlap, Tennessee's 2022 RAISE Grant Application

Dear Mr. Secretary:

Please accept this letter of support for the City of Dunlap's application for funding through the RAISE Discretionary Grant Program for the U.S. Highway 127 Corridor Optimization Project.

For years, Dunlap has attempted to obtain this funding and is excited to apply again this year. The grant funding will be for complete streets initiatives, such as bike lanes, sidewalks, bridge replacement, lighting, and stormwater management along U.S. Highway 127 and U.S. Highway 28 in downtown Dunlap, Tennessee. This project will not only benefit the local transportation system but will have a positive impact on the overall regional system as well.

Thank you for making this opportunity available to rural communities such as Dunlap. This funding will positively impact the citizens and visitors of Dunlap for many years to come. The Tennessee Department of Transportation appreciates your favorable consideration of the City of Dunlap's application.

Respectfully,

Joseph Galbato, III
Interim Commissioner

CC: Paul Degges, Deputy Commissioner, Bureau of Engineering
Preston Elliott, Deputy Commissioner, Bureau of Environment & Planning
The Honorable Clint Huth, Mayor, City of Dunlap
Benjamin Farmer, Farmer Morgan, LLC



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-0435

DAVID W. SALYERS, P.E.
COMMISSIONER

BILL LEE
GOVERNOR

April 6, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

I would like to express my support of the City of Dunlap's application for 2022 RAISE Grant Funds to improve the city's infrastructure by constructing street enhancements along the U.S. Highway 127 Corridor in Downtown Dunlap, Tennessee. My understanding is that the project comprises 4,250 linear feet of complete streets initiatives, including bike lanes, sidewalks, bridge replacement, lighting, storm water management, and broadband infrastructure from the intersection of Rankin Avenue and Church Street to the junction of U.S. 127 and U.S. 28.

The U.S. Highway 127 Corridor Optimization Project is expected to provide the residents of Dunlap and Sequatchie County with safe, comfortable, and convenient access to their community destinations. I'm told that the improvements will be an enhancement to the quality of life of residents and to the environment by lowering emissions and managing the storm water along a busy thoroughfare.

Thank you for your consideration of this project. I support Dunlap's efforts to enhance the overall livability of their great community and my department is happy to assist the city anyway that we can.

Sincerely,

David W. Salyers, P.E.
Commissioner



March 31, 2021

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

On behalf of the Tennessee Department of Health, I would like to offer my full support of the City of Dunlap's application for a RAISE Discretionary Grant with the United States Department of Transportation. The Department of Health has worked alongside the City of Dunlap and Sequatchie County on a number of healthy communities' initiatives. It is my understanding that the grant would be for integrating several modes of transportation, bike lanes, ADA-compliant sidewalks and ramps, bridge replacement, pedestrian lighting, a roundabout, broadband infrastructure, and stormwater management along Rankin Avenue in the downtown area. The U.S. Highway 127 Corridor Optimization Project coupled with other planning efforts that we have already worked with the City on will do great things for the current and future health of the citizens of Dunlap. We applaud the City of Dunlap for putting the health and safety of its residents first by promoting a more walkable community and healthy built environment.

The Tennessee Department of Health strongly encourages the U.S. DOT to fund this effort within the City of Dunlap. The impact that the proposed 127 Complete Streets Project can have on the health and well-being of residents in this rural area would be transformative.

Thank you for your consideration.

Sincerely,

Kelly Ware
Tennessee Department of Health
Healthy Development Coordinator
Southeast Region

Southeast Regional Office • 1301 Riverfront Parkway, Suite 209 • Chattanooga, TN 37402
Tel: 423-634-3124 • Fax: 423-265-8972

22 Cherry Street East
P.O. Box 595
Dunlap, Tennessee 37327



D. Keith Cartwright
Sequatchie County Executive

Phone: (423) 949-3479
Fax: (423) 949-2579
seqexec@bledsoe.net

March 30, 2022

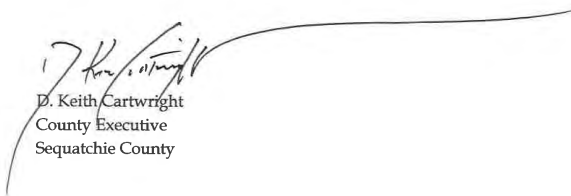
The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

On behalf of Sequatchie County, I would like to offer my full support of the City of Dunlap's application to the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grants program. The grant funding will go towards constructing bike lanes, sidewalks, bridge replacement, lighting, a roundabout, and stormwater management along U.S. Highway 127 in downtown Dunlap. The project also has business initiatives as it will provide infrastructure to facilitate high-speed broadband technology along this corridor. This project will have a significant economic impact for Dunlap and Sequatchie County and enhance the quality of life for our residents and visitors. Our community is so appreciative of your continued consideration of this project, and we look forward to hearing from you. If you have any questions, please feel free to contact my office at (423) 949-3479.

It is my honor to write this letter of support. My commitment to the City of Dunlap is 100%.

Sincerely,


D. Keith Cartwright
County Executive
Sequatchie County



March 30, 2022

The Honorable Pete Buttigieg, Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

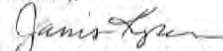
Dear Secretary Buttigieg:

On behalf of Sequatchie County-Dunlap Chamber of Commerce, I would like to offer my full commitment to the City of Dunlap's application to the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grants program. Our city has previously applied for this funding without success. With a new city government in office, this is our year for success!

This funding will provide support to our "complete streets" initiatives, such as bike lanes, walking trails, sidewalks, bridge replacement, lighting, and stormwater management along U.S. Highway 127 in Historic Downtown Dunlap. This RAISE project will have a major economic impact for the area and the businesses along the newly recognized Sequatchie Valley National Scenic By Way.

The Sequatchie County - Dunlap Chamber of Commerce and our stakeholders are committed to providing for our businesses, citizens, and visitors who will come as tourists along the By Way. We stand ready to provide any support to the RAISE project. Again, this funding will help us make great strides toward meeting our goal to "Provide Small Town Charm, with Big City Amenities." Thank you for this opportunity!

Sincerely,


Janis Adams Kyser, Executive Director
Sequatchie County/Dunlap Chamber of Commerce

15643 Rankin Avenue Rankin Avenue - P.O. Box 1653 Dunlap, Tennessee 37327
Phone 423-949-7608 - www.sequatchie.com - email: sequatchie@bledsoe.net

March 31, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

As the regional coordinator of the Rural Planning Organization, I would like to offer my full support of the City of Dunlap's application to the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grant program. The grant funding will be used for bike lanes, sidewalks, lighting, bridge replacement, a roundabout, stormwater infrastructure, and broadband infrastructure along U.S. Highway 127 in downtown Dunlap. Drainage problems and public safety issues have prohibited safe pedestrian access to businesses and community facilities along this primary thoroughfare in downtown Dunlap for years and the proposed additions of this project will help reduce those issues. By facilitating alternative means of transportation, foot traffic and exposure for businesses will increase. The Southeast Tennessee Development District (SETDD) supports this important project that we believe will improve conditions for residents and visitors and have a major economic impact for Dunlap and the surrounding region.

It is my honor to write this letter of support. Our office has been supportive of this project for several years and that support has not wavered. Southeast Tennessee Development District is 100% supportive of this project.

Sincerely,



Sarah Murray
Planning Director/RPO Coordinator
Southeast Tennessee Development District



April 8, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

As leading advocates for pedestrian and cyclist safety in our state, Bike Walk Tennessee is honored to write this letter to express our strong support of the City of Dunlap's application for 2022 RAISE Grant Funds to improve the Dunlap's transportation infrastructure. We understand that the project will construct 4,250 linear feet of street enhancements and complete streets initiatives along the U.S. Highway 127 Corridor in Downtown Dunlap, including bike lanes, sidewalks, bridge replacement, lighting, a roundabout, and storm water management, from the intersection of Rankin Avenue and Church Street to the junction of U.S. 127 and U.S. 28. At Bike Walk Tennessee, we know that this project will not only provide much safer routes for pedestrians and bicyclists, but will also attract new users to the area, supporting the local and regional economy.

The U.S. Highway 127 Corridor Optimization Project will provide the residents of Dunlap with a walkable community and a destination for recreation enthusiasts, who spend money in our community.

We are very thankful for the consideration of this project by USDOT. We pledge our full support of Dunlap's efforts to enhance the overall livability and safety of their community, and we will help in any way that we can to ensure the project's success.

Sincerely,
Caroline Cooley, MD
Board Chair Bike Walk Tennessee
www.bikewalktn.org



March 30, 2022

The Honorable Clint Huth, Mayor
15595 Rankin Avenue
Dunlap, TN 37327

Dear Mayor Huth:

I am writing to you regarding the City of Dunlap's 2022 application for funding through the Rebuilding American Infrastructure with Sustainability and Equity Utilizing (RAISE) program.

I understand that the City of Dunlap intends to use these substantial funds to undertake substantial improvements within the U.S. Highway 127 right-of-way. Bledsoe Telephone Cooperative (BTC) purchased the Sequatchie Mutual Telephone Company in 1958 and began providing telecommunication service to the City of Dunlap. Since that time, BTC has been committed to providing state of the art communication service to the City of Dunlap. Today these services have expanded to include voice, video, and broadband through the City of Dunlap and the entirety of Sequatchie County.

Currently, BTC is constructing a Fiber to Home Network in and around the City of Dunlap. This project is funded by the USDA Rural Utilities Service and will invest \$7,855,120 in the City of Dunlap. This project area includes the entirety of the 2.5 mile economic corridor. This investment will include a fiber optic connection backed with a Gigabit capable network to every subscriber in the City. If funded we intend to utilize this network to install wireless connection points along the 1 mile phase 1 project area to extend this broadband network for public use within the corridor.

When the RAISE grant is funded, we are pleased and excited to coordinate with you on the installation of wireless infrastructure/connection points along the 1-mile project area to extend the broadband network for public use within the corridor.

Thank you for your consideration of this project. We are a great supporter and partner of Dunlap and this project has BTC's full support.

Sincerely,

Charles H. Boring
CEO
Bledsoe Telephone Cooperative, BTC Fiber

338 Cumberland Avenue
P.O. Box 609
Pikeville, TN 37367

www.bledsoe.net
www.btcfiber.com
Phone: 423-447-2121
Fax: 423-447-2498



March 30, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Secretary Buttigieg:

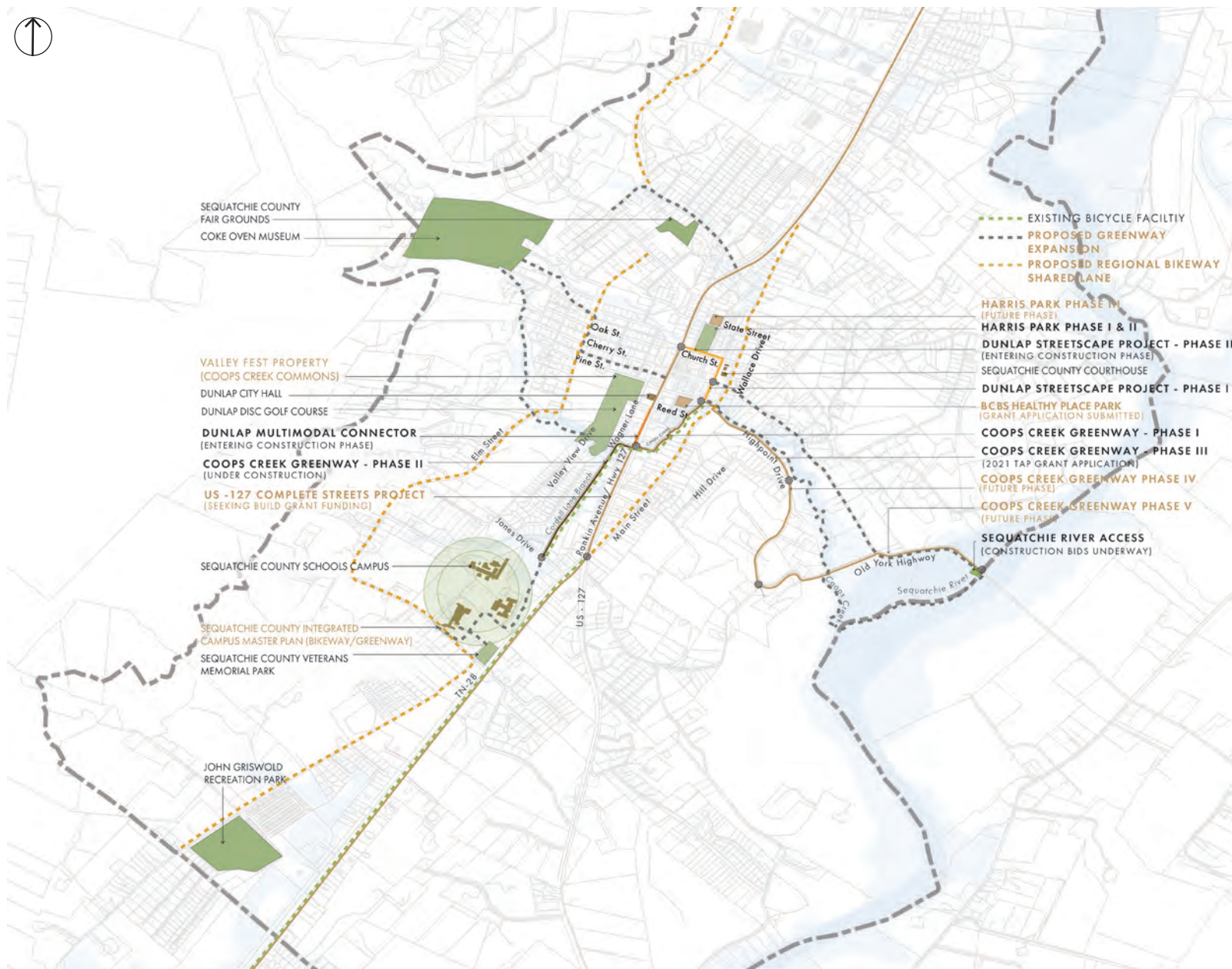
On behalf of Mountain Valley Bank, I would like to offer my full support of the City of Dunlap's application to the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grants program. I understand that the funding will go towards the "complete streets" initiatives project. This project will include bike lanes, sidewalks, bridge replacement, lighting, stormwater management, and ITS infrastructure along U.S. Highway 127 in downtown Dunlap. Our bank is located right along this corridor, and we believe this project will provide safe accessibility for our customers and have a significant impact on quality of life and economic prosperity in our community.

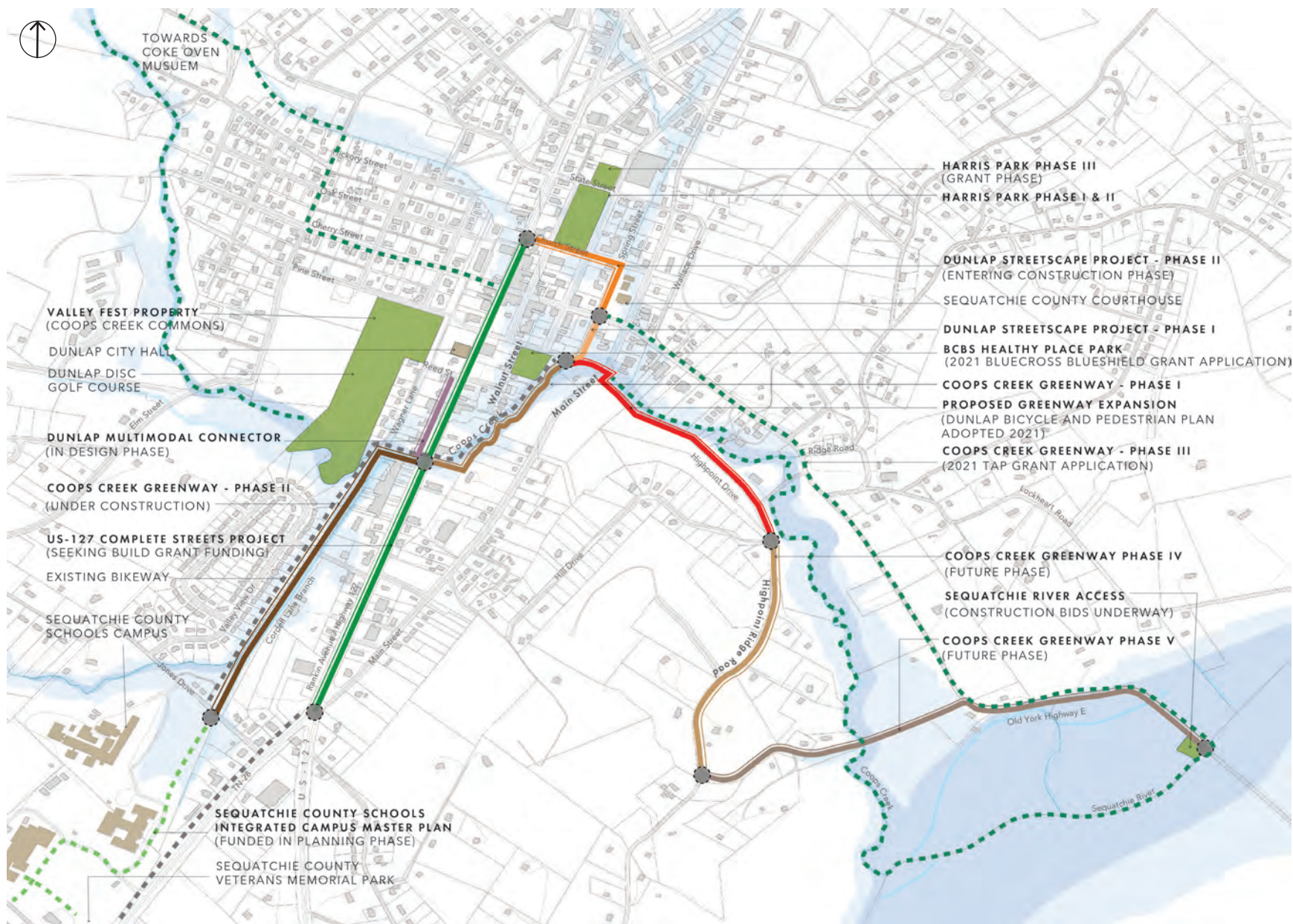
I am proud to support this project and I am excited for the possibility of this funding. My commitment to the City of Dunlap is 100%.

