Washington County Transportation Master Plan

5

JUNE 2023







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EXECUTIVE SUMMARY

Washington County is experiencing population and employment growth which needs to be supported by a safe, connected, and multi-modal transportation network.

This transportation and active transportation plan is intended to be an effective tool to help Washington County prepare for the future. This plan was developed as part of a multiagency effort involving Washington County, Five County Association of Governments, UDOT, Cities, and the Bureau of Land Management. This multiagency stakeholder group (also referred as the Steering Committee) determined the project Vision and Goals of this plan shown on Figure 1.1.

Transportation Master Plan (TMP)

Plan for safe and effective movement of people and goods for the 10-year, 20year, and 30-year planning periods.

Active Transportation Plan (ATP)

Identify opportunities and gaps in the existing bicycle and pedestrian infrastructure in order to plan for a safe and connected active transportation network.

Organized into 6 sections, this plan includes the analysis of Existing Conditions (Chapter 2), a myriad of community and stakeholder input through Public Involvement (Chapter 3), Active Transportation Improvements (Chapter 4), Roadway Improvements (Chapter 5). Right-of-Way Acquisition Strategy (Chapter 6) and Funding Guidance (Chapter 7).

Figures 1.2 and 1.3 show roadway and active transportation improvements respectively. They are each followed by a table detailing more information about each improvement project.

Figure 1.1 A multi-agency stakeholder committee came together and defined the project's vision and goals depicted on the right.

WASHINGTON COUNTY TRANSPORTATION MASTER PLAN

VISION & GOALS

PLAN FOR A SAFE, EFFICIENT, AND CONNECTED TRANSPORTATION NETWORK FOR ALL USERS

Goal 2

Improve safety for pedestrians, cyclists, and drivers

8 8

Goal 1

Increase mobility within the transportation network

Goal 3

Work together across jurisdictions

Goal 4

Enhance multimodal connections

Goal 5

Develop a plan for a safe and maintainable network





Figure 1.2 and Table 1.1 Roadway Improvement Projects



ID	Route	MP From	MP To	Location	Туре	
1	SR-18	34.9	36.4	SR-18; Cottonwood Upper SB Climbing Lane	Passing Lane, Wildlife Fencing	\$4,020,000
2	SR-09	15.4	17.4	SR-9; Virgin Flats Passing Lane and extend EB passing lane	Passing Lane	\$3,820,000
3	SR-18	20.4	24.2	SR-18; Veyo to Baker Reservoir NB Climbing Lane	Passing Lane, Wildlife Fencing	\$10,490,000
4	SR-59	7.3	8.8	SR-59; Smithsonian Butte Passing Lanes	Passing Lane	\$2,620,000
5	SR-59	13.8	15.3	SR-59; Gooseberry Mesa Passing Lane	Passing Lane	\$2,750,000
6	SR-18	38.8	40.3	SR-18; Cottonwood Lower SB Climbing Lane	Passing Lane, Wildlife Fencing	\$2,620,000
7	SR-59	8.8	10	SR-59; Little Creek Passing Lanes	Passing Lane	\$2,100,000

ID	Route	MP From	MP To	Location	Туре	Cost-Estimate
8	Sheep Bridge Road	0	4.9	SR-59 to SR-9	Upgrade to Paved Road	\$5,880,000
9	Big Plains Road	0	9.3	SR-59 to SR9	Upgrade to Paved Road	\$19,630,000
10	Kolob Terrace Road	0.5	5.3	Pocketville Rd to Zion NP	Widen Shoulders	\$2,860,000
11	Gunlock Road	9.7	9.9	Old 91 intersection realignment	Intersection Realignment	\$660,000
12	Pinto Road	0	8	SR-18 to New Castle Reservoir Rd (FS 011)	Upgrade to paved road	\$9,600,000
13	New Castle Reservoir Rd	0	6.4	Pinto Road to Washington Co. Line	Upgrade to paved road	\$7,680,000
14	Old 91	0	19.5	Arizona State Line to Ivins	Widen shoulders	\$9,700,000
15	Gunlock Road	9.9	25.1	Old 91 to SR-18	Widen shoulders	\$7,600,000
16	Pine Valley Road	0	8.1	SR-18 to Main Street	Widen shoulders	\$4,050,000
17	Old 144	1.2	5.7	New Harmony to I-15	Widen shoulders	\$2,250,000
18	SR-18	12.5	12.7	SR-18; Diamond Valley Drive Intersection	Intersection improvement/ realignment	\$890,000
19	Old 91	4.5	7.4	Shoulder and Centerline Rumble Strips	Rumble strips	\$240,000
20	Old 91	6	6.3	Horizontal Curve Improvements	Curve improvements	\$1,210,000
21	Old 91	7.8	8.3	Wildlife Fencing	Wildlife fencing	\$250,000
22	Old 91	10.8	13.4	Shoulder and Centerline Rumble Strips	Rumble strips	\$220,000
23	Gunlock Road	20.5	23.5	Shoulder and Centerline Rumble Strips	Rumble strips	\$250,000
24	SR-18	14	17	Wildlife Fencing Diamond Valley to Dameron Valley	Wildlife fencing	\$1,480,000
25	SR-59	16	18.2	, Widen Shoulder	Widen shoulders	\$14,160,000
26	SR-18	28.9	32	Wildlife Fencing	Wildlife fencing	\$1,530,000
27	SR-09	22.9	24	Wildlife Fencing	Wildlife fencing	\$540,000
28	Old Hwy 120 Route and Main Street	8.85	19.3	Old Hwy 120 Route/3214 MP 8.85 to 19.3 and Main Street/SR-129 MP 0 to MP 0.4	Widen shoulders	\$5,425,000
29	New Road	-	-	New Harmony 600 South to I-15 exit 40	Add a second access road to New Harmony	\$6,670,000
30	Kolob Road	5.28	27.1	Dry Creek Rd to county line	Pave shoulders	\$11,560,000
31	Gooseberry Rd	-	-	Gooseberry Rd/ 0656 Apple Valley Main St. to Gooseberry Trailhead	Upgrade to improved road	\$4,332,000
32	Lower Sand Cove Rd	-	-	Gunlock Rd to SR-18	Upgrade to paved road	\$9,820,000



Figure 1.3 and Table 1.2 Active Transportation Improvement Projects

Proposed Facilities (WashCo TMP)

- Trailhead Improvements
 AT Projects
- Buffered Bike Lane
- Bike Lane
- *——* Sidepath
 - Multi-use Trail

Existing Facilities

- On-road Bike Lane/
- Bikeway
- Sidepath/Multi-use Trail

Proposed Facilities (Other Plans)

- ----- On-Road Bikeway
- ----- Sidepath/Multi-use trail

ID	Project	Improvement/Notes	Location	Туре	Cost-Estimate
1	New Connector	Connection to Ivin City existing and planned trails	Old 91 to Kwavas Drive Sidepath	Shared Use Path	\$900,000
2	Old 91	Widen eastbound shoul- der, stripe bike lane to match existing west- bound bike lane	6100 West to Ivins City	Bike Lane	\$250,000
3	Old 91	Widen shoulders and stripe bike lanes	Gunlock Road to 6100 West	Bike Lane	\$50,000
4	Gunlock Road	Widen shoulders and stripe bike lanes	Old 91 to SR-18	Bike Lane	\$400,000
5	Snow Canyon	Extend Snow Canyon trail to SR-18 shared use path	Upper Galoot Trailhead to SR-18	Shared Use Path	\$1,125,000
6	SR-18	Extend SR-18 trail to Veyo	Snow Canyon Drive to Gun- lock Road	Shared Use Path	\$10,250,000