Sincerely,

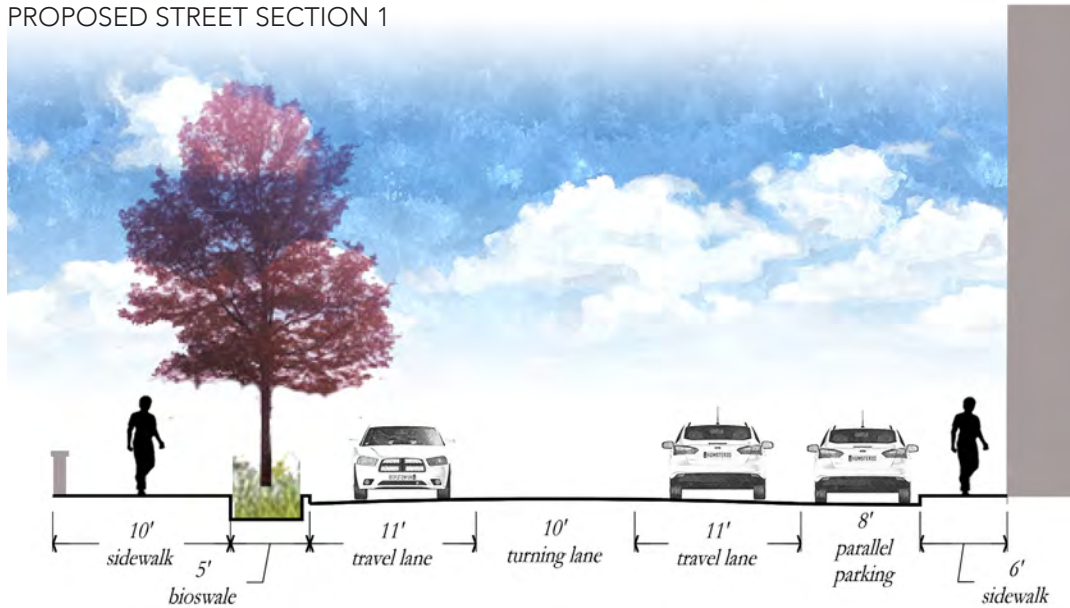
Andy Billingsley
President/CEO
Mountain Valley Bank

P. O. Box 729 – 17114 Rankin Avenue – Dunlap, Tennessee 37327

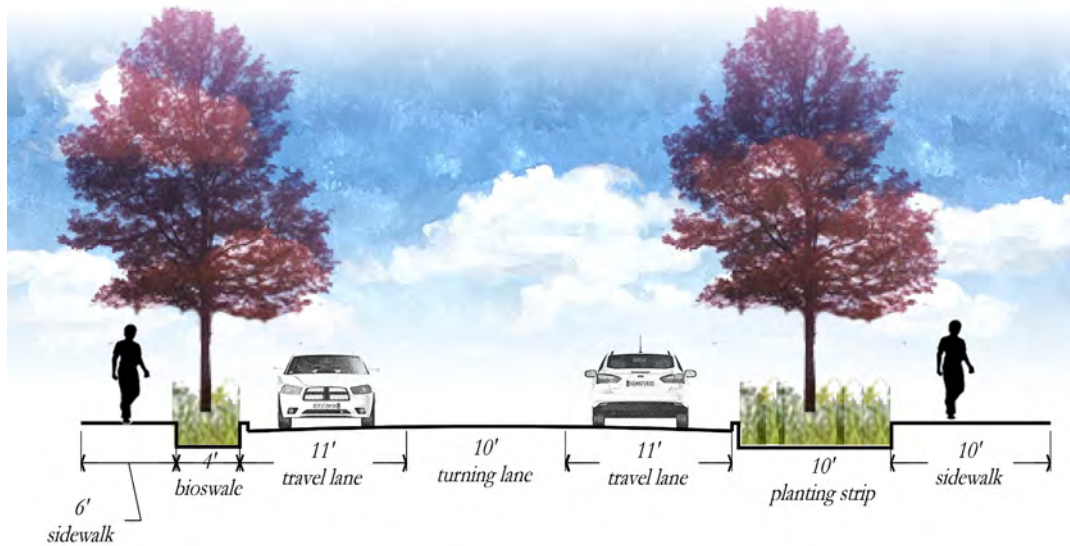




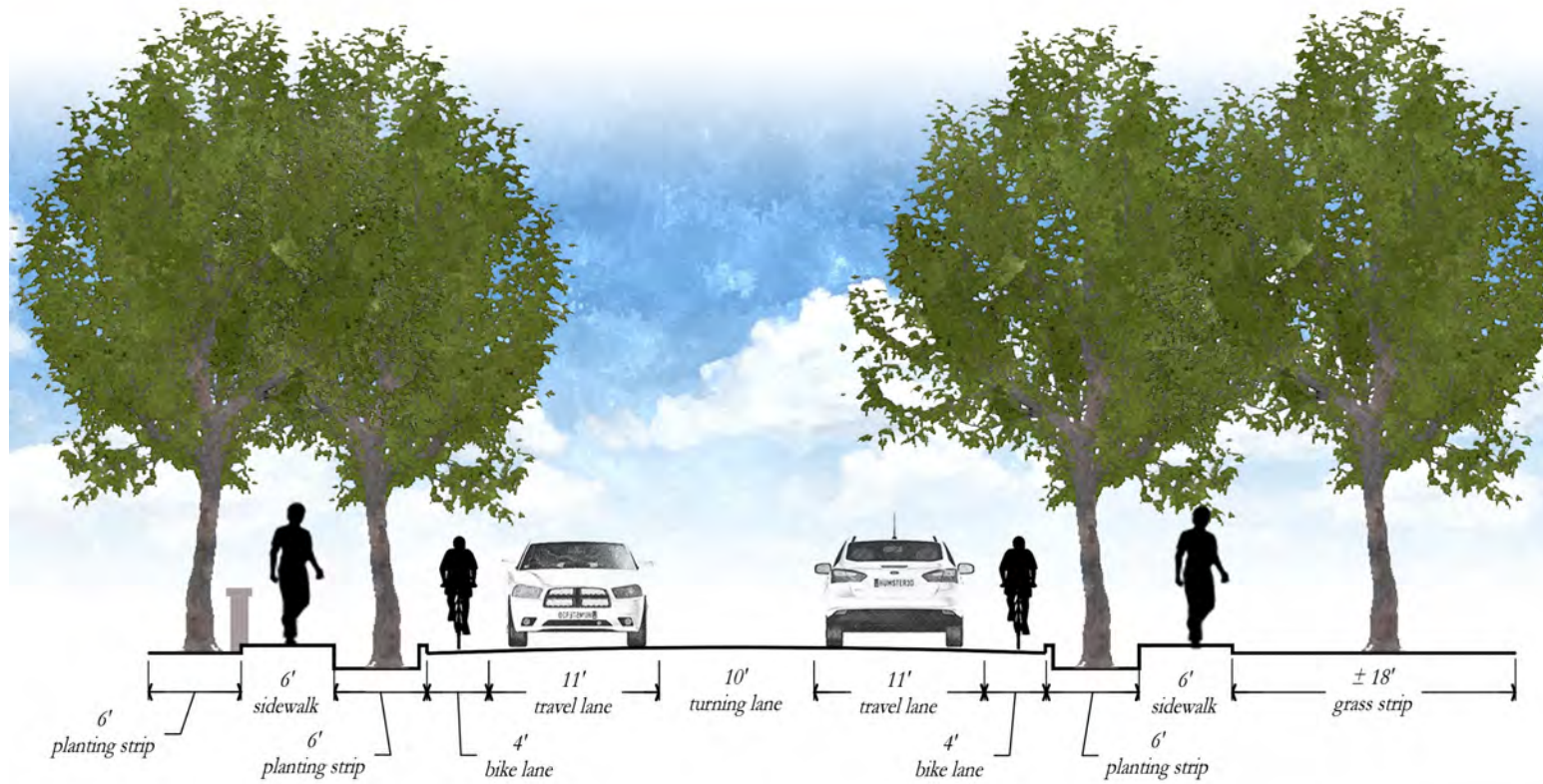
PROPOSED STREET SECTION 1



PROPOSED STREET SECTION 2



PROPOSED STREET SECTION 3





"PEANUT" ROUNDABOUT DRAWING



"PEANUT" ROUNDABOUT PERSPECTIVE



PROJECT PERSPECTIVE 1



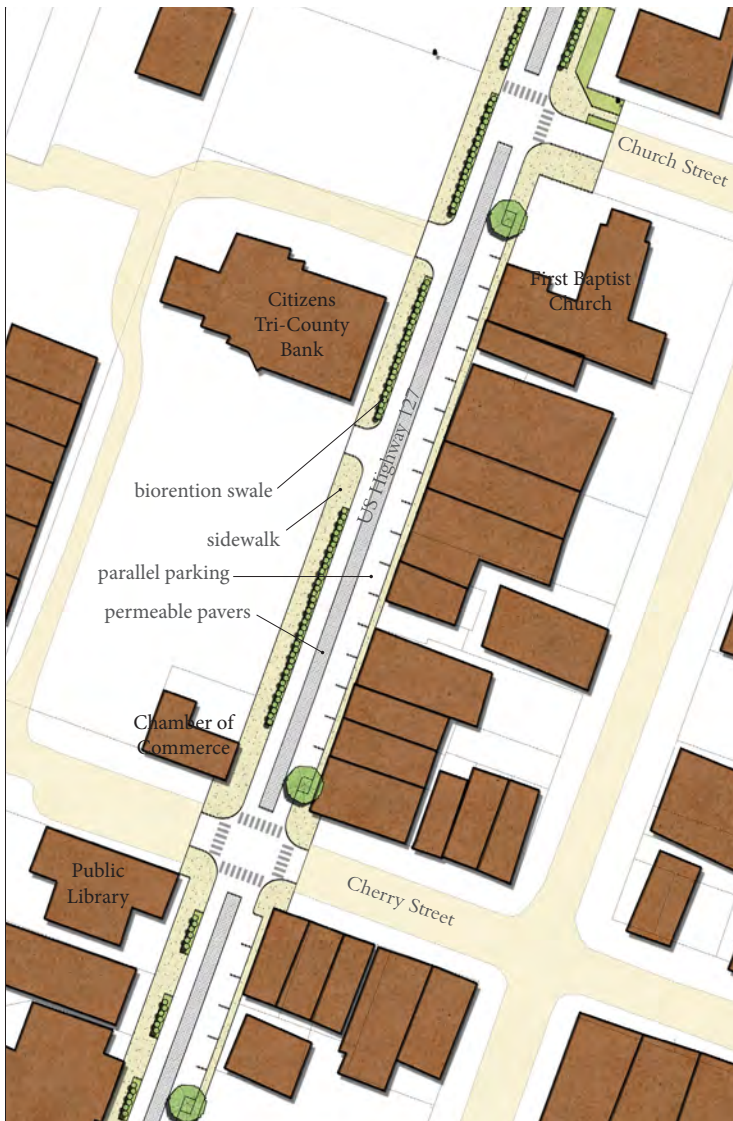
PROJECT PERSPECTIVE 2



PROJECT PERSPECTIVE 3



PROJECT PERSPECTIVE 4



OVERHEAD PERSPECTIVE 1



OVERHEAD PERSPECTIVE



OVERHEAD PERSPECTIVE 3



OVERHEAD PERSPECTIVE 4

Benefit-Cost Analysis

The U.S. Hwy 127 Corridor Optimization Project will provide several benefits to the City of Dunlap including: time savings for travelers passing through the economic corridor, injury reductions by reducing the potential for crashes through access management and provision of pedestrian and bicycle facilities, reductions in property damage causing crashes through access management and road diet strategies, and an increase in pedestrian and bicycle activity providing health benefits. The U.S. Hwy 127 Corridor Optimization Project has the potential to reduce the travel time through the site by 0.6 minutes by implementing access management strategies and providing multimodal transportation options. This time reduction will save between 48,321 hours in the first year of project use to 49,189 hours in 20th year of project use with a total value of \$30,434,430. Additionally, these strategies will reduce crashes as a whole including those causing injuries and property damage. Savings from prevention of injuries and property damage crashes will be \$81,211,788 and \$811,505 respectively. This project will increase pedestrian and bicycle connectivity through the provision of delineated sidewalks and both dedicated and shared bike lanes. Through this increased use of alternate forms of transportation, additional bicycle use is valued at \$15,108,332 and increased walkability is valued at \$30,043,187. These gross benefits add up to a total of \$45,151,519. The total costs associated with the project are \$15,411,906, including an estimate for Operations & Maintenance of \$462,798. When compared, the Gross Benefit : Cost ratio comes out to 10.2:1.

In addition to these quantitative benefits, the U.S. 127 Complete Streets Project will qualitatively benefit the City of Dunlap through providing opportunities for community interaction, increasing outdoor exercise options, and shifting transportation modes to a more balanced street system that supports automobiles, bicyclists, and pedestrians in an equitable manner. Through the provision of multimodal opportunities, automobile trips can be reduced thereby saving time, and money. This project will improve connectivity, access, safety, health, and the general aesthetic of the community. By connecting with the other improvement projects in Dunlap such as the Dunlap Streetscape Project, Coops Creek Greenway, SR-28 Bike Lanes, and Harris Park improvements, the Corridor Optimization Project will provide the backbone for pedestrian and bicycle connectivity for the City of Dunlap. Overall, the U.S. 127 Corridor Optimization Project will benefit the City of Dunlap and commuters who pass through the corridor greatly by saving valuable time, protecting public safety and private property, increasing the general health of the community, and protecting the environment through the cleaning of stormwater.

BENEFIT		
Travel Time Savings	\$	30,434,430
Safety Savings	\$	81,211,788
3% NPV CO ₂	\$	2,156
Property Damage Prevention Savings	\$	811,505
Bicycling Health Savings	\$	15,108,332
Walking Health Savings	\$	30,043,187
Operations & Maintenance Costs	\$	(462,798)
TOTAL BENEFIT	\$	157,148,600

COST		
BUILD Funding Request	\$	14,178,953.62
City Match (8%)	\$	1,232,952.49
TOTAL COST	\$	15,411,906

Benefit Cost = 10.2 : 1

U.S. Highway 127 Corridor Optimization Project 2022 RAISE Discretionary Grant Application
Benefit-Cost Analysis