ID	Project	Improvement/Notes	Location	Туре	Cost-Estimate
7	SR-18	Stripe buffered bike lanes	5745 N to Gunlock Road	Buffered Bike Lane	\$2,390,000
8	SR-18	Stripe buffered bike lanes	MP 10 to Enterprise	Buffered Bike Lane	\$31,480,000
9	SR-9	Extend planned trail to existing trail in Springdale	La Verkin to Spring Dale	Shared Use Path	\$13,500,000
10	SR-59	Extend planned sidepath from Hurricane to Apple Valley	Hurricane to Apple Valley	Sidepath	\$13,600,000
11	Old 91	Stripe bike lanes in widened shoulders	Utah Hill to Gunlock Road	Bike Lane	\$185,000
12	Old 91	Mark and sign shoulder bikeway in widened shoulders	Arizona State Line to Utah Hill	Shoulder Bikeway	\$230,000
13	Sheep Bridge Road	Stripe bike lanes in widened shoulders	SR-59 to SR-9	Bike Lane	\$2,430,000
14	Kolob Terrace Road	Mark and sign shoulder bikeway in widened shoulders	Pocketville Rd to Zion NP	Shoulder Bikeway	\$150,000
15	Big Plains Road	Mark and sign shoulder bikeway in widened shoulders	SR-59 to SR9	Shoulder Bikeway	\$4,050,000
16	Pine Valley Road	Mark and sign shoulder bikeway in widened shoulders	SR-18 to Pine Valley	Shoulder Bikeway	\$200,000
17	SR-144	Mark and sign shoulder bikeway in widened shoulders	New Harmony to I-15	Shoulder Bikeway	\$110,000
18	Old Hwy 120 Route and Main Street	Mark and sign shoulder bikeway in widened shoulders	Old Hwy 120 Route/3214 MP 8.85 to 19.3 and Main Street/SR-129 MP 0 to 1.66	Shoulder Bikeway	\$270,000
19	1-15	Shared-use path from Anderson Junction to Ash Creek Reservoir following the route of the new Ash Creek pipeline	Anderson Junction to Ash Creek Reservoir following the route of the new Ash Creek pipeline	Shared Use Path	\$7,400,000

Table 1.3 Trained Improvements

ID	Improvement/Notes	Name	Existing Amenities
А	Little Creek Mountain	Add kiosk, toilet, fencing	None
В	Gooseberry Mesa (Windmill)	Add toilet	Kiosk, parking, fence
С	Whole Guacamole	Add kiosk, toilet, fencing	None



This chapter evaluates the existing transportation system and conditions within Washington County and establishes the framework to identify transportation needs and to identify potential transportation solutions.

The **study area** is illustrated in Figure 2.1 and consists of the **unincorporated county outside of the Dixie Metropolitan Planning Organization (MPO) Boundary.**



Figure 2.1 Washington County TMP Study Area.

TRANSPORTATION NETWORK

Functional Classification

Roadway functional classification is a means to categorize how a roadway functions and operates based upon a combination of roadway characteristics. Streets provide two distinct and competing functions: mobility and land access. As mobility increases, land access decreases and vice versa as shown in Figure 2.2. Both functions are vital, and no trip is made without both. There are four primary classifications of roadways, with descriptions in Table 2.1.

Roadway functional classification does not define the number of lanes required for each roadway's automobile capacity. For instance, a collector street may have two, three, or four lanes, whereas an arterial street may have up to nine lanes for motorized traffic. The number of lanes is a function of the expected automobile traffic volume on the roadway and serves as the greatest measure of roadway capacity for vehicles.

Freeways

Freeway and expressway facilities are provided to service long distance trips between cities and states. No land access is provided by these facilities.

As seen on Figure 2.3, I-15 is the only freeway within the study area. SR-7 is also a freeway in Washington County however it is located within the Dixie MPO boundary and therefore outside of the current study area. The transportation network in Washington County is designed to support the community transportation vision. There are existing opportunities to improve the system to create a transportation network that provides viable transportation choices to residents and visitors.



Figure 2.2 Mobility vs. Access by Functional Class.

Arterials

Arterial facilities are designed to serve a high level of mobility providing fast flowing through-traffic movement but with low level land-access service. The traffic controls and facility designs are primarily intended to provide efficient through movement. Arterials frequently provide the most direct route from A to B not only for automobiles but also for pedestrians, bicyclists and transit. These roads may offer wide shoulders that can accommodate buffered or separated bike lanes and can be choice locations for bus stops. SR-9, SR-18, SR-59 and SR-17 (outside study area) are examples of important arterials within the County.

Collectors

Collector facilities are intended to serve both through and landaccess functions in relatively equal proportions. For longer, through trips requiring high mobility such facilities are inefficient. Instead they are used for shorter trips requiring increased access to destinations. For the bicyclist or pedestrian, collectors can offer a comfortable level of safety and a number of route choices because of lower vehicle speeds and a variety of access options to potential destinations. Old 91 and Gunlock Road are collector roadways in the County.

Local Streets

Local streets primarily serve landaccess functions. Local street design and control facilitates the movement of vehicles onto and off the street system from land parcels. Through movement is difficult and is discouraged by both the design and control of this facility.

This level of street network is likely to provide the highest level of comfort to bicyclists and pedestrians. Local roads will have the lowest speeds and be mostly absent of large vehicles.

		General Char Functional C	acteristics of lassification	General Characteristics of Functional Classification		
		Freeway & Expressway	Arterial	Collector	Residential Street	
1	Function	Traffic movement	Traffic movement, land access	Collect & distribute traffic between streets & arterials, land access	Land Access	
2	Typical % of Surface Street System	Not applicable	5 - 10%	10-20%	60-80%	
3	Continuity	Continuous	Continuous	Continuous	None	
4	Spacing	See Engineering Stando	ards and Specifications	See City's Engineering Standards and Specifications		
5	Typical % of VMT	Not applicable	40 - 65%	10-20%	10-25%	
6	Direct Land Access	None	Limited: Major generators only	Restricted: Some movements prohibited; number & spacing of driveways controlled	Safety controls access	
7	Minimum Roadway Intersection Spacing	See Jurisdiction's Engir Specific	neering Standards and cations	See Jurisdiction's Engineering Standards and Specifications		
8	Speed Limit	See Jurisdiction's Engineering Standards and Specifications		See Jurisdiction's Engineering Standards and Specifications		
9	Parking	Prohibited	Discouraged	Limited	Allowed	
	Comments	Supplements capacity of arterial street system & provides high- speed mobility	Backbone of Street System	N/A	Through traffic should be discouraged	

Table 2.1. Elements of Roadway Functional Classification.



Figure 2.3 UDOT Functional Classification

The existing UDOT Roadway Functional Classification for Washington County is shown above.

These roadways are separated into functional classes by the characteristics summarized previously in this chapter. In addition to these functionally classified roadways, there are many other local streets that provide access to homes and businesses in communities such as Veyo. There are also numerous other paved, gravel, or dirt roads throughout the county that provide access to more remote regions.

Functional Class





Figure 2.4 SR-18 In Snow Canyon State Park. (Source: City of St. George)



Figure 2.5 Road Ownership

The County is responsible for roads outside municipal boundaries, and National Parks. These County roadways are shown in green in Figure 2.5.

The County has the most centerline miles roads of the identified agencies, about 1,920 miles. However, many of these roads are unimproved or dirt surface. Road Ownership

County

—— Municipal

----- UDOT

----- US NPS



Figure 2.6 **Roadway Surface Type**

Figure 2.6 summarizes the roadway surface type of Class B roads. Class B roads are roads outside of incorporated jurisdictions designated as county roads. The county, which possesses the rights-of-way, takes care of the maintenance of these roads. By centerline miles, dirt roads account for the largest share of Class B roads (409.50 miles). Gravel roads account for 235.73 miles and paved roads for 182.82 miles of Class B roads.

Dirt (409.50 mi)
 Gravel (235.73 mi)
 Paved (182.82 mi)



Figure 2.7 Paved Road within the unincorporated area of Washington County, UT



Figure 2.8 **Revised Statute Right-of-Way**

Many of these corridors are Revised Statue (RS) 2477 roads that traverse federal public lands. RS 2477 was part of the Mining Act of 1866 and required no administrative act for the establishment roads or rights-of-way, nor was formal acceptance required from the state or city for which these corridors were vested.

However, the Federal Land Policy and Management Act (FLPMA) in 1976 prohibited the establishment of new RS 2477 right-of-way (ROW) but allowed for ROW already in existence before the act to be preserved. Figure 2.8 shows the RS 2477 ROW claimed by Washington County. RS 2477 Class B roads generally have regular maintenance and Washington County has a total of 821 centerline miles of these roads.

- D



Figure 2.9 Class B Road, Gardner Ranch Rd near Central, UT. (Source: PLPCO Access Map 360°)

TRAFFIC

The amount of traffic or usage a transportation facility receives helps determine if widening or new facilities may be required. This section reviews the existing vehicle traffic, highway level of service, as well as bicycle and pedestrian use on trails, sidewalks and roads.

Annual average daily traffic (AADT) is an estimation of how many cars travel along a specific street of street segment in a day. This number is typically derived by recording traffic counts for an extended period on a specific street. After the traffic counts have concluded and the numbers are examined and determined to be representative of normal traffic behavior these data are then used to create an annual daily average.

Level of Service

Roadway level of service is typically displayed in the relationship between the traffic volume and the roadway capacity (generally the number of lanes), or a V/C ratio. This ratio is represented as a letter grade ranging from A-F, much like letter grades assigned in school.

A-C are generally considered freeflowing traffic operations, and while some congestion occurs at LOS D, the transportation system is assumed to be adequate (not failing) at this level. Figure 2.10 explains what conditions need to exist for a road segment to receive a particular letter grade. LOS D was identified as the planning goal for Washington County in the peak traffic hours, meaning that LOS E and F are unacceptable. Although LOS D is a planning goal, roadway LOS may vary on a street-by-street basis. Roadway capacity cannot be scaled to exactly fit demand since demand varies by time of day, day of week, and time of year.



Figure 2.10 Levels of Service (A-F).



Figure 2.11 **Average Daily Traffic Volumes (2019)**

The highest traffic volumes in unincorporated Washington County are found on I-15 north of Toquerville with almost 30,000 vehicles a day on average. Outside of I-15, the second highest AADT is found on SR-18 north of St. George with 6,800 vehicles/day followed by SR-59 between Hurricane and Apple Valley. The existing (2019) daily traffic volumes is illustrated in Figure 2.11.





Figure 2.12 Existing Level of Service

While the travel demand model is used to predict future traffic and level of service, it can also be used to estimate current conditions. For functionally classified roadways where existing traffic volumes are unavailable, a 2019 base year model was used to estimate daily traffic volumes on these roads.

Figure 2.12 provides the existing LOS within the study area based upon existing AADT and estimated volumes. The green roads have little or no traffic congestion corresponding to LOS A, B or C, while orange and red roads have "peak hour" traffic congestion.

- A-C

D

E

F

Currently, peak hour congestion at or above the planning LOS D is found within the urbanized areas in St. George and Hurricane.

Freeway

Other Roads

SAFETY

Existing crash data and trends help to identify potential safety improvements and strategies for the Transportation Plan. This section summarizes the existing safety conditions including an evaluation of historical trends within Washington County. Specific crash types and crash attributes were used to develop countermeasures that are included in the proposed improvements.

Crash Severity

To establish a crash baseline, the project team used crash data from Utah Department of Transportation's (UDOT) Numetric crash data base. The database includes all reported crashes within the state. Crash data were obtained for the period from January 1, 2017, through September 13, 2022. Year 2022 crash data are currently incomplete and have not been fully validated but are included in the analysis to provide insight into more recent crash trends that could be mitigated by proposed improvements.

Overall, there were 1,901 reported crashes within the unincorporated county. Of the 1,901 crashes 1.1% resulted in fatalities and 5.6% resulted in serious injury as shown in Table 2.2.

The months with highest number of crashes are November, December and January due to the influx of visitors during the holiday season (Figure 2.13). There has been a downward trend in the number of crashes since 2017 (Figure 2.13). Year 2022 crash data is currently incomplete and has not been fully validated. Crash numbers reflect those reported through September 13, 2022.





Figure 2.13 Crash distribution by month (top) and year (bottom).



Figure 2.14 Crash Severity

The highest concentration of crashes in the unincorporated Washington County is found on I-15 north of Toquerville. The second highest is found also on I-15 between Washington and Toquerville. Crash Severity (2017-2022)

- Fatal (20)
 Suspected Serious Injury (103)
- Suspected Minor Injury (220)
- Possible injury (246)
- No injury/PDO (1,235)

Crash hotspots are also present on SR-18, SR-9 and SR-59.

Number of Crashes

Fewer

More

Paiute Reservation

Municipalities

Table 2.2.	Crash numbers	for unincorporated	Washinaton C	countv between	2017 and 2022*.
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			0		

Fatal	Serious Injury	Minor Injury	Possible Injury	No Injury / PDO	Total Crashes
21	106	226	252	1,296	1,901
1.1%	5.6%	11.9%	13.3%	68.2%	

* Year 2022 crash data is currently incomplete and has not been fully validated. Crash numbers reflect those reported through September 13, 2022. This data is protected under 23 USC 407.



Fatal (20)

Suspected Serious Injury

Figure 2.15 Fatal & Serious Injury Crashes

Data on the number and proportion of serious injury and fatal crashes help inform potential improvements and strategies. From 2017 to 2022, there were a total of 21 fatal crashes and 106 serious injury crashes within the unincorporated county. The location of these crashes are shown in Figure 2.15. Of the major corridors in the County, I–15 had the most serious injuries or fatal crashes with 27, while there were 19 on Old 91, 14 on SR–18 and 9 on Gunlock Road.