Calendar Year	Project in Use (Year)	Affected Drivers ¹	Travel Time Saved (Hours) ²	Total Value of Time Saved ³	Injuries Per Year ⁴	Injuries Prevented by Project ⁵	Total Value of Injuries Prevented ⁶	Driver Fatalities Per Year ⁷	Driver Fatalities Prevented by Project ⁸	Pedestrian Fatalities Per Year ⁹	Pedestrian Fatalities Prevented by Project ¹⁰	Total Value of Fatalities Prevented ¹¹	Crashes Causing Property Damage ¹²	Property Damage Crashes Prevented by Project ¹³	Total Value of Property Damage Crashes Prevented ¹⁴	Bicycles Utilizing Project Site ¹⁵	Health Benefits of Additional Bicycling ¹⁶	Additional Pedestrians Utilizing Project Site ¹⁷	Health Benefits of Additional Walking ¹⁸	Initial Costs ¹⁹	Operations & Maintenance Costs ²⁰	Cost of Carbon per Metric Ton ²¹	Metric Tons of CO ₂ Removed by Project ²²	Undiscounted Non-CO ₂ Net Benefits ²³	7% NPV CO ₂ Costs ²⁴	3% NPV CO ₂ Costs ²⁵	Total Gross Benefits (Net Discount) ²⁶	Undiscounted Net Benefits ²⁷	7% NPV Net Benefits ^{28, 29}	
2022	17,742		35		0.22			0.1					40							\$ 15,411,906							\$ (15,411,906)	\$ (15,411,906)		
2023	17,937		37		0.22			0.1					40																	
2024	18,134		38		0.22			0.1					41																	
2025	18,334		40		0.22			0.1					41																	
2026	18,536		42		0.22			0.1					42																	
2027	18,732		44		0.22			0.1					42																	
2028	18,949		45		0.22			0.1					43																	
2029	19,185	48,321	\$ 1,436,402	47	9	\$ 2,638,988	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,300	5,576	\$ 338,993	4,642	\$ 991,235	\$ 22,038	\$ 61,00	2	\$ 122	\$ 122	\$ 122	\$ 122	\$ 122	\$ 122	\$ 122	\$ 122	\$ 122
2030	21,18,022	48,364	\$ 1,437,481	49	10	\$ 2,941,272	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,334	5,785	\$ 351,752	4,847	\$ 1,034,921	\$ 22,038	\$ 62,00	2	\$ 124	\$ 116	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120
2031	21,18,616	48,407	\$ 1,438,960	50	10	\$ 3,044,156	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,368	5,985	\$ 371,301	5,052	\$ 1,078,458	\$ 22,038	\$ 63,00	2	\$ 126	\$ 110	\$ 119	\$ 119	\$ 119	\$ 119	\$ 119	\$ 119	\$ 119
2032	21,18,635	48,451	\$ 1,440,241	52	10	\$ 3,147,040	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,403	6,190	\$ 390,868	5,257	\$ 1,122,428	\$ 22,038	\$ 64,00	2	\$ 128	\$ 104	\$ 117	\$ 117	\$ 117	\$ 117	\$ 117	\$ 117	\$ 117
2033	21,18,651	48,494	\$ 1,441,523	54	11	\$ 3,249,524	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,437	6,395	\$ 410,432	5,462	\$ 1,166,237	\$ 22,038	\$ 65,00	2	\$ 130	\$ 99	\$ 116	\$ 116	\$ 116	\$ 116	\$ 116	\$ 116	\$ 116
2034	21,18,668	48,537	\$ 1,442,806	55	11	\$ 3,352,808	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,471	6,600	\$ 430,054	5,667	\$ 1,210,084	\$ 22,038	\$ 66,00	2	\$ 132	\$ 94	\$ 114	\$ 114	\$ 114	\$ 114	\$ 114	\$ 114	\$ 114
2035	21,18,685	48,580	\$ 1,444,090	57	11	\$ 3,455,692	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,505	6,806	\$ 449,673	5,873	\$ 1,253,971	\$ 22,038	\$ 67,00	2	\$ 134	\$ 89	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112
2036	21,18,701	48,623	\$ 1,445,375	59	12	\$ 3,558,576	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,540	7,012	\$ 469,210	6,078	\$ 1,297,897	\$ 22,038	\$ 68,00	2	\$ 136	\$ 86	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112	\$ 112
2037	21,18,718	48,667	\$ 1,446,661	61	12	\$ 3,661,460	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,574	7,218	\$ 488,964	6,284	\$ 1,341,862	\$ 22,038	\$ 69,00	2	\$ 138	\$ 81	\$ 111	\$ 111	\$ 111	\$ 111	\$ 111	\$ 111	\$ 111
2038	21,18,735	48,710	\$ 1,447,949	62	12	\$ 3,764,344	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,608	7,424	\$ 508,635	6,490	\$ 1,385,866	\$ 22,038	\$ 70,00	2	\$ 140	\$ 77	\$ 109	\$ 109	\$ 109	\$ 109	\$ 109	\$ 109	\$ 109
2039	21,18,751	48,753	\$ 1,449,238	64	13	\$ 3,867,228	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,643	7,630	\$ 528,324	6,697	\$ 1,429,909	\$ 22,038	\$ 71,00	2	\$ 142	\$ 73	\$ 107	\$ 107	\$ 107	\$ 107	\$ 107	\$ 107	\$ 107
2040	21,18,768	48,797	\$ 1,450,527	66	13	\$ 3,970,112	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,677	7,836	\$ 548,031	6,903	\$ 1,473,992	\$ 22,038	\$ 72,00	2	\$ 144	\$ 69	\$ 105	\$ 105	\$ 105	\$ 105	\$ 105	\$ 105	\$ 105
2041	21,18,785	48,840	\$ 1,451,818	67	13	\$ 4,072,996	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,711	8,043	\$ 567,755	7,110	\$ 1,518,113	\$ 22,038	\$ 73,00	2	\$ 146	\$ 66	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104
2042	21,18,801	48,883	\$ 1,453,110	69	14	\$ 4,175,880	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,746	8,250	\$ 587,497	7,316	\$ 1,562,274	\$ 22,038	\$ 74,00	2	\$ 148	\$ 62	\$ 102	\$ 102	\$ 102	\$ 102	\$ 102	\$ 102	\$ 102
2043	21,18,818	48,927	\$ 1,454,404	71	14	\$ 4,278,768	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,780	8,457	\$ 607,253	7,523	\$ 1,606,475	\$ 22,038	\$ 75,00	2	\$ 150	\$ 60	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
2044	21,18,835	48,971	\$ 1,455,698	72	14	\$ 4,381,648	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,815	8,664	\$ 627,033	7,731	\$ 1,650,714	\$ 22,038	\$ 76,00	2	\$ 152	\$ 57	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
2045	21,18,852	49,014	\$ 1,456,994	74	15	\$ 4,484,532	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,849	8,871	\$ 646,827	7,938	\$ 1,694,993	\$ 22,038	\$ 77,00	2	\$ 154	\$ 54	\$ 98	\$ 98	\$ 98	\$ 98	\$ 98	\$ 98	\$ 98
2046	21,18,869	49,058	\$ 1,458,290	76	15	\$ 4,587,416	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,884	9,078	\$ 666,840	8,146	\$ 1,739,311	\$ 22,038	\$ 78,00	2	\$ 156	\$ 51	\$ 97	\$ 97	\$ 97	\$ 97	\$ 97	\$ 97	\$ 97
2047	21,18,886	49,101	\$ 1,459,588	78	16	\$ 4,690,300	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,919	9,285	\$ 686,649	8,353	\$ 1,783,669	\$ 22,038	\$ 79,00	2	\$ 158	\$ 48	\$ 95	\$ 95	\$ 95	\$ 95	\$ 95	\$ 95	\$ 95
2048	21,18,902	49,145	\$ 1,460,887	79	16	\$ 4,793,184	0.22	0.15	0.1	0.028	\$ 2,207,544	30	8	\$ 38,953	9,492	\$ 706,317	8,561	\$ 1,828,067	\$ 22,038	\$ 80,00	2	\$ 160	\$ 45	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94
2049	21,18,919	49,189	\$ 1,462,188	81	16	\$ 4,896,068	1.22	0.86	1.1	0.308	\$ 2,207,544	30	8	\$ 38,988	9,700	\$ 726,182	8,769	\$ 1,872,500	\$ 22,038	\$ 81,00	2	\$ 162	\$ 43	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94	\$ 94
TOTALS			\$ 30,434,430			\$ 81,211,788						\$ 46,358,434			\$ 811,595	\$ 15,108,332		\$ 38,943,187	\$ 15,411,906	\$ 467,708		\$ 3,022	\$ 1,609	\$ 2,249	\$ 283,967,676	\$ 106,884,206		\$ 58,583,548		

General Notes:

(1) All dollar amounts are in 2020-dollar values per "Benefit-Cost Analysis Guidance for Discretionary Grant Programs" March 2022 (Revised) instructions.

(2) Engineering and Pre-Construction Activities are from September 2022 through December 2025.

(3) Construction activities are from January 2026 through December 2028.

(4) Construction completed and the project is available for use in January 2029.

(5) The Benefit-Cost Analysis is a calculation of 20 years of project use (2029-2049).

Footnotes:

¹ 2022 ADOT based on 2020 ADOT of 14,517 and an interpolated 1.10% increase in traffic/population per year based on Dunlap's growth rate of 1.10% annually. Dunlap's population has increased by 11.11% since the most recent census, which recorded a population of 4,815 in 2010. 2023-2026 are based on a 1.10% increase in traffic/population. 2027-2042 are based on a 1.10% increase in traffic with a 5% per year assumed decrease based on transfer of mode of transportation from automobile to pedestrian/bicycle (assumed based on planning/engineering considerations).

² Number of Drivers * 36 seconds per day per trip (0.6160 hours) over 220 workdays based on ability of cutting travel time from approximately 3 minutes to approximately 2.4 minutes (assumed 20% reduction, based on engineering considerations) in the project area through a more efficient streetscape and access management strategies.

³ Hours at \$2.00 per 48 Persons Permitted Travel * 1.57 people per vehicle average occupancy for Passenger Vehicles (48 Trips) from Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022, Revised).

⁴ Per the City of Dunlap Police Dept. there were a total of 35 vehicle injuries in 2022, on the existing roadway within the project area. In 2012 there were a total of 18 injuries in the same area. This increase injuries from 2012 to 2022 equates to an average increase of 1.7 injuries per year. Therefore, 1.7 injuries are projected to occur and added to each year following 2022.

⁵ Injuries prevented are based on a 20% assumed reduction in injury and property damage risks based on reduction of conflict points via access management, and on the Washington State Department of Transportation studies on roundabout benefits of 75 percent reduction in injury collisions. Property Damage crashes are based on an assumed 20% reduction based on engineering considerations. Studies by the Federal Highway Administration (FHWA) have found that roundabouts can increase traffic capacity by 30 to 50 percent compared to traditional intersections.

⁶ Value of injury is based on Monetized Value of Injury Crash with a value of \$302,600 (2020).

⁷ Per the City of Dunlap Police Department there were a total of 40 motor vehicle collisions involving property damage in 2022, on the existing roadway within the project area. Dunlap's growth rate of 1.10% annually. Crashes with property damage are expected to increase at least at the same rate as the growth rate (1.10% annually), no therefore from 2023 to 2028 an increase of 1.0% is added to each year. With the construction complete and the project usable, with much safer conditions, crashes with property damage are expected to decrease substantially. Therefore, from 2029 on, using data to ADOT of 2011 to 2021 (233 property damage crashes are calculated to be 0.006 of vehicles utilizing the project (Affected Drivers * 0.006)).

⁸ Total Value of Property Damage Crashes Prevented was based on a \$4,600 value per vehicle. From Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022, Revised).

⁹ Bicycles utilizing project the first year of project operation (2029) is expected an increase of 20% of affected drivers based on planning considerations concerning the current bicycle unsafe and uncomfortable conditions compared to the project providing bicycle friendly conditions and connecting a network of current bicycle paths in the area. Year 2029 bicycle usage is estimated to have 5,576 bicycle trips equating to an average of 15.3 bicycles per day. This is a conservative estimate. Therefore, 2029 (first year of use following construction) is Affected Drivers * 0.3 (30%) and 2030 to the 2029 value + (affected drivers * 0.011).

¹⁰ and so on annually. The 0.011 value is derived from a population increase of 1.1% annually.

¹¹ Health Benefits of Additional Bicycling = Bicycles Utilizing Project * 1.6 mile/day (average trip length) * 80.18/mile (Incorporating Health Objectives into Transportation Planning by Todd Litman, 2012) * 200 good weather days/year. According to the Bureau of Labor Statistics consumer price index: The dollar had an average inflation rate of 1.57% per year between 2012 and 2020, producing a cumulative price increase of 12.73%. This means that prices in 2020 are 1.57 times higher than average prices since 2012. Therefore, Results using Todd Litman's data from 2012 are adjusted for inflation by 12.73% to provide an accurate 2022 cost.

¹² Pedestrians utilizing project the first year of project operation (2029) is expected an increase of 25% of affected drivers based on planning considerations concerning the current unsafe and uncomfortable pedestrian conditions and this project being safe compared to the appealing walking paths and ADA compliant sidewalks the project will bring to the area. The new sidewalks and walkways will also connect to neighborhoods and businesses that are currently not easy or safe to visit via foot travel. Additional pedestrians utilizing the project is based on an annual 1.1% population growth rate after 2029. Therefore, 2029 is Affected Drivers * 0.25 and the 2030 value is the 2029 value + (affected drivers * 0.011); and so on each year with a 1.1% increase of pedestrian use.

¹³ Health Benefits of Additional Pedestrians = Pedestrians Utilizing Project * 1.8 mile/day (average trip length) * 80.48/mile (Incorporating Health Objectives into Transportation Planning by Todd Litman) * 200 good weather days/year. According to the Bureau of Labor Statistics consumer price index: The dollar had an average inflation rate of 2.14% per year between 2012 and today, producing a cumulative price increase of 23.57%. This means that today's prices are 1.24 times higher than average prices since 2012. Therefore, Results using Todd Litman's data from 2012 are adjusted for inflation by 23.57% to provide an accurate 2022 cost.

¹⁴ See Copies of Probable Cost (CPC) Spreadsheet.

¹⁵ PART 1: Per USDA the O&M cost in 2020 is \$15,472.70 per lane-mile. For 0.022 miles of two lanes (two lanes = 1.83 miles) the total cost is \$28,520.84. PART 2: mHeDisk, who provides services to the Department of Defense, Army, Marines, GSA, and other very large client states that the O&M costs per lane mile in Tennessee is \$8,500 (or 2018). There was a cumulative inflation rate of 3.07% between 2018 and 2020. Therefore, the annual O&M cost at \$8,500 per mile/lane x two lanes x 1.83 miles is \$15,559 in 2020 dollars. Between 2018 and 2020 the average inflation rate was 1.52%, with a cumulative inflation of 3.07%. Adjusted for inflation to 2020 dollars (2020 to 2020 the inflation rate is the annual 2020 O&M cost is \$16,030. Part 3: Taking an average cost between the two sources, the annual O&M cost for the project is estimated to be \$22,037.02 in 2020 dollars.

¹⁶ Total Value of Time Saved = Total Value of Injuries Prevented + Total Value of Property Damage Crashes Prevented + Health Benefits of Additional Cycling + LID Lifecycle Savings.

¹⁷ Undiscounted Benefits/(1.07^(Project Year-1))

¹⁸ Undiscounted Benefits/(1.03^(Project Year-1))

¹⁹ Total Gross Benefits = Total Value of Time Saved + Total Value of Injuries Prevented + Total Value of Property Damage Crashes Prevented + Health Benefits of Additional Cycling + Health Benefits of Additional Walking + 3% NPV CO₂ Costs. NOTE: All dollar amounts are in 2020-dollar values per "Benefit-Cost Analysis Guidance for Discretionary Grant Programs" March 2022 (Revised) instructions. Please refer to the BCA Summary table for adjustments to final dollar value per Appendix B regarding "Inflation Adjustment Calculator" and "Discounting Calculator" requirements.

²⁰ Per the City of Dunlap, there was one operator pedestrian fatality from January 1, 2011 to December 31, 2021 in the project area. This equates to 0.1/year.

²¹ Based on a CMF Clearinghouse for combination of street lighting and road median.

²² Per the City of Dunlap Police Department there were two fatalities in the project area between January 1, 2012 and December 31, 2021. During this nine year period two fatalities equates to 0.22/year. This trend is expected to continue through 2028. In 2029 and on fatalities are expected to decrease due to safer driving conditions. Therefore, based on a CMF Clearinghouse for combination of street lighting and road median, and values from 2029 are adjusted accordingly.

²³ Reduction of 28% in pedestrian risk due to project based on national average of complete streets project outcomes (https://nangrowthamerica.org/app/uploads/2016/05/complete-streets-projects-economics).

²⁴ Expected consequences of fatality: \$12,071,000 per incident, per USDOT "Benefit-Cost Analysis Guidance for Discretionary Grant Programs" (2020) value.