Figure 2.16 summarizes the top five contributing factors for serious injury

(103) More and fatal crashes. These factors are similar to those for all crashes. However, serious injury and fatal crashes were more likely to involve speed, a teenage driver, and/or a DUI.

Fewer

Municipalities



Figure 2.16 Crash distribution by contributing factors.



Figure 2.17 Manner of Collision

Manner of collision refers to the vehicle movements for the vehicle(s) during the crash. Of all crashes, 75% (1,429) were single vehicle crashes. These crashes involve only one vehicle that collides with something or runs off the road. Of these single vehicle crashes, 25% (354) were animal related and 22% (319) the vehicle overturned. In total, there were 699 single vehicle roadway departure crashes were roadway departure crashes where the vehicle crosses the edge line and leaves the highway. The relative percent of each manner of collision is provided in Figure 2.18 and location of these collision is shown in Figure 2.17.



Contributing Factors

Adverse surfaces and speed involved crashes are the two largest contributing factors for collisions within the county. These factors are higher than the statewide average for the same period, suggesting that countermeasures for these factors should be considered in the plan.

The most common adverse surface is wet pavement with 12% (219) crashes involving a wet surface. The next most common adverse surface is sand/dirt/ gravel at 9% (164) followed by snow/ slush at 7% (141).

Heavy vehicle crashes and motorcycle crashes are slightly higher than the statewide average. While teenage driver, older driver, distracted driving and DUI are at or below the statewide average so improvements or strategies to address these factors may be of more limited value.



Figure 2.19 Crash distribution by contributing factor.

FUTURE GROWTH

To anticipate future travel demand in Washington County, the Dixie MPO uses data on population projections, current land-use plans, existing roadway networks, transit services, and active transportation facilities. The data is input into a computer-based travel demand model that then provides travel demand outputs to aid in the transportation planning process.

Population projections are provided to the Dixie MPO by the Utah Governor's Office of Economic Development which relies heavily on the work of the Kem C. Gardner Policy Institute at the University of Utah to project future population levels.

The MPO also relies on individual city and county master plans to define current land-use plans and forecast potential population densities throughout the plan horizon (2019-2050).



City Household Growth County Household Growth

Figure 2.20 Household Growth 2019–2050

Figure 2.20 shows where household growth is anticipated within the study area. Most of the future growth within the unincorporated county will occur east and west of St. George. Other pockets of growth include New Harmony, Veyo, Central and Pine Valley.



Figure 2.21 New residential development near Ivins, UT. (Source: Visionary Homes)



County Job Growth

Paiute Reservation

Figure 2.22 Employment Growth 2019-2050

Similarly to household, employment will mostly grow in areas surrounding St. George within the unincorporated county.

There will also be growth near New Harmony and between Toquerville and Leeds. Smaller pockets of employment growth are predicted to happen near Veyo, Central and Pine Valley.



Figure 2.23 2050 No Build Level of Service

Level of Service Municipalities — A-C Paiute Reservation D E F

A no-build scenario is intended to show what the roadway network would be like in the future if no action were taken to improve the roadway network. The travel demand model was used to predict this condition by applying the future growth and travel demand to the existing roadway network.

Figure 2.23 show the 2050 No Build model Levels of Service if no improvements are made within the unincorporated county, but assuming improvements within city boundaries. Most roads that start to fail capacity (LOS D or worse) are located within city boundaries like St. George and Hurricane.

Pinto Rd, or FR 009, will be the only road in the unincorporated county to fail capacity if no improvements are made to the roadway system.



An extensive community involvement effort was developed as part of this plan. This included building a project website, creating a community survey, holding meetings with the steering committee and local stakeholders, as well as public open houses within the County.

The comments, observations, and opinions discussed with the community provided the team with invaluable information that helped guide the planning process.

The following pages describe in more detail a more the various outreach initiatives we undertook for this plan.

ONLINE INITIATIVES

Project Website

A project website was developed early in the process to help inform stakeholders and the public about the study (<u>www.washcoplan.com</u>) The website was continuously updated throughout the development of this plan with schedule updates, project maps, access to the community survey, and notice for the public open houses held in Washington County.



Figure 3.1 Washington County TMP Website.

Public Survey

As part of the Washington County TMP, an online survey was distributed to gather valuable insights from the community. The survey proved to be a successful means of engaging with the public, resulting in an impressive 156 responses.

Through this survey, respondents were able to provide their input on a variety of crucial aspects related to transportation. These included assessing travel modes and their frequency of use, identifying transportation priorities, gauging attitudes towards walking and biking, and pinpointing specific areas of concern.

The survey served as an inclusive platform for community members to actively contribute their perspectives, allowing for a comprehensive understanding of the transportation needs and aspirations of the county.

Figure 3.2 Responses to four of the twelve survey questions asked for the Washington County TMP.



What transportation issues are you most **concerned** about within Washington County?



How important is walking/ biking to you?



How often do you use the following <mark>facilities</mark> for walking or biking?



"A **bike path** from Hurricane to La Verkin. Non-tourismbased mass **transit options for local commuters**." "Transit and safe walking and biking options for people who do not drive for transportation should be a number one priority."

What transportation improvements would you like to see in Washington County?

"**Connections** to avoid having to use I-15 between exit 36 and 42 and beyond."

"Bring **regular bus service** from St George through Rockville, into Zion." The following key take-aways were identified through these survey results:

The majority of respondents (64%) drive daily, 41% walk daily and, 11% bike daily. **About 41% carpool daily.**

On a standard weekly basis, most respondents make 6+ trips by car and bike, which includes combined categories such as trips for recreation, errands, school, and work.

41%

Most respondents utilize sidewalks, bike lanes and trails weekly for transportation and recreation.

4%



Walking and biking were rated "Very Important".

41%

Very few respondents reported using bus service.

A major concern identified from the survey is **roadway congestion**, followed by **lack of safe biking/walking options** and **roadway safety**.



IN-PERSON INITIATIVES

Steering Committee Meetings

To ensure the Washington County TMP progressed in a timely manner and fostered inclusivity, a dedicated steering committee was established. The primary objective of this committee was to oversee the implementation of the TMP and ensure that all voices and perspectives were taken into account throughout the process.

The Steering Committee was involved in a series of meetings including a Vision Workshop, Needs and Recommendations Meeting, Active Transportation Meeting and Final Recommendations Meeting.

This Steering Committee included representatives from the following agencies:

- Washington County
- Five County Association of Government
- Cities in Washington County
- Utah Department of Transportation
- Greater Zion
- Bureau of Land Management
- National Park Service

Figure 3.3 Stakeholders gather around maps to provide input in the plan's recommendations during a meeting.



2023 Transportation Expo

The Washington County TMP was showcased at the 2023 Transportation Expo held in St. George. The project team engaged with stakeholders, and many of them eagerly visited the exhibit booth to provide valuable feedback. The booth featured informative posters displaying the proposed projects, allowing attendees to visually grasp the scope and potential impact of each initiative.

To gather more detailed input, the team also distributed paper surveys, enabling attendants to rank the projects according to their preferences. This multi-faceted approach ensured that attendees had various avenues to express their opinions and contribute to the development of the TMP. The project team embraced the event as a platform to foster collaboration and gather diverse perspectives, strengthening the overall effectiveness and inclusivity of the transportation planning process.

Figure 3.5 A flyer advertising the Expo



DIXIE REGIONAL TRANSPORTATION EXPO TUESDAY FEBRUARY 7TH, 10AM - 6PM

Figure 3.4 Stakeholders provide input during the 2023 Transportation Expo.



Community Open Houses

To gather valuable input from the public, a series of community open houses were organized. These open houses were held at various locations throughout the county, including the new County Building, New Harmony, Veyo, and La Verkin, in order to ensure that all voices were heard.

The response from the community was remarkable, with close to a hundred residents attending these meetings. Attendees expressed satisfaction with the proposals put forward, particularly regarding the introduction of new safety and capacity projects. Additionally, they were pleased to see the plans for expanding the active transportation network, acknowledging the positive impact it would have on promoting healthier and more sustainable modes of travel. The community open houses proved to be instrumental in fostering meaningful dialogue and garnering public support for the transportation initiatives outlined in the plan.

Figure 3.6 Community members participate in a Public Open House in (from left to right) Veyo, La Verkin, and New Harmony





An active transportation (AT) network is a key component of a transportation system because it provides mobility options for all residents.

Making walking and biking safe and convenient is a key goal of any complete transportation plan.

The benefits of a practical and accessible AT network are broad and include improving physical and mental health, decreasing noise and air pollution, providing a low-cost modechoice, and increasing the property values along the AT network. When there are more transportation choices, connectivity is improved throughout the community because more access is provided to both specific and regional origins and destinations.

The following maps depict the current conditions of AT in Washington County.

Figure 4.2 Paved trail, or shared use path, in Pine Valley, UT. (Source: Avenue Consultants)





Figure 4.3 Existing Trails & Bikeways

Currently, unincorporated Washington County has 1.1 miles of bike lanes and 21 miles of shoulder bikeways. The bike lanes extend on Old 91 from 6100 West to Crescent Moon Trail in Ivins. While the shoulder bikeways are mostly on SR-18 north of St. George as well as on SR-9 between Virgin and Rockville. The trail system is more extensive with 5.4 miles of paved trails, and 1,245 miles of unpaved trails outside incorporated cities. Paved Trail
 Unpaved Trail
 Existing Facilities
 On-road Bike Lane/ Bikeway

The paved trails, or shared use paths, extend through Snow Canyon and along SR-18 from St. George to Snow Canyon Drive. The more than half (660 miles) of the unpaved trails are road concurrent so the are open to OHV as well. While 380 miles are designed for hiking only, and 205 miles are for hiking or biking.



Figure 4.4 STRAVA Bike Usage

STRAVA is an app that uses GPS tracking to record a cyclist, runner, jogger, walker's, etc. specific route. The data provide a general idea of where people are participating in AT. It is understood that the data is representative of only certain segments and demographics of the population, such as expert bicyclists and those with access to mobile devices and does not represent the entire population of AT users. However, it is beneficial to see where these AT trips are currently occurring along the road and trail networks within Washington County. When this data is combined on a map with existing AT facilities, it can help identify where projects may be of highest use, or where there is a latent demand for AT infrastructure. Figure 4.3 illustrates the STRAVA cyclist usage within the County. Based upon this usage data Snow Canyon Drive along with SR-18, Gunlock Road and Old 91 are popular routes for road cycling within the County. The data also show that Bearclaw/Stucki, Goosebump/ Jem, Gooseberry Mesa, Guacamole Trails, and Little Creek Mesa are popular mountain biking areas.



Figure 4.5 STRAVA Pedestrian Usage

Pedestrian trips with users walking or running is illustrated in Figure 4.4. The area with the highest pedestrian use was in Zion National Park. This usage was significantly higher than other areas within unincorporated Washington County due to the highvisitation rates Zion National Park receives year round. However, there was also a high number of pedestrian trips in Snow Canyon State Park, and along SR-18 where safe walking facilities exist.



<200

- 200 - 800

- 800 - 2,000 - 2,000 - 4,000

- 4,000 - 10,200

Figure 4.6 Several visitors at Zion National Park. (Source: NPS.gov)



Figure 4.7 **Bicycle & Pedestrian Crashes**

Bicycle and pedestrian crashes are also typically classified as a single vehicle crash. Within unincorporated Washington County there was only one bicycle involved crash and four pedestrian involved crashes as shown in Figure 4.6. While there are relatively few of these crashes, they involve the more vulnerable road users so the crash severity is typically higher. However, with these crashes there was only one crash with a minor injury, two with possible injuries, and two with no injuries.



Figure 4.8 Mountain Bikers gather in Hurricane, UT(Source: otwsafety.com).

Bicycle (1)

ACTIVE TRANSPORTATION FACILITIES

While freeways and expressways favor high speed long distance mobility for motor vehicles, a robust AT network provides its own accessibility options that can connect people to neighborhoods, downtowns, parks, schools, places of work and worship, shopping centers, etc., without a car. Figure 4.8, below, illustrates active transportation facilities with level of comfort increasing from left to right. Comfort is typically incorporated by a degree of separation from the roadway through curbs, barriers, or park strips.

The following sub-sections describe each of these facilities further:



Figure 4.10 A Bike Lane in Hurricane, UT



Figure 4.9 Level of comfort of different Active Transportation Facilities.



Figure 4.11 Example of a Shoulder Bikeway Typical Section.

Shoulder Bikeways are paved shoulders that feature signs indicating the potential presence of bicycles on the road, with no additional pavement markings except for a solitary stripe delineating the shoulder. Typically, they are installed in areas with minimal bicycle usage but still capable of accommodating occasional riders. Preserving the shoulder also allows for future enhancements, such as the addition of dedicated bike lanes, if certain routes experience increased bicycle usage. It is recommended to have a minimum width of 4' for shoulder bikeways, in which case rumble strips should be avoided. However, shoulder bikeways with a minimum width of 6' can accommodate the inclusion of rumble strips.



Figure 4.12 Example of Marked Shared Roadway (Source: City of Milwaukee)

Marked Shared Roadways are characterized by the presence of signage that indicates bikes may use the full lane. Pavement markings are present on Marked Shared Roadways in addition to signage. They should only be used on streets with speeds of 35 mph or less.



Bike Lanes are defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. These can be used on streets with higher motor vehicle usage and speeds. The recommended bike lane width is 5'.

Figure 4.13 Example of Bike Lane (Source: Bridge Michigan)

Buffered Bike Lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. These can be used on streets with higher motor vehicle usage and speeds. Recommended bike lane width is 4' when using a 3' buffer. Recommended bike lane width is 5' when using a 2' buffer.

An **At-grade Cycle Track** is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. It does that by providing a painted buffer and vertical protection via barriers or parking. These can be used on streets with higher motor vehicle usage and speeds.

Raised Cycle Tracks are bicycle facilities that are vertically separated from motor vehicle traffic by being above curb next to the sidewalk. This is a high comfort facility suitable for most roads. Cycle Track minimum is 4' when a mountable curb is installed between Cycle Track and sidewalk, or when the Cycle Track is flush with the sidewalk grade.