²⁵ Monetized Values of CO₂ from RAISE Benefit-Cost Analysis Guide

²⁶ Average Tree absorbs 48 lb CO₂/year / 2205 lb/metric ton = 0.02 metric tons absorbed per tree per year * 100 additional trees

U.S. Highway 127 Corridor Optimization Project 2022 RAISE Discretionary Grant Application
Benefit-Cost Analysis

Calendar Year	Project in Use (Year)	Affected Drivers ¹	Travel Time Saved (Hours) ²	Total Value of Time Saved ³	Injuries Per Year ⁴	Injuries Prevented by Project ⁵	Total Value of Injuries Prevented ⁶	Driver Fatalities per Year ²⁷	Driver Fatalities Prevented by Project ²⁶	Pedestrian Fatalities Per Year ²⁵	Pedestrian Fatalities Prevented by Project ²⁸	Total Value of Fatalities Prevented ²⁹	Crashes Causing Property Damage ⁷
2022		17,742			35			0.22		0.1			40
2023		17,937			37			0.22		0.1			40
2024		18,134			38			0.22		0.1			41
2025		18,334			40			0.22		0.1			41
2026		18,536			42			0.22		0.1			42
2027		18,552			44			0.22		0.1			42
2028		18,569			45			0.22		0.1			43
2029	1	18,585	48,321	\$ 1,436,402	47	9	\$ 2,838,388	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2030	2	18,602	48,364	\$ 1,437,681	49	10	\$ 2,941,272	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2031	3	18,618	48,407	\$ 1,438,960	50	10	\$ 3,044,156	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2032	4	18,635	48,451	\$ 1,440,241	52	10	\$ 3,147,040	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2033	5	18,651	48,494	\$ 1,441,523	54	11	\$ 3,249,924	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2034	6	18,668	48,537	\$ 1,442,806	55	11	\$ 3,352,808	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2035	7	18,685	48,580	\$ 1,444,090	57	11	\$ 3,455,692	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2036	8	18,701	48,623	\$ 1,445,375	59	12	\$ 3,558,576	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2037	9	18,718	48,667	\$ 1,446,661	61	12	\$ 3,661,460	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2038	10	18,735	48,710	\$ 1,447,949	62	12	\$ 3,764,344	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2039	11	18,751	48,753	\$ 1,449,238	64	13	\$ 3,867,228	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2040	12	18,768	48,797	\$ 1,450,527	66	13	\$ 3,970,112	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2041	13	18,785	48,840	\$ 1,451,818	67	13	\$ 4,072,996	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2042	14	18,801	48,883	\$ 1,453,110	69	14	\$ 4,175,880	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2043	15	18,818	48,927	\$ 1,454,404	71	14	\$ 4,278,764	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2044	16	18,835	48,971	\$ 1,455,698	72	14	\$ 4,381,648	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2045	17	18,852	49,014	\$ 1,456,994	74	15	\$ 4,484,532	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2046	18	18,868	49,058	\$ 1,458,290	76	15	\$ 4,587,416	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2047	19	18,885	49,101	\$ 1,459,588	78	16	\$ 4,690,300	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2048	20	18,902	49,145	\$ 1,460,887	79	16	\$ 4,793,184	0.22	0.15	0.1	0.028	\$ 2,207,544	30
2048	20	18,919	49,189	\$ 1,462,188	81	16	\$ 4,896,068	1.22	0.86	1.1	0.308	\$ 2,207,544	30
TOTALS				\$ 30,434,430			\$ 81,211,788					\$ 46,358,434	





Total Value of Fatalities Prevented ²⁹	Crashes Causing Property Damage ⁷	Property Damage Crashes Prevented by Project ⁵	Total Value of Property Damage Crashes Prevented ⁸	Bicycles Utilizing Project Site ⁹	Health Benefits of Additional Bicycling ¹⁰	Additional Pedestrians Utilizing Project Site ¹¹	Health Benefits of Additional Walking ¹²	Initial Costs ¹⁷	Operations & Maintenance Costs ¹⁸	Cost of Carbon per Metric Ton ³⁰
	40							\$ 15,411,906		
	40									
	41									
	41									
	42									
	42									
	43									
\$ 2,207,544	30	8	\$ 38,300	5,576	\$ 338,993	4,642	\$ 991,235		\$ 22,038	\$ 61.00
\$ 2,207,544	30	8	\$ 38,334	5,780	\$ 551,752	4,847	\$ 1,034,927		\$ 22,038	\$ 62.00
\$ 2,207,544	30	8	\$ 38,368	5,985	\$ 571,301	5,052	\$ 1,078,658		\$ 22,038	\$ 63.00
\$ 2,207,544	30	8	\$ 38,403	6,190	\$ 590,868	5,257	\$ 1,122,428		\$ 22,038	\$ 64.00
\$ 2,207,544	30	8	\$ 38,437	6,395	\$ 610,452	5,462	\$ 1,166,237		\$ 22,038	\$ 65.00
\$ 2,207,544	30	8	\$ 38,471	6,600	\$ 630,054	5,667	\$ 1,210,084		\$ 22,038	\$ 66.00
\$ 2,207,544	30	8	\$ 38,505	6,806	\$ 649,673	5,873	\$ 1,253,971		\$ 22,038	\$ 67.00
\$ 2,207,544	30	8	\$ 38,540	7,012	\$ 669,310	6,078	\$ 1,297,897		\$ 22,038	\$ 69.00
\$ 2,207,544	30	8	\$ 38,574	7,218	\$ 688,964	6,284	\$ 1,341,862		\$ 22,038	\$ 70.00
\$ 2,207,544	30	8	\$ 38,608	7,424	\$ 708,635	6,490	\$ 1,385,866		\$ 22,038	\$ 71.00
\$ 2,207,544	30	8	\$ 38,643	7,630	\$ 728,324	6,697	\$ 1,429,909		\$ 22,038	\$ 72.00
\$ 2,207,544	30	8	\$ 38,677	7,836	\$ 748,031	6,903	\$ 1,473,992		\$ 22,038	\$ 73.00
\$ 2,207,544	30	8	\$ 38,711	8,043	\$ 767,755	7,110	\$ 1,518,113		\$ 22,038	\$ 74.00
\$ 2,207,544	30	8	\$ 38,746	8,250	\$ 787,497	7,316	\$ 1,562,274		\$ 22,038	\$ 75.00
\$ 2,207,544	30	8	\$ 38,780	8,457	\$ 807,256	7,523	\$ 1,606,475		\$ 22,038	\$ 77.00
\$ 2,207,544	30	8	\$ 38,815	8,664	\$ 827,033	7,731	\$ 1,650,714		\$ 22,038	\$ 78.00
\$ 2,207,544	30	8	\$ 38,849	8,871	\$ 846,827	7,938	\$ 1,694,993		\$ 22,038	\$ 79.00
\$ 2,207,544	30	8	\$ 38,884	9,079	\$ 866,640	8,146	\$ 1,739,311		\$ 22,038	\$ 80.00
\$ 2,207,544	30	8	\$ 38,919	9,287	\$ 886,469	8,353	\$ 1,783,669		\$ 22,038	\$ 81.00
\$ 2,207,544	30	8	\$ 38,953	9,495	\$ 906,317	8,561	\$ 1,828,067		\$ 22,038	\$ 82.00
\$ 2,207,544	30	8	\$ 38,988	9,703	\$ 926,182	8,769	\$ 1,872,503		\$ 22,038	\$ 82.00
\$ 46,358,434			\$ 811,505		\$ 15,108,332		\$ 30,043,187	\$ 15,411,906	\$ 462,798	

Operations & Maintenance Costs ¹⁸	Cost of Carbon per Metric Ton ³⁰	Metric Tons of CO ₂ Removed by Project ³¹	Undiscounted Non-CO ₂ Net Benefits ³²	7% NPV CO ₂ Costs ²²	3% NPV CO ₂ Costs ²³	Total Gross Benefits (No Discount) ²⁴	Undiscounted Net Benefits ¹⁹	7% NPV Net Benefits ^{23, 33}
							\$ (15,411,906)	\$ (15,411,906)
\$ 22,038	\$ 61.00	2	\$ 122	\$ 122	\$ 122	\$ 7,850,863	\$ 4,990,559	\$ 5,012,597
\$ 22,038	\$ 62.00	2	\$ 124	\$ 116	\$ 120	\$ 8,211,510	\$ 5,248,324	\$ 4,925,577
\$ 22,038	\$ 63.00	2	\$ 126	\$ 110	\$ 119	\$ 8,378,988	\$ 5,312,920	\$ 4,659,768
\$ 22,038	\$ 64.00	2	\$ 128	\$ 104	\$ 117	\$ 8,546,524	\$ 5,377,574	\$ 4,407,704
\$ 22,038	\$ 65.00	2	\$ 130	\$ 99	\$ 116	\$ 8,714,117	\$ 5,442,285	\$ 4,168,722
\$ 22,038	\$ 66.00	2	\$ 132	\$ 94	\$ 114	\$ 8,881,767	\$ 5,507,053	\$ 3,942,185
\$ 22,038	\$ 67.00	2	\$ 134	\$ 89	\$ 112	\$ 9,049,476	\$ 5,571,880	\$ 3,727,486
\$ 22,038	\$ 69.00	2	\$ 138	\$ 86	\$ 112	\$ 9,217,242	\$ 5,636,766	\$ 3,524,045
\$ 22,038	\$ 70.00	2	\$ 140	\$ 81	\$ 111	\$ 9,385,065	\$ 5,701,707	\$ 3,331,301
\$ 22,038	\$ 71.00	2	\$ 142	\$ 77	\$ 109	\$ 9,552,947	\$ 5,766,707	\$ 3,148,725
\$ 22,038	\$ 72.00	2	\$ 144	\$ 73	\$ 107	\$ 9,720,886	\$ 5,831,764	\$ 2,975,810
\$ 22,038	\$ 73.00	2	\$ 146	\$ 69	\$ 105	\$ 9,888,883	\$ 5,896,879	\$ 2,812,071
\$ 22,038	\$ 74.00	2	\$ 148	\$ 66	\$ 104	\$ 10,056,939	\$ 5,962,053	\$ 2,657,046
\$ 22,038	\$ 75.00	2	\$ 150	\$ 62	\$ 102	\$ 10,225,052	\$ 6,027,284	\$ 2,510,293
\$ 22,038	\$ 77.00	2	\$ 154	\$ 60	\$ 102	\$ 10,393,223	\$ 6,092,575	\$ 2,371,395
\$ 22,038	\$ 78.00	2	\$ 156	\$ 57	\$ 100	\$ 10,561,453	\$ 6,157,923	\$ 2,239,946
\$ 22,038	\$ 79.00	2	\$ 158	\$ 54	\$ 98	\$ 10,729,740	\$ 6,223,328	\$ 2,115,567
\$ 22,038	\$ 80.00	2	\$ 160	\$ 51	\$ 97	\$ 10,898,086	\$ 6,288,792	\$ 1,997,893
\$ 22,038	\$ 81.00	2	\$ 162	\$ 48	\$ 95	\$ 11,066,490	\$ 6,354,314	\$ 1,886,580
\$ 22,038	\$ 82.00	2	\$ 164	\$ 45	\$ 94	\$ 11,234,952	\$ 6,419,894	\$ 1,781,296
\$ 22,038	\$ 82.00	2	\$ 164	\$ 45	\$ 94	\$ 11,403,473	\$ 6,485,531	\$ 1,799,445
\$ 462,798			\$ 3,022	\$ 1,609	\$ 2,249	\$ 203,967,676	\$ 106,884,206	\$ 50,583,546

GENERAL NOTES:

"(1) All dollar amounts are in 2020-dollar values per 'Benefit-Cost Analysis Guidance for Discretionary Grant Programs' March 2022 (Revised) instructions."

(2) Engineering and Pre-Construction Activities are from September 2022 through December 2025.

(3) Construction activities are from January 2026 through December 2028.

(4) Construction completed and the project is available for use in January 2029.

(5) This Benefit Cost Analysis is a calculation of 20 years of project use (2029-2049).

FOOTNOTES:

1 2022 AADTC based on 2020 AADT of 14,517 and an interpolated 1.10% increase in traffic/population per year based on Dunlap's growth rate of 1.10% annually. Dunlap's population has increased by 11.11% since the most recent census, which recorded a population of 4,815 in 2010. 2022-2026 are based on a 1.10% increase in traffic/population. 2027-2042 are based on a 1.10% increase in traffic with a 5% per year assumed decrease based on transfer of mode of transportation from automobile to pedestrian/bicycle (assumed based on planning/engineering considerations).

2 Number of Drivers * 36 seconds per day per trip (0.6/60 hours) over 220 workdays based on ability of cutting travel time from approximately 3 minutes to approximately 2.4 minutes (assumed 20% reduction, based on engineering considerations) in the project area through a more efficient streetscape and access management strategies.

3 Hours at \$17.80 for All Purposes Personal Travel * 1.67 people per vehicle average occupancy for Passenger Vehicles (All Travel). From Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022, Revised).

4 Per the City of Dunlap Police Dept. there were a total of 35 vehicle injuries in 2022, on the existing roadway within the project area. In 2012 there were a total of 18 injuries in this same area. The increase injuries from 2012 to 2022 equates to an average increase of 1.7 injuries per year. Therefore, 1.7 injuries are projected to occur and added to each year following 2022.

5 Injuries prevented are based on a 20% assumed reduction in injury and property damage risks based on reduction of conflict points via access management, and on the Washington State Department of Transportation studies on roundabout benefits of 75 percent reduction in injury collisions. Property Damage crashes are based on an assumed 20% reduction based on engineering considerations. Studies by the Federal Highway Administration (FHWA) have found that roundabouts can increase traffic capacity by 30 to 50 percent compared to traditional intersections.

6 Value of Injury is based on Monetized Value of Injury Crash with a value of \$302.600 (2020). From Benefit-Cost Analysis Guide for Discretionary Grant Programs (March 2022, Revised).

7 Per the City of Dunlap Police Department there were a total of 40 motor vehicle collisions involving property damage in 2022, on the existing roadway within the project area. Dunlap's growth rate of 1.10% annually. Crashes with property damage are expected to increase at least at the same rate as the growth rate (1.10% annually), so therefore from 2023 to 2028 an increase of 1.10% is added to each year. With the construction complete and the project useable, with much safer conditions, crashes with property damage are expected to decrease substantially. Therefore, from 2029 on, using data from AADTC from 2011 to 2021 (233 property damage crashes/146,734 = 0.16%) property damage crashes are calculated to be 0.0016 of vehicles utilizing the project (Affected Drivers x 0.0016).

8 Total Value of Property Damage Crashes Prevented was based on a \$4,600 value per vehicle. From Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022, Revised).

9 Bicycles utilizing project the first year of project operation (2029) is expected an increase of 30% of affected drivers based on planning considerations concerning the current bicycle unsafe and unaccommodating conditions compared to the project providing bicycle friendly conditions and connecting a network of current bicycle paths in the area. Year 2029 bicycle usage is estimated to have 5,576 bicycle trips equating to an average of 15.3 bicycles per day. This is a conservative estimate. Therefore, 2029 (first year of use following construction) is Affected Drivers * 0.3 (30%) and 2030 is the 2029 value + (affected drivers * 0.011); and so on annually. The 0.011 value is derived from a population increase of 1.1% annually.

10 Health Benefits of Additional Bicycling = Bicycles Utilizing Project * 1.6 miles/day (average trip length) * \$0.19/mile (Incorporating Health Objectives Into Transportation Planning by Todd Litman, 2012) * 200 good weather days/year. According to the Bureau of Labor Statistics consumer price index: The dollar had an average inflation rate of 1.57% per year between 2012 and 2020, producing a cumulative price increase of 12.73%. This means that prices in 2020 are 1.57 times higher than average prices since 2012. Therefore, Results using Todd Litman's data from 2012 are adjusted for inflation by 12.73% to provide an accurate 2020 cost.

11 Pedestrians utilizing project the first year of project operation (2029) is expected an increase of 25% of affected drivers based on planning considerations concerning the current unsafe and unfriendly pedestrian conditions and this project being safe compared to the appealing walking paths and ADA compliant sidewalks the project will bring to the area. The new sidewalks and walkways will also connect to neighborhoods and businesses that are currently not easy or safe to visit via foot travel. Additional pedestrians utilizing the project is based on an annual 1.1% population growth rate after 2029. Therefore, 2029 is Affected Drivers * 0.25 and the 2030 value is the 2029 value + (affected drivers * 0.011); and so on each year with a 1.1% increase of pedestrian use.

12 Health Benefits of Additional Pedestrians = Pedestrians Utilizing Project * 1.8 miles/day (average trip length) * \$0.48/mile

(Incorporating Health Objectives Into Transportation Planning by Todd Litman) * 200 good weather days/year. According to the Bureau of Labor Statistics consumer price index: The dollar had an average inflation rate of 2.14% per year between 2012 and today, producing a cumulative price increase of 23.57%. This means that today's prices are 1.24 times higher than average prices since 2012. Therefore, Results using Todd Litman's data from 2012 are adjusted for inflation by 23.57% to provide an accurate 2022 cost.

17 See Opinion of Probable Cost (OPC) Spreadsheet

18 PART 1: Per USDA the O&M cost in 2020 is \$15,473.70 per lane mile. For 0.922 miles of two lanes (two lanes = 1.83 miles) the total cost is \$28,520.84. PART 2: mHelpDesk, who provides services to the Department of Defense, Army, Marines, GSA, and other very large clients states that the O&M costs per lane mile in Tennessee is \$8,500 (yr 2018). There was a cumulative inflation rate of 3.07% between 2018 and 2020. Therefore, the annual O&M cost at \$8,500 per mile/lane x two lanes x 1.83 miles is \$15,555 in 2018 dollars. Between 2018 and 2020 the average inflation rate was 1.52%, with a cumulative inflation of 3.07%. Adjusted for inflation to 2020 dollars (2018 to 2020 the inflation rate) the annual 2020 O&M cost is \$16,032. Part 3: Taking an average cost between the two sources, the annual O&M cost for the project is estimated to be \$22,037.92 in 2020 dollars.

19 Total Value of Time Saved + Total Value of Injuries Prevented + Total Value of Property Damage Crashes Prevented + Health Benefits of Additional Cycling + LID Lifecycle Savings

22 Undiscounted Benefits/(1.07^(Project Year-1))

23 Undiscounted Benefits/(1.03^(Project Year-1))

24 Total Gross Benefits = Total Value of Time Saved + Total Value of Injuries Prevented + Total Value of Property Damage Crashes Prevented + Health Benefits of Additional Cycling + Health Benefits of Additional Walking + 3% NPV CO2 Costs
NOTE: All dollar amounts are in 2020-dollar values per 'Benefit-Cost Analysis Guidance for Discretionary Grant Programs' March 2022 (Revised) instructions. Please refer to the BCA Summary table for adjustments to final dollar value per Appendix B regarding 'Inflation Adjustment Calculation' and 'Discounting Calculation' requirements.

25 Per City of Dunlap, there was one operator pedestrian fatality from January 1, 2011 to December 31, 2021 in the project area. This equates to 0.1/year.

26 Based on a CMF Clearinghouse for combination of street lighting and road median.

27 Per the City of Dunlap Police Department there were two fatalities in the project area between January 1, 2012 and December 31, 2021. During this nine year period two fatalities equates to 0.22/year. This trend is expected to continue

through 2028. In 2029 and on fatalities are expected to decrease due to safer driving conditions. Therefore, based on a CMF Clearinghouse for combination of street lighting and road median, and values from 2029 are adjusted accordingly.

28 Reduction of 28% in pedestrian risk due to project based on national average of complete streets project outcomes (<https://smartgrowthamerica.org/app/uploads/2016/08/safer-streets-stronger-economies>).

29 Expected consequences of fatality: \$12,071,000 per incident, per USDOT "Benefit-Cost Analysis Guidance for Discretionary Grant Programs" (2020 value).

30 Monetized Values of CO2 from RAISE Benefit-Cost Analysis Guide

31 Average Tree absorbs 48 lb CO2/year / 2205 lb/metric ton = 0.02 metric tons asborbed per tree per year * 100 additional trees

32 Undiscounted Non-CO2 Net Benefits = Monetized Values of CO2 * Metric Tons of CO2 Removed by Project

33 Includes 3% NPV for Carbon instead of 7%



Dunlap Bicycle and Pedestrian Plan

Adopted by Dunlap Board of Commissioners – August 2021

TENNESSEE
DEPARTMENT OF
TRANSPORTATION



Dunlap Bicycle and Pedestrian Plan

Table of Contents

1. INTRODUCTION & OVERVIEW	1
1.1 PROJECT BACKGROUND	1
1.2 BICYCLE-PEDESTRIAN PLAN OBJECTIVES.....	1
1.3 PLANNING PROCESS.....	1
2. EXISTING CONDITIONS	3
2.1 GEOGRAPHY	3
2.2 DEMOGRAPHICS	3
2.3 DUNLAP'S ECONOMY	4
2.4 RELEVANT PLANS AND PREVIOUS PROJECTS.....	4
3. STAKEHOLDER AND PUBLIC ENGAGEMENT	5
3.1 STAKEHOLDER ENGAGEMENT PROCESS.....	5
3.1.1 STAKEHOLDER TEAM	5
3.2 STAKEHOLDER ENGAGEMENT	5
3.2.1 MEETINGS	6
3.2.2 SURVEY	6
3.2.3 SUMMARY OF SURVEY	6
3.3 PLANNING GOALS.....	7
3.3.1 ENHANCING SAFETY OF ALL ROAD USERS.....	7
3.3.2 SUPPORTING ECONOMIC DEVELOPMENT	7
3.3.3 EXPANDING OPPORTUNITIES FOR BIKING AND WALKING.....	8
4. ISSUES AND OPPORTUNITIES	8
4.1 SR-28/RANKIN AVENUE.....	10
4.2 DOWNTOWN DUNLAP.....	10
4.3 RECREATION AND TOURIST DESTINATIONS	10
4.4 ELM STREET AND MAIN STREET	11



4.5 WEST VALLEY ROAD AND EAST VALLEY ROAD	11
5. DEVELOPMENT AND EVALUATION OF RECOMMENDATIONS	12
5.1 EVALUATION METHODOLOGY	13
5.2 SUMMARY OF RECOMMENDATIONS	13
5.3 PROPOSED BICYCLE NETWORK	19
5.4 PROPOSED PEDESTRIAN IMPROVEMENTS	20
6. PRIORITY RECOMMENDATIONS	21
6.1 PRIORITY: SR-28/RANKIN AVENUE COMPLETE STREET	21
6.1.1 SR-28/RANKIN AVENUE CORRIDOR (NORTH AND SOUTH COMMERCIAL CORRIDORS)	21
6.1.2 DOWNTOWN COMPLETE STREET	22
6.2 PRIORITY: PEDESTRIAN CROSSINGS - COOPS CREEK GREENWAY/DOWNTOWN	24
6.3 PRIORITY: DOWNTOWN SIDEWALK EXPANSION	25
6.4 PRIORITY: COKE OVENS TO SEQUATCHIE RIVER GREENWAY	26
6.5 PRIORITY: REGIONAL BIKEWAYS	27
6.6 PRIORITY: ADDITIONAL CONSIDERATIONS	29
6.6.1 PLACEMAKING	29
6.6.2 TRAFFIC STUDY	29
6.6.3 POLICY CHANGES	30
6.6.4 WAYFINDING	31
7. IMPLEMENTATION	32
7.1 POTENTIAL FUNDING SOURCES & PARTNERSHIP	32
APPENDIX A: PROJECT SURVEY RESULTS	35
APPENDIX B: SAMPLE BOARD RESOLUTION	37

1. INTRODUCTION & OVERVIEW

1.1 PROJECT BACKGROUND

The Tennessee Department of Transportation (TDOT) awarded the City of Dunlap a Community Transportation Planning Grant in 2020 to develop a citywide bicycle and pedestrian plan that identifies and prioritizes needed transportation improvements. The plan provides a summary of existing pedestrian and bicycling assets and issues along with recommendations for projects to support and expand opportunities for biking and walking in line with City, stakeholder, and public priorities. The HNTB Planning and Engineering firm was selected to lead a team including Alta Planning and Design to complete the study and write the plan.

1.2 BICYCLE-PEDESTRIAN PLAN OBJECTIVES

The objective of the City of Dunlap Bicycle/Pedestrian Plan is to lay out a vision for planning and implementation of a multimodal system of bicycle and pedestrian paths throughout the city. Through the Bicycle/Pedestrian Plan, the City of Dunlap aims to advance the causes of safety, efficiency, placemaking, and sustainability through the following tasks:

- Expand bicycle facilities throughout the city
- Install ADA-compliant pathways
- Improve the pedestrian network:
 - o Sidewalks
 - o Walking paths
 - o Crosswalks
 - o Pedestrian bridges
 - o Lighting

This Bicycle/Pedestrian Plan will examine needs and potential opportunities in Dunlap and create a set of prioritized project proposals, which could be implemented through future funding opportunities.

1.3 PLANNING PROCESS

The planning process was driven by robust stakeholder engagement from March through July 2021. In order to fully meet the needs of Dunlap, the project team met with the public and project stakeholders to better understand how a bicycle/pedestrian plan could support the City's broader goals and priorities. After the project kickoff in March, the project team conducted three meetings with presentations: two meetings included key stakeholders from law enforcement, city government, business community, and tourist ventures. At a third meeting, the general public was invited to participate in a virtual workshop. In addition to the public meeting, a survey was deployed to gain an understanding of priorities from a broader selection of citizens. To continue to gather input, an online comment form was posted where individuals could submit ideas or feedback throughout the plan formulation process.

Dunlap Bicycle and Pedestrian Plan

Exhibit 1.1: Project Timeline



Dunlap Bicycle and Pedestrian Plan

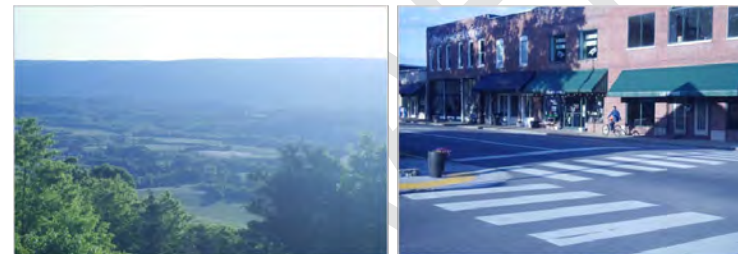
2. EXISTING CONDITIONS

2.1 GEOGRAPHY

Founded in 1858, Dunlap, TN was formed as the county seat for Sequatchie County, which had been established the previous year. Coal mining played an important role in Dunlap's early history with the opening of a coal mine on Fredonia Mountain in 1899. At the base of the mountain, coke ovens were constructed to convert the mined coal into coke for use in iron and steel in nearby production facilities. In 1927 the operations were shut down and the ovens were left unused. Today, the Coke Ovens site has been placed on the National Register of Historic Places and is a popular destination for tourists and Dunlap residents.¹

Dunlap is located in southeastern Tennessee. It is a popular destination for visitors to the Sequatchie Valley – a 65-mile long valley that cuts through the Cumberland Plateau. It covers a total area of 8.6 square miles and is primarily served by SR-28 and US-127/Rankin Avenue that connect Dunlap to Pikeville and Crossville in the north and Chattanooga to the southeast.

Exhibit 1: Sequatchie Valley and Downtown Dunlap



2.2 DEMOGRAPHICS

With an estimated population of 5,100 in 2019, Dunlap has seen an a 24% increase in population since 2000.² About 66% of the town population lives in an area categorized as urban, while the remaining 34% live in rural areas. The majority of Sequatchie County population is white – at 97.1% of the total population. In 2019, the unemployment rate in the county was 4.2%, compared to 3.4% across the state of Tennessee. The median household income was \$49,370 with 19.7% of households living below the poverty level.³

¹ <https://sequatchiecountyttn.gov/history/>

² <https://www.census.gov/quickfacts/dunlapcitytennessee>

³ <https://www.census.gov/quickfacts/dunlapcitytennessee>

Dunlap Bicycle and Pedestrian Plan



2.3 DUNLAP'S ECONOMY

The top employer in Sequatchie County is the Sequatchie Board of Education, which runs the three schools in the area – Griffith Elementary School, Sequatchie Middle School, and Sequatchie High School. Each is located on the same campus in Dunlap. Other top employers in the county are Mann + Hummel USA, Inc., a filtration manufacturer, and the Southeast Tennessee Human Resource Agency.⁴

Dunlap and the surrounding Sequatchie Valley are major draws for recreational activities. Project stakeholders and local organizations like the Chamber of Commerce, the Southeast Tennessee Development District, and Southeast Tennessee Tourism Association have worked to promote tourism and recreational activities in the area, including development of "Bikeways of the Scenic South," a network of bike routes that stretch through the Chattanooga Tri-State Region.⁵ Sequatchie Valley draws cyclists for its scenic views, lower-volume rural roads, and historic landmarks. "Cycle Sequatchie" is a three-day bike ride that begins and ends in Dunlap, with different routes around the valley for each day.⁶ It brings significant numbers of cyclists and visitors to the area. "Walk-Bike Nashville" has begun an annual 225-mile bike ride that takes riders through Tennessee's scenic Cumberland Plateau roadways. It begins in Dunlap and ends at Percy Priest Lake in Nashville. Additionally, Dunlap and the surrounding Sequatchie Valley are known for hang-gliding and paragliding, which bring significant numbers of tourists to the area each year. Dunlap is even known as the "Hang Gliding Capital of the East."⁷

2.4 RELEVANT PLANS AND PREVIOUS PROJECTS

Within the last decade, the City of Dunlap has made significant investments in bicycle and pedestrian infrastructure. Harris Park and downtown streetscapes were upgraded in 2016-18. In 2018, the City completed Phase II of the Coops Creek Greenway that connects Rankin Avenue at Coops Creek to the Sequatchie County Schools campus via an abandoned railway alignment behind the commercial storefronts south of downtown. Additional planned projects like the Downtown Multimodal Connector have been awarded funding from TDOT and are planned for implementation in the near future.

In recent years, Dunlap and the surrounding Sequatchie Valley have seen an expanding population and marked growth in tourism-related businesses. To capitalize on this growth and encourage further development, several initiatives have been planned. The development of this document recognizes these efforts and seeks to coordinate with them to encourage comprehensive planning. For example, the Sequatchie Valley Scenic Byway Corridor Management Plan, funded by a grant through the Federal Highway Administration with matching funding from the Southeast Tennessee Development District, was created to create a cohesive identity, as well as increase economic development and protect natural and historic resources along the state-designated Sequatchie Valley Scenic Byway⁸. The management plan includes an examination of the potential for bicycle lanes along the Byway. In 2021, the Byway was one of five Tennessee roads to earn a "National Scenic Byway" or "All-American Road" designation, acknowledging the significance of the area's archeological, cultural, historical, natural, and recreational resources.⁹ The Sequatchie-Bledsoe Tourism Asset Development Plan, adopted in 2017, is also relevant. It proposes concepts and makes recommendations to further economic

⁴ https://www.greaterchatt.com/images/uploads/pdfs/Sequatchie_County.pdf

⁵ <http://scenicbikeways.com/>

⁶ <https://cyclesequatchie.com/details>

⁷ <https://cokeovens.com/dunlap/>

⁸ <https://www.sedev.org/wp-content/uploads/2017/06/Sequatchie-Valley-Byways-Corridor-Management-Plan-reduced.pdf>

⁹ <https://www.newsbreak.com/news/2165006116002/sequatchie-valley-scenic-bway-designated-as-national-scenic-bway>



Dunlap Bicycle and Pedestrian Plan



growth through tourism-focused, asset-based planning in Bledsoe and Sequatchie counties.¹⁰ The Tennessee State Bicycle Route Plan, called for SR-28 to be part of a proposed bicycle route that would run through Dunlap.¹¹

3. STAKEHOLDER AND PUBLIC ENGAGEMENT

3.1 STAKEHOLDER ENGAGEMENT PROCESS

Stakeholder outreach is a key component to planning studies and is integral to successfully seeing a project through implementation. Plans serve as guides for the coordination of potential project activities with the stakeholders most likely affected by a particular study or project. Stakeholders also have valuable local knowledge about a project or issue that allows planners to design solutions that work more effectively.

3.1.1 STAKEHOLDER TEAM

The project team consisted of the following individuals with their affiliations:

- Mayor Clint Huth – City of Dunlap
- Former Mayor Dwain Land – City of Dunlap
- Yonna Hatfield – City of Dunlap
- Norman Hatfield – Fire Department
- Chief Randy Phillips – Dunlap Police Department
- Lieutenant Lynn Lewis – Dunlap Police Department
- Becky Card - Business owner & Dunlap City Commissioner
- Jenni Veal – Tourism Coordinator - Southeast Tennessee Tourism Association
- Janis Kyser – Executive Director of Dunlap-Sequatchie Chamber of Commerce
- Andrea Noel – TDOT
- Rachael Bergmann – TDOT
- Brian Ruehling – Sequatchie County Sheriff's Department
- Pete Swafford – Sequatchie County Schools
- Dave Anderson – City of Dunlap
- Sarah Murray – Southeast TN Development District
- Zach North – Sequatchie County Health Council

3.2 STAKEHOLDER ENGAGEMENT

In order to inform potential improvements to the bicycle and pedestrian network in Dunlap, the planning process required significant stakeholder engagement. This was done via stakeholder/public meetings and a public survey. The feedback received from these two sources was analyzed and shaped into key themes that informed the process leading to the plan's recommendations.

¹⁰

<https://static1.squarespace.com/static/5d5aa6d18c20010001f5909a/v/5da7598a575fb9555cf3b001/1571248524916/Project+Page+Sequatchie+Bledsoe+Tourism.pdf>

¹¹ <https://www.tn.gov/content/dam/tn/tdot/public-trans/bicyclerouteRegion2.pdf>



Dunlap Bicycle and Pedestrian Plan



3.3 PLANNING GOALS

Pedestrian and bicycle facilities provide a strong transportation backbone for any city, allowing for people of all ages and abilities to move freely throughout their community. They also serve to attract visitors and new residents from the surrounding region, while providing a network to better connect the center of a town to the area around it. Through the Dunlap Bicycle-Pedestrian Plan, the City of Dunlap intends to strengthen the quality of life for its residents by

- Enhancing safety of all road users,
- Expanding opportunities for walking and biking, and
- Supporting economic development.

3.3.1 ENHANCING SAFETY OF ALL ROAD USERS

Throughout the planning process, stakeholders and the general public highlighted “safety” as the most important component of a bicycle/pedestrian plan. During the kickoff meeting, the Mayor of Dunlap highlighted a fatal crash that occurred near the Rankin Avenue Coops Creek bridge that highlighted the need for increased safety for pedestrians and drivers in the area. The Chief of Police also referenced a pedestrian death that occurred on Main Street, further emphasizing the need for safe facilities for those traveling on foot.

During the general public meetings, Dunlap residents expressed concerns about safety with a need for more sidewalks and crosswalks at dangerous intersections and across busy streets. They also wanted to slow traffic down through town, specifically on Rankin Avenue and Main Street. Currently, the speed limit on Rankin Avenue is 45 mph into town, but then drops to 30 mph but only for the immediate downtown area. Stakeholders expressed that the continuation of 45 mph speed limits reflected an earlier era, when development in Dunlap covered a more compact area around downtown. Today, as development has spread north and south, it may be time to reduce speed limits to reflect the existence of new businesses and residents further from downtown. In addition to lower speed limits, vehicle speeds can also be lowered by narrowing the travel lanes on Rankin Avenue. Narrower lanes tend to slow cars down without contributing to traffic congestion. Additionally, stakeholders wanted to focus on adding signage and lighting that would alert drivers to the existence of walkers and bikers on roads, sidewalks, and crosswalks.

The survey results reflect these initial findings. When it comes to biking and walking, the main concern of residents is safety. When asked what the biggest obstacles to walking/biking were, the respondents replied “safety concerns” and “lack of infrastructure.” These go hand in hand, as more infrastructure (greenways, marked and signed street crossings, multi-use pathways) would support a greater level of safety.

3.3.2 SUPPORTING ECONOMIC DEVELOPMENT

As communities across the United States become aware of the needs of pedestrians and cyclists, there tends to be an influx of economic activity. Dunlap is already known as a tourist destination for those visiting Sequatchie Valley, particularly among cyclists. When asked in the survey, the general public listed “improving the economy and increasing tourism” as the second most important goal that the Bike/Ped Plan should focus on. Expanding access in and around Dunlap through a strategically designed bicycle/pedestrian network will better connect the city to the rest of Sequatchie County and to surrounding counties, which in turn will strengthen the entire region’s economic competitiveness.