Shared Use and Sidepaths are often regarded as the most comfortable options within this context. They offer ample space for pedestrians and cyclists and are situated at a considerable distance from the road. The alignment of shared use paths is not always parallel to the roadway and may follow other features, such as rivers and parks. Sidepaths are generally positioned closer and parallel to the roadway and separated by a narrow park strip, curb, or barrier.



Figure 4.14 Example of Buffered Bike Lane (Source: City of Corvallis, OR)



Figure 4.15 Example of At-grade Cycle Track(Source: Salt Lake City,UT)



Figure 4.16 Example of Raised Cycle Track(Source: Cambridge, MA)



Figure 4.17 Virgin River Trail/ Shared Use Path(Source: TrailLink)



Active Transportation Improvement **Projects**

Buffered Bike Lane Bike Lane Shoulder Bikeway

Sidepath

Multi-use Trail

Sidepath/Multi-use Trail

Proposed Facilities (Other Plans)

- **On-Road Bikeway**
- Sidepath/Multi-use trail

This plan encompasses a total of 19 AT improvement projects, many of which align with the proposed roadway improvement initiatives (refer to chapter 5). Consequently, these projects can be conveniently executed concurrently. Major routes like SR-9 and SR-18 are targeted for the implementation of high-comfort facilities, including shared-use paths and sidepaths.

The plan suggests the creation of approximately 46 miles of such facilities. Furthermore, it recommends the addition of roughly 30 miles of bike lanes, 31 miles of buffered bike lanes, and 49 miles of shoulder bikeways.

Cost-estimate was based on a per mile estimate and does not include purchase of ROW.

Table 4.1 Active Transportation Improvement Projects

ID	Project	Improvement/Notes	Location	Туре	Cost-Estimate
1	New Connector	Connection to Ivin City existing and planned trails	Old 91 to Kwavas Drive Sidepath	Shared Use Path	\$900,000
2*	Old 91	Widen eastbound shoul- der, stripe bike lane to match existing west- bound bike lane	6100 West to Ivins City	Bike Lane	\$250,000
3*	Old 91	Widen shoulders and stripe bike lanes	Gunlock Road to 6100 West	Bike Lane	\$50,000
4*	Gunlock Road	Widen shoulders and stripe bike lanes	Old 91 to SR-18	Bike Lane	\$400,000
5	Snow Canyon	Extend Snow Canyon trail to SR-18 shared use path	Upper Galoot Trailhead to SR-18	Shared Use Path	\$1,125,000
6	SR-18	Extend SR-18 trail to Veyo	Snow Canyon Drive to Gun- lock Road	Shared Use Path	\$10,250,000
7	SR-18	Stripe buffered bike lanes	5745 N to Gunlock Road	Buffered Bike Lane	\$2,390,000
8	SR-18	Stripe buffered bike lanes	MP 10 to Enterprise	Buffered Bike Lane	\$31,480,000
9	SR-9	Extend planned trail to existing trail in Springdale	La Verkin to Spring Dale	Shared Use Path	\$13,500,000
10	SR-59	Extend planned sidepath from Hurricane to Apple Valley	Hurricane to Apple Valley	Sidepath	\$13,600,000
11*	Old 91	Stripe bike lanes in widened shoulders	Utah Hill to Gunlock Road	Bike Lane	\$185,000
12*	Old 91	Mark and sign shoulder bikeway in widened shoulders	Arizona State Line to Utah Hill	Shoulder Bikeway	\$230,000
13	Sheep Bridge Road	Stripe bike lanes in widened shoulders	SR-59 to SR-9	Bike Lane	\$2,430,000
14*	Kolob Terrace Road	Mark and sign shoulder bikeway in widened shoulders	Pocketville Rd to Zion NP	Shoulder Bikeway	\$150,000
15	Big Plains Road	Mark and sign shoulder bikeway in widened shoulders	SR-59 to SR9	Shoulder Bikeway	\$4,050,000
16*	Pine Valley Road	Mark and sign shoulder bikeway in widened shoulders	SR-18 to Pine Valley	Shoulder Bikeway	\$200,000
17*	SR-144	Mark and sign shoulder bikeway in widened shoulders	New Harmony to I-15	Shoulder Bikeway	\$110,000
18*	Old Hwy 120 Route and Main Street	Mark and sign shoulder bikeway in widened shoulders	Old Hwy 120 Route/3214 MP 8.85 to 19.3 and Main Street/SR-129 MP 0 to 1.66	Shoulder Bikeway	\$270,000
19	1-15	Shared-use path from Anderson Junction to Ash Creek Reservoir following the route of the new Ash Creek pipeline	Anderson Junction to Ash Creek Reservoir following the route of the new Ash Creek pipeline	Shared Use Path	\$7,400,000

*Costs listed for these projects are for striping only. The costs estimates do not include any pavement which would need to come from the roadway improvements listed in Chapter 5.

Table 4.2 Trailhead Improvement Projects

ID	Improvement/Notes	Name	Existing Amenities
А	Little Creek Mountain	Add kiosk, toilet, fencing	None
В	Gooseberry Mesa (Windmill)	Add toilet	Kiosk, parking, fence
С	Whole Guacamole	Add kiosk, toilet, fencing	None



Figure 4.21 Bowery Trail Head, Hurricane, UT

ROADWAY IMPROVEMENTS

The recommendations for roadway improvements have been formulated through a comprehensive process involving in-depth analysis of existing conditions and previous planning documents (Chapter 2), consultations with stakeholders and the public (Chapter 3), and the integration of AT enhancements (Chapter 4).

The specific roadway project recommendations are visually depicted in Figure 5.2 and detailed in Table 5.1. These projects aim to enhance capacity, safety, and accessibility by incorporating various measures such as the creation of passing lanes, upgrading road surfaces, widening shoulders, and implementing wildlife fencing, among others. For more specific information regarding these improvements, please consult Table 5.1.

Figure 5.1 SR-144 in New Harmony. (Source: Google StreetView)





This comprehensive plan encompasses a total of 32 proposed roadway improvement projects. These projects are designed to address various aspects of road infrastructure enhancement. Among the proposed projects, there are 7 that specifically focus on the addition of new passing lanes, with 3 of them also including additional wildlife fencing measures. Furthermore, 6 projects aim to upgrade existing paved roads, while 8 projects are dedicated to widening roadways.

Additionally, 2 projects concentrate on intersection improvements, 3 projects involve the installation of rumble strips, 3 projects are dedicated to the implementation of wildlife fencing, and 2 projects propose the construction of entirely new roads. These proposed initiatives collectively aim to improve the overall functionality, safety, and efficiency of the road network.