As downtown is already relatively compact in its form with buildings fronting the sidewalks rather than extensive parking lots as in newer parts of town, it is a natural place to continue building bike and pedestrian facilities. In stakeholder meetings, people expressed that downtown Dunlap was poised for economic growth, if the plan addressed issues like more bike facilities or addressing traffic speeds and volumes. Many people

Dunlap Bicycle and Pedestrian Plan



3.2.1 MEETINGS

Three stakeholder and two general public meetings were held to solicit input on bicycle and pedestrian planning in Dunlap. The stakeholder meetings included representatives from the local government, the county school system, the Chamber of Commerce, regional agencies, and local businesses. During these meetings, stakeholders shared their insights regarding transportation issues and discussed potential solutions. The general public meetings were conducted similarly, and the project team heard from a number of citizens regarding their highest priorities for bicycle and pedestrian needs in Dunlap.

3.2.2 SURVEY

Stakeholder and general public meeting participants were encouraged to share the link for an online survey, the results of which are available in Appendix A. The survey was designed to determine the needs and priorities of the various walking and biking opportunities in Dunlap. The survey was open for three weeks and received 132 responses. The survey contained the following questions:

- How important is improving walking or biking conditions in Dunlap?
- What goals should the Dunlap Active Transportation Plan focus on?
- What are your reasons for walking and/or bicycling in Dunlap?
- What are the biggest obstacles to you walking and/or bicycling more?
- Which destinations would you like to be able to reach by walking and/or biking?
- Where in Dunlap are your top locations for new/improved sidewalks, trails, bicycle lanes?
- Where in Dunlap are your top three locations for improvements to intersections/pedestrian-bike crossings?
- How likely are the following types of bike/ped facilities to encourage you to bike or walk more often?
 - o Wayfinding signage
 - o Sidewalks
 - o Bike lanes
 - o Buffered bike lanes
 - o Separated bike lanes (physically separated from traffic)
 - o Greenways (shared use paths)
 - o Safer intersections
- What age group are you in?

3.2.3 SUMMARY OF SURVEY

The survey indicated an elevated interest in bicycling and walking activities but that citizens felt unsafe in many circumstances – especially crossing or traveling along major thoroughfares like Rankin Avenue. When presented with alternatives, survey respondents overwhelmingly preferred solutions that created more distance between bikers/walkers and automobiles. In general, the survey highlighted the public’s support for improving walking and biking conditions in Dunlap along with a need to focus on health, safety, and increasing tourism opportunities in order to support the City’s economy. This feedback was vital to the project team in the formation of project and policy recommendations.

Dunlap Bicycle and Pedestrian Plan



perceived that getting to and from downtown Dunlap by bike or on foot was dangerous and that during peak afternoon travel times that traffic would be congested on the main state routes through much of the city. A negative feedback loop as high traffic volumes and speeds discourage people from choosing walking or biking as an alternative to driving, further contributing to congestion. Allowing for safer walking and biking to, from, and within downtown will encourage people to enjoy the experience of shopping and dining downtown

3.3.3 EXPANDING OPPORTUNITIES FOR BIKING AND WALKING

Although Dunlap has significant potential for walking and biking, it currently lacks sufficient infrastructure to support a robust number of cyclists and pedestrians. In the public survey, 63% of respondents said that improving biking and walking conditions was “very important” to them, showing that there is demand for an improved network of alternative transportation options.

Surprisingly, when looking at what kind of additional infrastructure would support walking and biking in Dunlap, bike lanes were not a standout choice. Only 30% said that bike lanes and buffered bike lanes would make them more comfortable walking/biking. However, greenways and sidewalks were far more popular options – garnering more than 60% support.

One consideration that could explain these results is that most people surveyed could prefer walking over biking. This would explain the lack of enthusiasm towards bike lanes as incentive to walk/bike. When asked about their willingness to ride a bicycle, 50% of respondents said they were “interested, but concerned”, which meant that they could be willing to bike if significant, high-quality infrastructure is put in place. Only 7.5% of respondents felt “strong and fearless” about riding, even with limited infrastructure. Another perspective on bike lanes compared to more protected infrastructure such as multiuse pathways or greenways is that bike lanes do not offer the same level of protection against cars due to not having grade separation.

Expanding the bicycle/pedestrian network would also serve to connect Dunlap’s public resources. Several parks could easily see more use if they were connected to networked bike/ped infrastructure. Additionally, connecting downtown with the less densely developed areas to the north and south could enable residents and visitors to walk and bike rather than drive, which would in turn lessen traffic congestion during peak periods.

Survey respondents indicated that their primary purpose for walking and biking was for recreation purposes and that their destinations would be nearby parks, downtown Dunlap, and local restaurants. “Exercise” was the main reason that people currently walk or bike in Dunlap (81%). Several of the most popular destinations for biking/walking were parks and recreation destinations (Harris Park – 53%, Veterans Memorial Park – 45%, and Sequatchie River Access Points – 59%). Conversely, very few said they would be interested in biking or walking for shopping, health care, or church. As infrastructure is developed, however, these perspectives may change.

4. ISSUES AND OPPORTUNITIES

Feedback from project stakeholders and the public, along with data collected from the survey identified several issues and opportunities within the City of Dunlap. Safety on SR-28/Rankin Avenue was the leading concern as many members of the public indicated that they would feel unsafe walking or bicycling along SR-28/Rankin Avenue in its current condition.

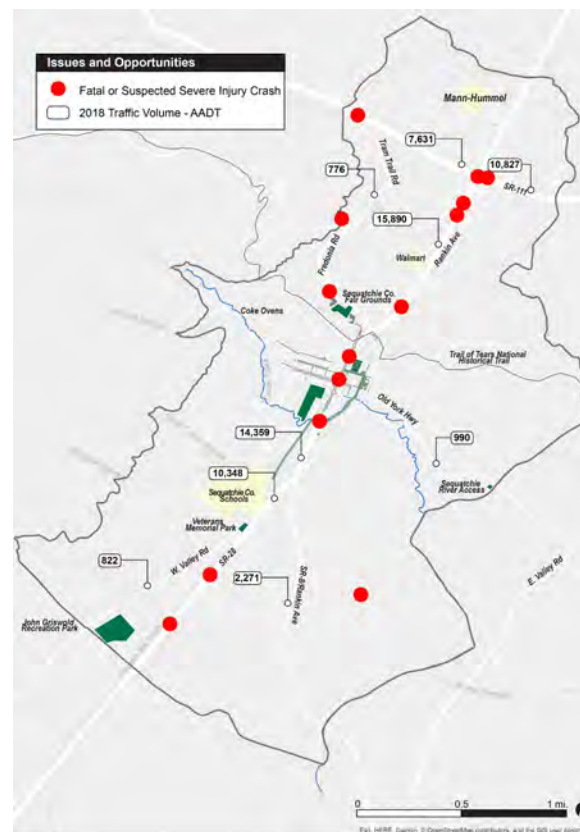
Based on TDOT data summarized in the exhibit below, SR-28/Rankin Avenue has the highest traffic volume of any street in the study area (approximately 15,000 vehicles per day on average) and accounts for a majority of fatal and severe injury crashes that have occurred within city limits since 2016. The data also indicates that streets off of Rankin Avenue typically experience low traffic volumes, with Old York Highway, W. Valley Road, and Tram Trail experiencing fewer than 1,000 vehicles per day on average based on 2018 TDOT counts.



Dunlap Bicycle and Pedestrian Plan



Exhibit 2: Average Annual Traffic Volume (2018) and Vehicle Crashes within Dunlap City Limits 2016-2020



Dunlap Bicycle and Pedestrian Plan



4.1 SR-28/RANKIN AVENUE

Project stakeholders indicated that with limited sidewalks, no bicycle facilities north of Jones Drive, and more than 15,000 vehicles on an average day, SR-28/Rankin Avenue provides little attraction for bicyclists and pedestrians. Many stakeholders indicated that without an expansion of sidewalk facilities and implementation of protected bicycle facilities, SR-28/Rankin Avenue would be unusable for the vast majority of residents unless they were driving. As the primary corridor within the City, however, SR-28/Rankin Avenue provides the most direct route for connecting through the Sequatchie Valley, as well as providing the best access to community and commercial facilities, including Walmart, Hughes Produce, the Sequatchie Valley Health Department and emergency medical facility, Dunlap City Hall, and downtown and south of downtown commercial locations.

In addition to a lack of sidewalk and bicycling facilities, stakeholders indicated that with limited signalized crossings within Dunlap, pedestrians experience difficulty crossing SR-28/Rankin Avenue. Project stakeholders and the general public identified the existing mid-block crossing where the Coops Creek Greenway crosses SR-28/Rankin Avenue as inadequate to sufficiently get drivers attention and to actually stop for would-be road crossers. Stakeholders stated that vehicular stop compliance, lighting, and signage visibility at the crossing were subpar. Members of the general public also highlighted safety concerns with the crossing, many expressing uncertainty on whether vehicles would actually stop to allow passage. Also on SR-28/Rankin Avenue the signalized intersection at Walmart and the unsignalized intersections downtown were identified as locations needing pedestrian crossing protections.

4.2 DOWNTOWN DUNLAP

In addition to identifying needs for sidewalks, bicycle facilities, and improved crossings along SR-28/Rankin Avenue, stakeholders and the general public also identified a number of opportunities to support biking and walking in downtown Dunlap, including:

- Expanding sidewalks throughout downtown,
- Installing bicycle parking at priority locations, and
- Providing better awareness of existing vehicle parking

Stakeholders identified the opportunity to expand sidewalks and install bicycle parking in downtown Dunlap as a way to support local businesses and improve access to amenities and destinations while building off of planned and existing infrastructure investments. Stakeholders highlighted the opportunity for bicycle and pedestrian facilities to spur and support commercial redevelopment and economic activity downtown, while providing local residents travel alternatives and supporting the active recreational bicycling community.

Despite on-street parking and an abundance of surface parking on privately owned parcels in downtown Dunlap, stakeholders questioned whether more parking was needed to access downtown businesses. Evaluation of existing parking availability off of SR-28/Rankin Avenue indicated that sufficient parking was available for typical daily demand, but that better signage, wayfinding, and sidewalks could help drivers find their way to existing parking at City Hall, on Cherry Street, and on Church Street. Stakeholders identified Coops Creek Commons, City Hall, the Sequatchie County Public Library, and Harris Park as desirable locations to install bicycle parking.

4.3 RECREATION AND TOURIST DESTINATIONS

The existing Coops Creek Greenway, arguably the highest quality bicycle/pedestrian asset within the County, provides a roughly one-mile, grade-separated multi-use path connecting Downtown Dunlap to the Sequatchie County Schools campus. Planned expansion of the Greenway onto the schools campus will improve access to

TN

10

Dunlap Bicycle and Pedestrian Plan



one of the largest employment sites in Sequatchie County and extend protected biking and walking facilities to Cordell Lane on the south end of campus. In addition to the schools campus extension, recent streetscape projects have helped pedestrians access the Greenway from the Sequatchie County Courthouse and Harris Park.

Stakeholders feedback and survey responses indicated a strong interest in providing access to recreation and tourist sites within the city, especially the Coke Ovens Museum and the Sequatchie River access point at Old York Highway. Developing a bicycle/pedestrian network that connected downtown and Harris Park to the Coke Ovens Museum and the Sequatchie River would link two of the most important tourist and recreation sites in Dunlap. The existing Greenway and recent sidewalk improvements near Harris Park would form the backbone of this network.

4.4 ELM STREET AND MAIN STREET

Aside from SR-28/Rankin Avenue in downtown Dunlap, Elm Street on the western half of the city and Main Street on the eastern half of the city provide two of the longer, more continuous streets at 1.75 and 1.5 miles in length respectively. As local collector streets, both provide access to residential areas while carrying low vehicle volumes compared to SR-28/Rankin Avenue. Although they each could serve as effective bicycle and pedestrian alternatives to the busy state highway, neither street currently has sidewalks or bicycling facilities.

Stakeholders indicated that Elm Street could serve as a useful alternative bicycle route to SR-28/Rankin Avenue that also connects to destinations further south including the Sequatchie County Schools campus via Cordell Lane and from there to West Valley Road.

4.5 WEST VALLEY ROAD AND EAST VALLEY ROAD

West Valley Road was identified by project stakeholders as a potential alternative to SR-28/Rankin Avenue for improved biking and walking facilities. Within the City of Dunlap, West Valley Road provides a connection between John Griswold Recreation Park, Veterans Memorial Park, and the Sequatchie County Schools Campus on Cordell Lane. New residential construction along West Valley Road includes newly constructed sidewalks with more residential development planned for the near future. This could form the beginning of a wider sidewalk network for the southern part of town – increasingly important as the city develops.

East Valley Road roughly parallels SR-28/Rankin Avenue just outside of Dunlap city limits, but was still identified by project stakeholders as an important asset for recreational cyclists within the Sequatchie Valley. Due to its rural condition, beautiful country aesthetic, and low traffic volumes, stakeholders indicated that in-town connections to East Valley Road would support the recreational cycling community that currently avoids SR-28/Rankin Avenue through downtown Dunlap.

TN

11

5. DEVELOPMENT AND EVALUATION OF RECOMMENDATIONS

A set of potential project types were identified by stakeholders and informed by general public input via the project survey. The set of project types included both broader categories of improvements such as traffic calming and safe intersections, as well as a range of investments for specific project types, such as low cost bikes lanes to medium cost grade-separated multiuse paths to higher cost greenways.

The following criteria were used to evaluate how well project types would address the goals identified by project stakeholders and the general public:

- o **Improve Safety** – how well does the project type reduce conflicts between vehicles, bicyclists, and pedestrians
- o **Expand Access and Mobility to Destinations** – how well does the project type expand bicycle and pedestrian connections to destinations
- o **Minimize Traffic Impact** – how well does the project type minimize impacts to existing traffic operations
- o **Provide Cost Effective Treatment** – how well does the project type support an increase in bicycling and walking, while minimizing costs

Each project type was scored qualitatively on a three-point scale (i.e., high = three points; medium = two points; low = one point).



5.1 EVALUATION METHODOLOGY

Exhibit 3: Dunlap Bicycle/Pedestrian Project Type Evaluation Scorecard

Criteria	Improves Safety	Expands Access and Mobility	Minimizes Traffic Impact	Cost Effective	TOTAL
Project Type	<i>Reduces conflicts between modes</i>	<i>Serves key destinations and expands network</i>	<i>Limits impact to traffic or congestion</i>	<i>Benefit to cost ratio</i>	
Complete Streets	High	High	Medium	High	11
Greenway Expansion	High	High	High	Medium	11
Pedestrian Crossings	High	Medium	Medium	High	10
Sidewalk Upgrades and Expansion	High	Medium	High	Medium	10
Regional Bikeway	Low	Medium	High	High	9
Traffic Calming	Medium	Medium	Medium	Medium	8
Intersection Improvements	Medium	Low	High	Medium	8
Lighting	Medium	Low	High	Medium	8
Wayfinding	Low	Low	High	Medium	7

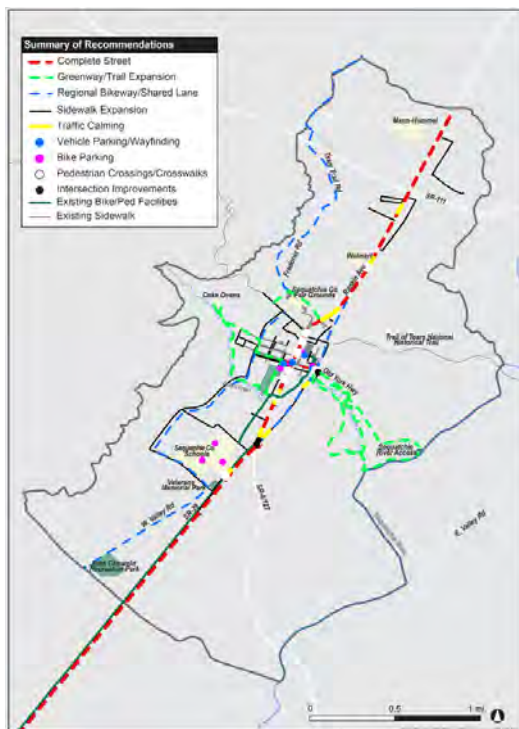
5.2 SUMMARY OF RECOMMENDATIONS

Project type evaluation combined with extensive stakeholder and general public feedback resulted in a set of recommended projects. The recommendations identified below reflect a strong stated preference for safe and separated facilities for bicyclists and pedestrians, expansion of existing greenways and sidewalks, and the need for improved pedestrian road crossings throughout the city.

Dunlap Bicycle and Pedestrian Plan



Exhibit 4: Dunlap Bike/Ped Recommendation Summary



Detail regarding project descriptions, locations and extents is provided in the table on the following pages, along with considerations and planning-level cost estimates derived from TDOT average bid prices for 2020.¹²

¹² https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/Const-aug2020.pdf

Dunlap Bicycle and Pedestrian Plan

Exhibit 5: Summary of Recommendations by Project Type and Location

	Description	Project Location
Complete Streets	Complete Streets are roadway modifications that provide safe and separated infrastructure for all roadway users, with careful consideration for more vulnerable users like bicyclists and pedestrians including wheelchair users. Project stakeholders supported implementation of a complete street to include a shared multi-use path in downtown Dunlap and on the SR-28/Rankin Avenue corridor north and south of downtown extending to the city limits. COST: \$1-2 million per mile	SR-28/Rankin Avenue from Mann Hummel in the north to an area south of John Griswold Park in the south
Greenway Expansion	Stakeholders identified the need for safe and protected bicycling and walking facilities that build upon the existing Coops Creek Greenway and connect to existing recreational and tourist assets like the Coke Ovens Museum and the Sequatchie River access point. Several expansion routes were identified that would consist of 8-to-10-foot separated greenway trail or equivalent streetside side path. - Greenway northwest to the Coke Ovens Museum - two alternatives: 100% Greenway along Coops Creek north to Coke Ovens 100% multi-use side path via Wagner Lane or through Coops Creek Commons to Cherry Street – Elm Street – Hickory Street and Mountain View Road - Greenway southeast to Sequatchie River access point – three alternatives: 100% Greenway along Coops Creek - Partial Greenway partial via Coops Creek and partial sidepath via Highpoint Drive 100% multi-use side path via Old York Highway - New sidepath on Fredonia Road connecting to the Sequatchie County Fairgrounds and proposed complete street and regional bikeway. COST: \$500k-700k per mile	- Existing Coops Creek Greenway at the trestle bridge to Coops Creek Commons and Coke Ovens Museum via Cherry Street, Elm Street, Hickory Street, and Mountain View Road, or along Coops Creek. - Connection to Sequatchie River Access via Old York Highway, Highpoint Drive, or along Coops Creek. - Fredonia Road between Rankin Avenue and Davis Street



Dunlap Bicycle and Pedestrian Plan

Exhibit 5: Summary of Recommendations by Project Type and Location

	Description	Project Location
Complete Streets	Complete Streets are roadway modifications that provide safe and separated infrastructure for all roadway users, with careful consideration for more vulnerable users like bicyclists and pedestrians including wheelchair users. Project stakeholders supported implementation of a complete street to include a shared multi-use path in downtown Dunlap and on the SR-28/Rankin Avenue corridor north and south of downtown extending to the city limits. COST: \$1-2 million per mile	SR-28/Rankin Avenue from Mann Hummel in the north to an area south of John Griswold Park in the south
Greenway Expansion	Stakeholders identified the need for safe and protected bicycling and walking facilities that build upon the existing Coops Creek Greenway and connect to existing recreational and tourist assets like the Coke Ovens Museum and the Sequatchie River access point. Several expansion routes were identified that would consist of 8-to-10-foot separated greenway trail or equivalent streetside side path. 1) Greenway northwest to the Coke Ovens Museum - two alternatives: 100% Greenway along Coops Creek north to Coke Ovens 100% multi-use side path via Wagner Lane or through Coops Creek Commons to Cherry Street – Elm Street – Hickory Street and Mountain View Road 2) Greenway southeast to Sequatchie River access point – three alternatives: 100% Greenway along Coops Creek - Partial Greenway partial via Coops Creek and partial sidepath via Highpoint Drive 100% multi-use side path via Old York Highway 3) New sidepath on Fredonia Road connecting to the Sequatchie County Fairgrounds and proposed complete street and regional bikeway. COST: \$500k-700k per mile	- Existing Coops Creek Greenway at the tressle bridge to Coops Creek Commons and Coke Ovens Museum via Cherry Street, Elm Street, Hickory Street, and Mountain View Road, or along Coops Creek. - Connection to Sequatchie River Access via Old York Highway, Highpoint Drive, or along Coops Creek. - Fredonia Road between Rankin Avenue and Davis Street



Dunlap Bicycle and Pedestrian Plan



	Description	Project Location
Pedestrian Crossings	Project stakeholders and the public identified the need for crosswalk improvements downtown along Rankin Avenue and outside of downtown at key destinations such as Walmart to the north and Cordell Lane at the Sequatchie County Schools campus to the south. They also highlighted that existing crosswalks and signage may not be sufficient in certain locations, such as the Coops Creek Greenway crossing at Rankin Avenue. Potential investments could range from installation of striped crosswalks and curb ramps to additional lighting and overhead signage along with traffic calming measures such as median pedestrian islands, rumble strips, and additional pavement markings. COST: \$3,000 to \$5,000 for striping, signage, and marking of typical crosswalk. Additional \$25,000 to include raised concrete median.	• SR-28/Rankin Avenue at Walmart entrance • SR-28/Rankin Avenue at Cates Street • SR-28/Rankin Avenue at Dell Trail • SR-28/Rankin Avenue at State Street • SR-28/Rankin Avenue at Church Street • SR-28/Rankin Avenue at Pine Street • SR-28/Rankin Avenue at Reed Street • SR-28/Rankin Avenue at Coops Creek Greenway crossing • SR-28/Rankin Avenue at Valley View Drive and Lane Road • SR-28 at Cordell Lane/Sequatchie County Schools campus • Main Street at Old York Highway
Sidewalk Improvements	Installation of minimum 5' sidewalk with ADA-compliant curb ramps and detectable warning surfaces throughout downtown. Curb ramps should include bulb-out design to narrow pedestrian crossing distances where on-street parking is present. COST: \$10 per square foot	• Primarily downtown
Regional Bikeways	To support recreational cycling and tourism, project stakeholders identified the need to provide wayfinding and shared lane markings (a.k.a. "sharrows") indicating designated bicycle route and destinations on low-traffic-volume streets. Regional bikeways would indicate preferred cycling routes for recreational cyclists that avoid the higher vehicle volumes and speeds on SR-28. COST: \$10,000 - \$15,000 per mile	• Fredonia Road, Tram Trail, and Old Union Road from Rankin Avenue to city limits • Elm Street – Cordell Lane – W. Valley Road • Main Street



Dunlap Bicycle and Pedestrian Plan



	Description	Project Location
Traffic Calming	Design treatments that lower vehicle speeds and when combined with pedestrian treatments can further improve safety and comfort for all users. Examples include: - o Median Pedestrian Islands - o Mid-Block Crossing Signage/Flashers - o Overhead Pedestrian Crossing Signage - o Speed Feedback Signage - o Curb Bulb-Outs (where on-street parking is present) Project stakeholders and the general public indicated that during non-peak periods, vehicle speeds along SR-28/Rankin Ave and Main Street make pedestrian crossings or bicycling along the corridor feel unsafe, especially where the posted speed limit is 45 mph. Traffic calming is recommended at various transition points along SR-28/Rankin Avenue and Main Street, such as when entering downtown Dunlap and south of SR-111 to slow vehicle speeds and alert drivers that they are entering a town environment with bicyclists and pedestrians. COST: \$2,500 to \$50,000 depending on scale of treatment	• SR-28/Rankin Avenue at Sheperd Road/Hickey Circle • SR-28/Rankin Avenue at Walmart entrance • SR-28/Rankin Avenue at Cates Street • SR-28/Rankin Avenue at Church Street • SR-28/Rankin Avenue at Coops Creek Greenway crossing • SR-28 at Cordell Lane/Sequatchie County Schools campus • SR-28/Rankin Avenue at Valley View Drive and Lane Road • Main Street at SR-28/Rankin Avenue • Main Street at Cherry Street/Old York Highway • Main Street at Cates Street
Intersection Improvements	Project stakeholders identified several intersections where traffic operations and safety improvements were needed. Intersection improvements could range from installation of curbs and removal of channelized right turns, to implementation of a roundabout (a.k.a. "traffic peanut" due to its configuration) at the SR/28 SR-8/US-127 intersection. COST: varies widely based on design and ROW impacts. Multi-lane roundabout could cost up to \$4 million. Smaller-scale improvements to square-up intersections and delineate curbs and crossings would be substantially less: \$10,000 to \$15,000.	• SR-28 at Rankin Avenue/SR-8/US-127 • Main Street at Old York Highway • SR-28/Rankin Avenue at Cates Street
Lighting	To support safe crossings and pedestrian facilities, project stakeholders identified the need for lighting along the existing Coops Creeks Greenway and other locations identified for bicycling and pedestrian improvements. Adequate lighting at crossing and along greenways ensures that pedestrian facilities are able to be utilized in evenings and in winter months. COST: \$10,000-\$25,000 (per trail/street crossing) 100,000 to 750,000 per mile depending on light spacing	• Coops Creek Greenway • Main Street • Pedestrian crossing locations at Rankin Avenue



Dunlap Bicycle and Pedestrian Plan



	Description	Project Location
Parking Signage	Project stakeholders and the general public identified the need for signage indicating available public parking locations in downtown Dunlap. Evaluation of available parking and typical demand indicates that existing supply of parking downtown is sufficient for typical daily parking utilization, but that additional signage and wayfinding could direct residents and out-of-town users to available public parking at City Hall and on-street locations off of SR-28/Rankin Avenue. COST: \$300-\$400 per unit	• Dunlap City Hall • Harris Park • Chamber of Commerce
Bicycle Parking	Project stakeholders indicated that there is currently no bicycle parking available downtown. Installation of bicycle parking at convenient destinations can lessen the need for vehicular parking while also signaling that bicyclists are welcome. Custom bicycle racks can also serve as a placemaking and branding opportunity for the downtown area. COST: \$1,000-\$2,000 per unit	• Coops Creek Commons • Dunlap City Hall • Chamber of Commerce • Harris Park • Sequatchie County Schools campus
Placemaking	Placemaking refers to the installation of various amenities or treatments that look to activate and draw users to public space, such as outdoor seating, public art, or signage. Placemaking treatments can be combined with pedestrian crossings or gateways to further enhance safety features. COST: varies by treatment - \$50,000 - \$60,000, for asphalt art at intersections or crossings	• Coops Creek Greenway crossing at Rankin Avenue • Dunlap City Hall • Coops Creek Commons • Harris Park • Rankin Avenue at Cherry Street





Dunlap Bicycle and Pedestrian Plan

5.3 PROPOSED BICYCLE NETWORK

The proposed bicycle network and downtown pedestrian improvements are shown in the following exhibits. The proposed bicycle network includes seven miles of complete street improvements spanning the SR-28 corridor, 7.5 miles of regional bikeways on lower volume streets that connect to scenic rural roadways outside the city limits, and three miles of greenway expansion between the Coke Ovens and the Sequatchie River, along with a greenway spur on Fredonia Road connecting to the Historic Trail of Tears.

Exhibit 6: Dunlap Recommended Bicycle Network



19



Dunlap Bicycle and Pedestrian Plan

5.4 PROPOSED PEDESTRIAN IMPROVEMENTS

Proposed pedestrian improvements within the downtown area are shown in the exhibit below and include complete streets and the greenway improvements identified above. Recommended sidewalk expansion would eliminate network gaps downtown and provide pedestrian connections to existing and proposed complete streets and greenway projects. Traffic calming improvements have been identified at transition points along SR-28/Rankin Avenue into downtown along with pedestrian crossings throughout downtown between the Coops Creek Greenway crossing and Cates Street.

Exhibit 7: Dunlap Recommended Pedestrian Improvements



20





6. PRIORITY RECOMMENDATIONS

6.1 PRIORITY: SR-28/RANKIN AVENUE COMPLETE STREET

SR-28/Rankin Avenue is designated by TDOT as a proposed state bicycle route and is the primary transportation corridor for the City of Dunlap and Sequatchie County. Currently, the corridor includes a paved shoulder with bike lanes south of US-127 and sidewalks in downtown. Implementing a complete street project on the corridor would substantially improve access, mobility, and safety for all users. General public and stakeholder feedback indicated a strong interest in safe and separated facilities for biking and walking; striped, on-street bike lanes were not seen as providing a sufficient level of grade separation to encourage biking and walking activities that in turn support tourism and recreational opportunities.

Distinct complete streets treatments are recommended for downtown Dunlap and the SR-28/Rankin Avenue Corridor north and south of downtown that would likely be implemented in phases:

Phase 1: Coops Creek Greenway north to Walmart entrance

Phase 2: Coops Creek Greenway south to city limits

Phase 3: Walmart entrance north to city limits

6.1.1 SR-28/RANKIN AVENUE CORRIDOR (NORTH AND SOUTH COMMERCIAL CORRIDORS)

Project stakeholders supported the shared use path alternative as the complete street treatment for SR-28/Rankin Avenue along the northern and southern commercial corridors away from downtown. This is primarily due to this alternative's higher degree of separation for bicyclists and pedestrians, and its ability to accommodate many types of users, similar to the existing greenway. Stakeholders indicated that the shared-use path would likely better serve Dunlap residents more than the alternative with bicycle-only facilities in the road. The shared use path would provide access to key destinations on the western side of SR-28/Rankin Avenue north of downtown Dunlap such as Walmart, the Erlanger Sequatchie Valley Emergency Department, as well as commercial destinations south of downtown leading to the Sequatchie County Schools campus.

Exhibit 8: Dunlap SR-28/Rankin Avenue Recommended Complete Street (North and South Commercial Corridors)– Preferred Alternative



21



6.1.2 DOWNTOWN COMPLETE STREET

Project stakeholders supported a two-way grade separated bike facility between the existing on-street parking and sidewalk for SR-28/Rankin Avenue downtown. This alternative provides eight feet for a two-way bicycle facility on the eastern curb along with an additional eight feet of sidewalk space in front of downtown businesses. This alternative would narrow the existing travel lanes to 11 feet in each direction, including the existing center turn lane, while providing roughly 18 feet of flexible space in-front of downtown businesses that could support existing and planned amenities such as street lighting, benches, and other placemaking strategies. A slight narrowing of the existing on-street parking lane preserves parking downtown while providing an additional buffer to the bicycle and pedestrian facilities on the eastern curb.



Exhibit 9: Dunlap SR-28/Rankin Avenue Recommended Complete Street (Downtown) – Preferred Alternative

22



Dunlap Bicycle and Pedestrian Plan



A precedent for the downtown complete street alternative is shown in the exhibit on the following page, taken from the Indianapolis Cultural Trail that connects downtown Indianapolis to the Monon Trail, a former rail corridor that extends north of the city. Distinct pavers used on the Cultural Trail along with benches, lighting and signage help delineate the space between pedestrians, cyclists, and other users while creating an active and inviting streetscape in front of local businesses.

Exhibit 10: Downtown Complete Street Example – Indianapolis Cultural Trail



23

TN

Dunlap Bicycle and Pedestrian Plan



6.2 PRIORITY: PEDESTRIAN CROSSINGS - COOPS CREEK GREENWAY/DOWNTOWN

The existing crossing at SR-28/Rankin Avenue and the Coops Creek Greenway was highlighted repeatedly by the general public and project stakeholders as a priority location for safe pedestrian crossing improvements. Feedback indicated that existing signage and markings do not adequately support safe crossings and that stop-compliance by vehicles was inconsistent.

Site visits indicated that the narrowing of the roadway at the existing bridge over Coops Creek served as a traffic calming measure for southbound traffic but that additional improvements could be implemented to slow northbound traffic and alert drivers to the presence of pedestrians crossing SR-28/Rankin Avenue.

A number of potential improvements could be implemented at this location as well as the other locations identified for pedestrian crossing improvements:

- o Median Pedestrian Island/Pavers
- o Street Lighting
- o Enhanced Mid-Block Crossing Signage – dual-round, flashing-amber signalheads
- o Overhead Pedestrian Crossing Signage
- o Additional Pavement Markings (including stop bar and “STOP HERE FOR PEDS”)
- o Speed Detection and Feedback Signage
- o Curb Ramps with Detectable Warning Surfaces
- o Curb Bulb-Outs (where on-street parking is present)

Exhibit 11: Existing Pedestrian Crossing of SR-28/Rankin Avenue at Coops Creek Greenway



In addition to improvements to the existing Coops Creek Greenway Crossing at SR-28/Rankin Avenue, the need for additional pedestrian crossing improvements were identified by project stakeholders and the general public throughout downtown and also at these non-downtown locations:

24

TN

Dunlap Bicycle and Pedestrian Plan

- o SR-28/Rankin Avenue at Walmart entrance
- o SR-28/Rankin Avenue at Valley View Drive and Lane Road
- o SR-28/Rankin Avenue at Cordell Lane at the Sequatchie County Schools campus

6.3 PRIORITY: DOWNTOWN SIDEWALK EXPANSION

Expanding sidewalks in downtown Dunlap would eliminate gaps in the sidewalk network and support pedestrian access within the downtown residential and commercial area. Expansion of sidewalks along Elm Street and Main Street would provide for pedestrian connections between the downtown area, residential areas on the east and west sides of town, and the commercial corridor to the south including the Sequatchie County Schools campus.

Exhibit 12: Dunlap Downtown Sidewalk Expansion Recommendations



25



TN

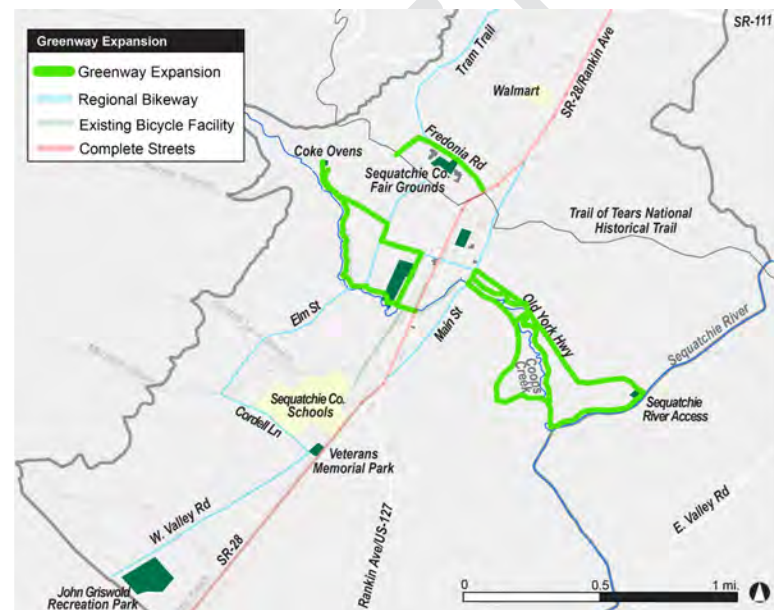
Dunlap Bicycle and Pedestrian Plan

Implementation of new sidewalks along Dell Trail would provide pedestrian access to the Trail of Tears National Historical Trail as well as provide access to residential areas northwest of downtown. Installation of sidewalks could spur development on strategic parcels in the downtown area which could further enhance the pedestrian experience for existing residents.