Table 5.1 Roadway Improvement Projects

ID	Route	MP From	MP To	Location	Туре	
1	SR-18	34.9	36.4	SR-18; Cottonwood Upper SB Climbing Lane	Passing Lane, Wildlife Fencing	\$4,020,000
2	SR-09	15.4	17.4	SR-9; Virgin Flats Passing Lane and extend EB passing lane	Passing Lane	\$3,820,000
3	SR-18	20.4	24.2	SR-18; Veyo to Baker Reservoir NB Climbing Lane	Passing Lane, Wildlife Fencing	\$10,490,000
4	SR-59	7.3	8.8	SR-59; Smithsonian Butte Passing Lanes	Passing Lane	\$2,620,000
5	SR-59	13.8	15.3	SR-59; Gooseberry Mesa Passing Lane	Passing Lane	\$2,750,000
6	SR-18	38.8	40.3	SR-18; Cottonwood Lower SB Climbing Lane	Passing Lane, Wildlife Fencing	\$2,620,000
7	SR-59	8.8	10	SR-59; Little Creek Passing Lanes	Passing Lane	\$2,100,000
8	Sheep Bridge Road	0	4.9	SR-59 to SR-9	Upgrade to Paved Road	\$5,880,000
9	Big Plains Road	0	9.3	SR-59 to SR9	Upgrade to Paved Road	\$19,630,000
10	Kolob Terrace Road	0.5	5.3	Pocketville Rd to Zion NP	Widen Shoulders	\$2,860,000
11	Gunlock Road	9.7	9.9	Old 91 intersection realignment	Intersection Realignment	\$660,000
12	Pinto Road	0	8	SR-18 to New Castle Reservoir Rd (FS 011)	Upgrade to paved road	\$9,600,000
13	New Castle Reservoir Rd	0	6.4	Pinto Road to Washington Co. Line	Upgrade to paved road	\$7,680,000
14	Old 91	0	19.5	Arizona State Line to Ivins	Widen shoulders	\$9,700,000
15	Gunlock Road	9.9	25.1	Old 91 to SR-18	Widen shoulders	\$7,600,000
16	Pine Valley Road	0	8.1	SR-18 to Main Street	Widen shoulders	\$4,050,000
17	Old 144	1.2	5.7	New Harmony to I-15	Widen shoulders	\$2,250,000
18	SR-18	12.5	12.7	SR-18; Diamond Valley Drive Intersection	Intersection improvement/ realignment	\$890,000
19	Old 91	4.5	7.4	Shoulder and Centerline Rumble Strips	Rumble strips	\$240,000
20	Old 91	6	6.3	Horizontal Curve Improvements	Curve improvements	\$1,210,000
21	Old 91	7.8	8.3	Wildlife Fencing	Wildlife fencing	\$250,000
22	Old 91	10.8	13.4	Shoulder and Centerline Rumble Strips	Rumble strips	\$220,000
23	Gunlock Road	20.5	23.5	Shoulder and Centerline Rumble Strips	Rumble strips	\$250,000
24	SR-18	14	17	Wildlife Fencing Diamond Valley to Dameron Valley	Wildlife fencing	\$1,480,000
25	SR-59	16	18.2	Widen Shoulder	Widen shoulders	\$14,160,000

Table 5.1 (Cont) **Roadway Improvement Projects**

ID	Route	MP From	MP To	Location	Туре	Cost-Estimate
26	SR-18	28.9	32	Wildlife Fencing	Wildlife fencing	\$1,530,000
27	SR-09	22.9	24	Wildlife Fencing	Wildlife fencing	\$540,000
28	Old Hwy 120 Route and Main Street	8.85	19.3	Old Hwy 120 Route/3214 MP 8.85 to 19.3 and Main Street/SR-129 MP 0 to MP 0.4	Widen shoulders	\$5,425,000
29	New Road	-	-	New Harmony 600 South to I-15 exit 40	Add a second access road to New Harmony	\$6,670,000
30	Kolob Road	5.28	27.1	Dry Creek Rd to county line	Pave shoulders	\$11,560,000
31	Gooseberry Rd	-	-	Gooseberry Rd/ 0656 Apple Valley Main St. to Gooseberry Trailhead	Upgrade to improved road	\$4,332,000
32	Lower Sand Cove Rd	-	-	Gunlock Rd to SR-18	Upgrade to paved road	\$9,820,000



Figure 5.3 A rural road in Washington County (Source: Avenue Consultants).



Washington County owns very little of the right-of-way (ROW) for the roads they manage. Unlike much of UDOT's system or even many cities who do own the majority of the land their roads are on. Most of the county roads have existed for a long time to provide access to certain areas. Unlike city roads or those in developments many of these rural roads were established by individuals and Washington County eventually became responsible for their maintenance. Not owning the ROW becomes a problem when the county looks to improve the road like widening it to add shoulder and make it safer. In some cases the County may need to purchase ROW increasing the cost of the project

Figure 6.1 A view of two roads Washington County is responsible for in a rural part of the county (Source: Avenue Consultants).



RIGHT-OF-WAY CATEGORIES

Prescriptive Use

Many county roads have prescriptive use or a prescriptive easement. A prescriptive easement is created when a roadway uses or crosses another person's property (even though the use was not expressly agreed to) for a prolonged period. Prescriptive easements recognize long-standing usage, especially if the use was relied upon for the enjoyment of property. In Utah, the Prescriptive Road Statue essentially provides that a road crossing private property becomes a public ROW if it is used by the public continuously for at least 10 years.

R.S. 2477

Revised Statute 2477 (Section 8 of the Mining Act of 1866) is a federal law that authorized construction of roads across federal public lands. This law helped settle the West for 110 years.

Residents and pioneers in Washington County created and used many roads across public lands for farming, ranching, hunting, recreating, and connecting communities. Today many of these roads are still used daily and seasonally. R.S. 2477 was repealed in 1976 and congress enacted the Federal Land Policy and Management Act which preserved all the R.S. 2477 road ROWs. While rights-of-way were preserved it is often unclear who owns the road or in some cases if the road existed prior to 1976. The state of Utah on behalf of counties across the state has sought acknowledgment and notice of acknowledgment of acceptance of R.S. 2477 ROWs this century and has filed suit against the federal government.

Here is one such acknowledgment for Gunlock Road from Veyo to Gunlock, basically providing the county control of the ROW that is on federal lands, but not any ROW on private lands. The full document can be accessed on this link:

http://recorded2477roads.utah.gov/ washington/b-roads/preamended/279916.pdf

Acknowledgment and Notice of Acknowledgment of Acceptance of R.S. 2477 Right-of-Way Grant



THE STATE OF UTAH

TO ALL WHOM THESE PRESENTS SHALL COME, Greeting:

Know ye, This is an Acknowledgment and Notice of Acknowledgment made under Utah Code Sections 72-5-309 through 310 inclusive, that the grant of the United States of America of "the right of way for the construction of highways over public lands, not reserved for public uses" under United States Revised Statutes 2477 (43 U.S.C. Section 932 (repealed October 21, 1976, with proviso recognizing the validity of rights-of-way already established)) was accepted for and on behalf of the State of Utah and its political subdivision Washington County Road Number: 0139; State Geographic Information Database (SGID) Road Identification Number: RD279916. Total road length is 7.69 miles more or less.

The reason for this Acknowledgment and Notice of Acknowledgment includes, but is not limited to, the fact that the road was constructed, mechanically, or by continuous use as a public highway for a period of at least ten years, over public lands not reserved for public uses, prior to the earlier of (a) the October 21, 1976 repeal of R.S. 2477 or (b) the date the servient estate was reserved for public uses.