6.4 PRIORITY: COKE OVENS TO SEQUATCHIE RIVER GREENWAY

Expansion of the existing Coops Creek Greenway to access the Coke Ovens Museum and the Sequatchie River access point would provide a minimum 8-foot separated path connecting two of the City's most important tourist and recreation assets. Greenway expansion would also provide a valuable east-west connection across Dunlap for bicyclists and pedestrians while extending the existing greenway in the direction of E. Valley Road, a scenic and well utilized regional bicycle route.

Exhibit 13: Dunlap Greenway Expansion Recommendations



26



TN

Dunlap Bicycle and Pedestrian Plan



The Coke Ovens is already a primary tourist draw for the region and the City has planned to develop the Sequatchie River access point to support outdoor recreation and attract tourists. Five segments were identified which would link the two sites with a new Greenway:

Coke Ovens to Downtown

1. Greenway following Coops Creek to the existing greenway
2. Sidepath following Hickory, Elm, and Pine Streets

Downtown to Sequatchie River access point

1. Greenway following Coops Creek and the Sequatchie River
2. Greenway following Coops Creek to a sidepath on Highpoint Drive, or
3. Sidepath along the Old York Highway.

On-street "side path" alternatives shown for greenway expansion would likely result in lower project costs but would provide a different experience than the existing Coops Creek Greenway which follows the creek and is well separated from traffic. Alternatives that follow the creek would likely require higher costs and coordination with adjacent property owners but would provide a more comfortable and aesthetic condition for bicyclists and pedestrians, similar to what is experienced on the existing greenway.

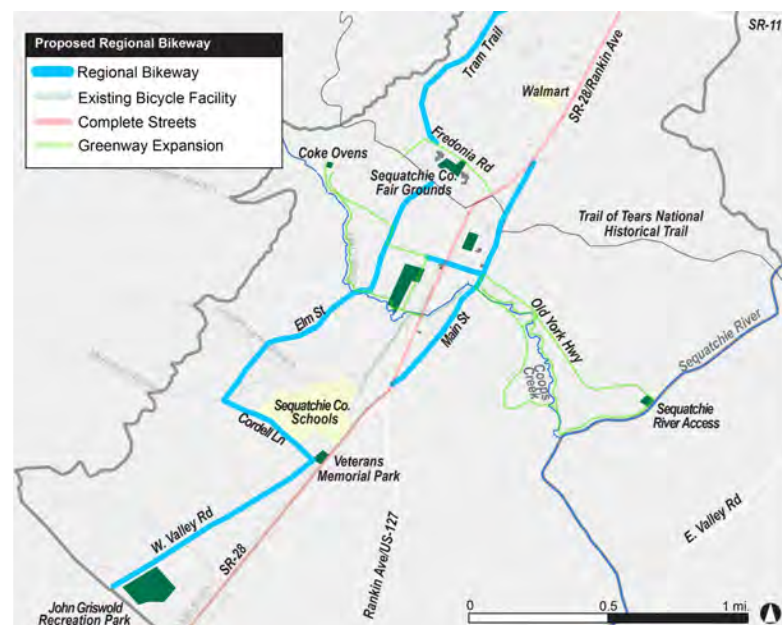
6.5 PRIORITY: REGIONAL BIKEWAYS

Installation of regional bikeway route and destination signage along with shared lane pavement markings supports the area's recreational cycling needs and provides connections to existing and proposed complete streets and greenway improvements. Recommended regional bikeways would provide 7.5 miles of shared lane markings ("sharrows") and are recommended for streets where existing traffic volumes and speeds are low and may not warrant separated bicycle infrastructure. Regional bikeway signage provides visual cues to cyclists indicating recommended routes, while reminding drivers to be alert and share the road with cyclists. Regional bikeways are recommended for Fredonia Road to Tram Trail and Old Union Road, Elm Street to West Valley Road via Cordell Lane, and Main Street. See the exhibit below for a map of recommended bikeways.

Dunlap Bicycle and Pedestrian Plan



Exhibit 14: Dunlap Regional Bikeway Recommendations



The Fredonia Road – Tram Trail – Old Union Road bikeway provides one of the only alternative connections north of SR-111 that does not require travel along SR-28/Rankin Avenue. Together with the proposed regional bikeway for Elm Street – Cordell Lane, and West Valley Road this bikeway would provide a valuable tourist-friendly cycling route through Dunlap that connects to scenic routes extending beyond the city limits.

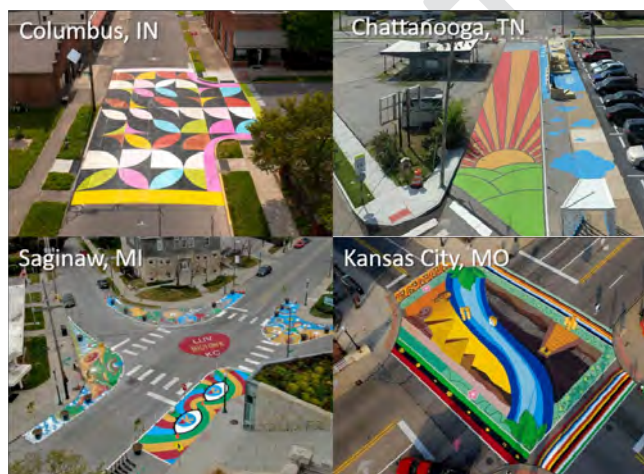


6.6 PRIORITY: ADDITIONAL CONSIDERATIONS

6.6.1 PLACEMAKING

Placemaking can support economic development of Dunlap's downtown by creating a unique sense of place and drawing residents and visitors to a specific location. Placemaking can support local businesses, schools, and arts organizations while incorporating safety improvements at intersections, and can be coupled with wayfinding, bicycle parking, outdoor seating, and other amenities. Placemaking efforts are recommended to draw attention and visitors to existing assets and amenities such as Harris Park, Coops Creek Commons, City Hall, and the Coops Creek Greenway crossing at SR-28/Rankin Avenue.

Exhibit 15: Bloomberg Philanthropies' Asphalt Art Initiative



6.6.2 TRAFFIC STUDY

Stakeholder and public concerns about traffic congestion and vehicle speeds along SR-28/Rankin Avenue in downtown Dunlap may warrant further evaluation through analysis of vehicle counts, vehicle speeds, and turning movement volumes. Traffic study evaluation may also serve to address concerns regarding the



potential impact on traffic congestion of traffic calming measures that support safe pedestrian crossings, like median pedestrian islands.

6.6.3 POLICY CHANGES

Pedestrian and bicyclists' needs should be considered within the context of the City of Dunlap's transportation and land use system; one means to ensure this is through the regulatory framework. One of the most cost-effective strategies for the City of Dunlap is to establish land use and transportation policies and development regulations that promote walkable and bikeable new development, programs, and capital projects. As part of a comprehensive approach to developing recommendations for a more walkable and bikeable city, the project team reviewed the City of Dunlap's Zoning Ordinance and Subdivision Regulations to identify general regulatory issues and opportunities impacting the pedestrian and bicycling environment.

In order to increase pedestrian and cyclist safety, the City should consider implementing an **access management plan**, which would limit the number of vehicular access points (or "curb cuts") within a particular area, with the idea of clarifying for drivers and pedestrians where the contact zones would be.¹³ Additionally, Dunlap should consider revising zoning policies to support pedestrian and bicycle accommodation, such as requiring a sidewalk and/or bike facility in new developments where a sidewalk or bike facility is shown in this Dunlap Bicycle & Pedestrian Plan. The City could require sidewalks within existing Subdivision Regulations, as part of a new section of the zoning code. Finally, there could be a requirement for cyclists and pedestrian accommodations in development, such as ensuring a more connected street network, pedestrian friendly block size requirements, and/or the creation of pedestrian and cyclist cut-through path connections. Implementing these policies within the City regulatory framework will ensure that Dunlap will continue to promote walkable and bikable new development, programs and capital projects as it grows and matures.

Dunlap Bicycle and Pedestrian Plan



6.6.4 WAYFINDING

Local organizations like Bikeways of the Scenic South and the Southeast Tennessee Development District have already made great strides at bringing attention to the Sequatchie Valley's scenic beauty, recreational facilities, and tourist attractions. Wayfinding is an important part of both organizations efforts to draw in visitors and highlight the area's existing assets.



Additional wayfinding for bicyclists and pedestrians is recommended to complement proposed hard infrastructure projects like the SR-28/Rankin Avenue complete street, the Coke Ovens to Sequatchie River Greenway, and promotion of regional bikeways.



Dunlap Bicycle and Pedestrian Plan

7. IMPLEMENTATION

While this plan provides a framework for pedestrian and bicycle improvements in Dunlap, there is significant flexibility in regards to things like timeline, scoping, and funding. Implementation of the plan’s recommendations will require a creative and persistent approach in finding funding opportunities. The table below displays some relevant public and private grant programs that most closely relate to the needs of Dunlap.

7.1 POTENTIAL FUNDING SOURCES & PARTNERSHIP

Exhibit 16: Potential Funding Sources

	Example of Eligible Activities	Funding	How to Apply
Transportation Alternatives Program - TDOT	On- and off-road pedestrian and bicycle facilities, and safe routes to school projects.	80 percent federal with a 20 percent nonfederal construction share. Non federal share must be provided as a hard cash match, and all preliminary-engineering (PE), design and right-of-way expenditures are solely the responsibility of the local governmental agency.	Application cycle is open from July 1 to October 3 each year. Application materials can be accessed on the TDOT website: www.tn.gov/tdot/topic/tap
Multimodal Access Grant - TDOT	Pedestrian crossing improvements, sidewalks, paved shoulders, bicycle lanes, ADA, multi-use paths, and pedestrian lighting.	95 percent state with a 5 percent local match. Total project costs must not exceed \$1 million.	Previous application cycle closed on January 15, 2016. Application materials can be accessed on the TDOT website: www.tn.gov/tdot/topic/multimodal-multimodal-access-grant





Dunlap Bicycle and Pedestrian Plan

	Example of Eligible Activities	Funding	How to Apply
Recreational Trails Program – TN Dept. of Environment & Conservation	Land acquisition for trails, trail maintenance, trail construction, trail rehabilitation and trail head support facilities.	80 percent federal with a 20 percent nonfederal match. Maximum award is \$200,000.	Previous application cycle closed on April 22, 2016. Application materials can be accessed on the TDEC website: www.tn.gov/environment/article/res-recreation-educational-services-grants
Access to Health through Healthy Built Environments - TN Dept. of Health	Greenways, trailhead signs, sidewalks, bikeways, crosswalks, and pedestrian/bicycle traffic signs/signals.	100 percent state with a maximum award of \$85,000, including a maximum of \$80,000 for design/ construction. All applications must include an evaluation framework.	Application announcement is in the fall of each year. Materials from the prior year can be accessed on the TDH website: https://www.tn.gov/content/dam/tn/health/funding-opportunities/RFA_Access_to_Health_34301-17618_Final_Posting.pdf
Project Diabetes – TN Dept. of Health	Greenways connecting schools and neighborhoods and park walking trails.	There are two levels of Project Diabetes funding. Category A grants are funded for up to 3 years for a maximum amount of \$150,000 per year. Category B grants are funded for up to 2 years for a maximum amount of \$15,000 per year.	Current funding cycle is for 2016- 2019. Additional information can be accessed on the TDH website: www.tn.gov/health/article/project-diabetes
Bloomberg Philanthropies' Asphalt Art Initiative	Street art in intersections, on crosswalks, or other spaces	Up to \$25,000 per project through	All United States cities are welcome to apply from March 2 to April 30, 2021. Winning cities will be announced in fall 2021 and all



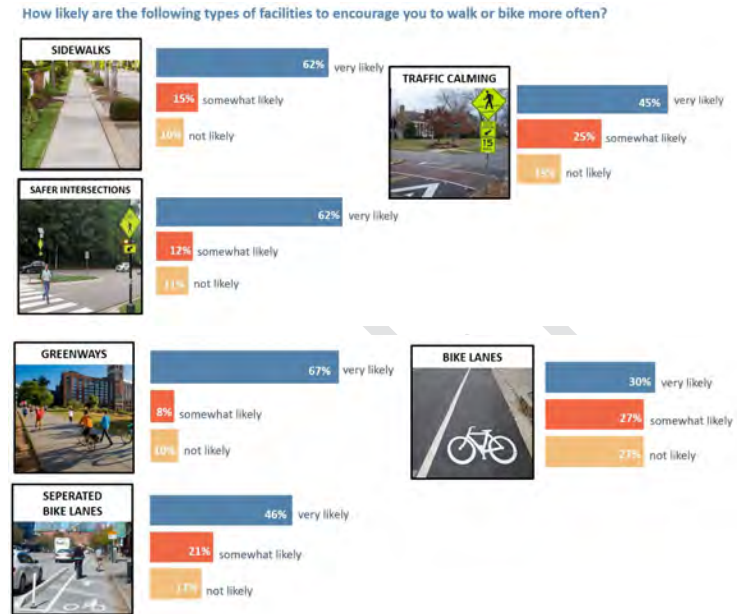
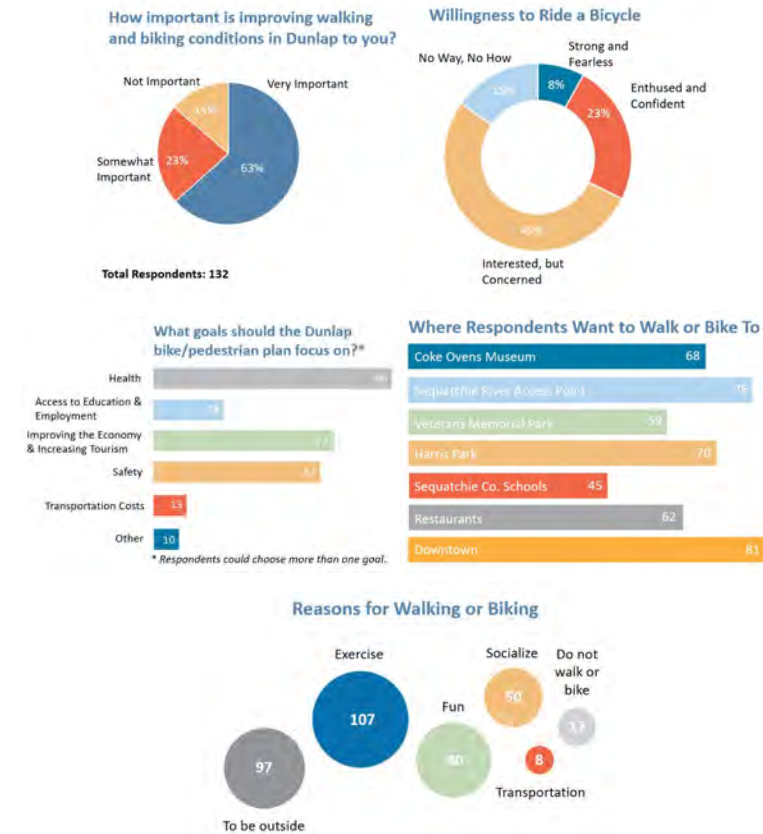


Dunlap Bicycle and Pedestrian Plan

	Example of Eligible Activities	Funding	How to Apply
	to strengthen safety and use in city streets	Bloomberg Philanthropies	selected projects will be installed by the fall of 2022. The application and city selection guidelines are available at asphaltart.bloomberg.org
Creative Placemaking - Tennessee Arts Commission	Some examples are: Arts used as a catalyst to revitalize downtowns or neighborhoods Development of an arts or cultural business incubator or apprenticeship program Transformation of a perceived community liability into a community asset through the arts Development of an activity or project that encourages greater engagement with the arts in state parks, farmer's markets, or other natural, unique ecological or recreational assets	\$10,000-\$15,000	Register online to use the Online Grants System: https://tnartscommission.org/grants/creative-placemaking-grants-competition/



APPENDIX A: PROJECT SURVEY RESULTS





APPENDIX B: SAMPLE BOARD RESOLUTION

RESOLUTION_____

A RESOLUTION TO ADOPT DUNLAP BICYCLE-PEDESTRIAN PLAN

August 2021

WHEREAS, Dunlap City Staff and stakeholders have met to discuss and provide input in the development of the plan/study; and

WHEREAS, the Tennessee Department of Transportation funded the plan through a Community Transportation Planning Grant; and

WHEREAS, the City of Dunlap will implement the components of the City of Dunlap Bicycle-Pedestrian Plan to the extent possible as resources are available;

NOW, THEREFORE, BE IT RESOLVED by the Dunlap Board of Commissioners that the Bicycle-Pedestrian Plan (attached) is adopted as part of the municipality's general plan.

Mayor, Dunlap City Council

ATTEST:

Recorder