This Acknowledgment and Notice of Acknowledgment applies only to the segments of the road that traverse land owned by the Bureau of Land Management, United States Department of the Interior, and does not apply to segments of the road that traverse land owned by any other person or entity. The State of Utah and its political subdivisions reserve the right to make further acknowledgments and notices of acknowledgment with regard to road segments that traverse land owned by other entities, including the United States of America, through one or more of its agencies.

Figure 6.2 Notice of acknowledgment of Acceptance of R.S. 2477 for Gunlock Road from Veyo to Gunlock.

General Land Ownership

Much of the land in rural Washington County is owned by the federal government and controlled by either the Bureau of Land Management (BLM), National Forest Service, Zion National Park, or National Wilderness Areas. There is also the Paiute Reservation controlled by the Shivwits Band and State of Utah which controls the State Parks and the School and Institutional Trust Lands Administration.



Figure 6.3 Roadway Projects Right-of-Way

There are also individual private land holdings, many of which on directly on the roads, where people have homes and businesses. Washington County is responsible for roads that cross all of these lands.

The project team has identified 138 miles of roadway improvements. 63.2 miles of those roadway improvements are located on private land with 32.9 miles on BLM land and other 17 miles on National Forest Service land. Above is a map of all of the planned roadway improvements with simplified ROW ownership. Roadway Projects ROWPrivate (63.2 Miles)National Parks (8.7)Bureau of Land
Management (32.9 Miles)State Parks and
Recreation (1.1 Miles)National Forest (17.0
Miles)State Trust Lands (0.7
Miles)Tribal Lands (13.9 Miles)National Wilderness Area
(0.3 Miles)



Figure 6.4 Unpaved County Road (Source: Avenue Consultants).



Figure 6.5 Active Transportation Projects Right-of-Way

Looking at the planned Active Transportation improvements, many of them also fall on private land.

AT Projects ROW Private (40.5 Miles) Bureau of Land Management (29.6 Miles) Tribal Lands (12.2 Miles) AT Projects ROW National Forest (6.1 Miles) State Parks and Recreation (2.7 Miles) State Trust Lands (1 Miles)

Above is a map of all of the planned AT improvements with simplified ROW ownership.



Figure 6.6 Pine Valley Mountain River Walkway (Source: Avenue Consultants).

PRIORITY OF ACQUISITION

All of the roads identified in the previous maps are planned for improvements and it would benefit the county to control the ROW for all of the mapped corridors. The two highest priority roads with both transportation and active transportation improvements planned are:

- **Gunlock Road** (from SR-18 in Veyo to old Hwy 91)
- Kolob Terrace Road (from SR-9 in Virgin to Zion National Park)

These two corridors are planned to be widened to improve safety with expanded shoulders for cyclists and they would be benefited by Washington County controlling the ROW. For these two roads and may others around the county, a simple 40 foot flat section would likely suffice for the area needed to improve the roadway. This 40 foot section would include two 12 foot travel lanes with 6 foot shoulders that can accommodate a shoulder bike way or 8 foot shoulders for a bike lane. Below Figure 6.7 shows a potential crosssection for these type of roadways.



Figure 6.7 Potential ROW Section in Washington County, UT



All possible revenue sources have been considered as a means of financing transportation capital improvements needed as a result of new growth. This section discusses the potential revenue sources that could be used to fund transportation needs.

Transportation routes often span multiple jurisdictions and provide regional significance to the transportation network. As a result, other government jurisdictions or agencies often help pay for such regional benefits. Those jurisdictions and agencies could include the Federal Government, the State (UDOT), and the regional metropolitan planning organization (Dixie MPO).

The County will need to continue to work with these jurisdictions to ensure adequate funds are available for the specific improvements necessary to maintain an acceptable LOS. The County will also need to partner with the local municipalities to ensure corridor continuity across jurisdictional boundaries (i.e., arterials connect with arterials; collectors connect with collectors, etc.).

Funding sources for transportation are essential if the County's recommended improvements are to be built. The following information further describes the various transportation funding sources available to the County.

FUNDING SOURCE CATEGORIES

Federal Funding

Federal monies are available to counties and cities through the federal-aid program. UDOT administers these funds. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

Learn more about the STIP at <u>https://</u> <u>site.utah.gov/connect/about-us/</u> <u>commission/stip/</u>

The Surface Transportation Program (STP) funds projects for any roadway with a functional classification of a collector street or higher as established on the Statewide Functional Classification Map. STP funds can be used for both rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the state in urban areas. Another portion of the STP funds can be used for projects in any area of the state at the discretion of the State Transportation Commission. Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Committee reviews the applications and then a portion of the application is passed to the State Transportation Commission. Transportation enhancements include twelve categories ranging from historic preservation, bicycle and pedestrian facilities, and water runoff mitigation.

The Dixie MPO staff and Technical Advisory Committee recommend projects for funding as part of their Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). In order to receive funding, projects should include one or more of the following aspects:

- Congestion Relief spot improvement projects intended to improve Levels of Service and/ or reduce average delay along those corridors identified in the Regional Transportation Plan as high congestion areas
- Mode Choice projects improving the diversity and/or usefulness of travel modes other than single occupant vehicles
- Air Quality Improvements projects showing demonstrable air quality benefits
- **Safety** improvements to vehicular, pedestrian, and bicyclist safety

For Washington County projects to be prioritized in Dixie MPO's RTP and TIP, it is important that County staff and officials keep this plan and their general plan updated and stay involved in the MPOs planning process.

Learn more about the TIP at <u>https://</u> <u>dixie-mpo.com/dixie-tip/</u>

State Funding

The distribution of State Class B and C Program monies is established by State Legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. 75% of these funds are kept by UDOT for their construction and maintenance programs. The rest are made available to counties and cities. As many of the roads in Washington County fall under UDOT jurisdiction, it is in the interests of the County that staff are aware of the procedures used by UDOT to allocate those funds and to be active in requesting the funds be made available for UDOT owned roadways within the County.

Class B and C funds are allocated to local governments by a formula based on population, centerline miles, and land area. Class B funds are given to counties, and Class C funds are given to cities and towns. Class B and C funds can be used for maintenance and construction projects; however, thirty percent of those funds must be used for construction or maintenance projects that exceed \$40,000. The remainder of these funds can be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

In 2005 the State Senate passed a bill providing for the advance acquisition of ROW for highways of regional significance. This bill would enable local governments to better plan for future transportation needs by acquiring property to be used as future ROW before it is fully developed and becomes extremely difficult to acquire. UDOT holds on account the revenue generated by the local corridor preservation fund, but the county is responsible to program and control the funds. In order to qualify for preservation funding, the County must comply with the Corridor Preservation Process, which can be found on UDOT's website.

The Congestion Mitigation and Air Quality Program (CMAQ) funds are for transportation projects and programs to help meet the requirements of the Clean Air Act. Funds must be used for projects which improve air quality. Eligible projects include transportation activities in the State Air Quality Implementation Plan (SIP), construction and/or purchase of public transportation facilities and equipment, construction of bicycle or pedestrian facilities serving commuter transportation needs, and promotion of alternative modes such as ridesharing.

Learn more at <u>https://wfrc.</u> org/programs/transportationimprovement-program/congestionmitigation-air-quality-program/

Administered by the Utah Division of State Parks and Recreation, the Recreational Trails Program required that motor fuel tax revenues generated from motor fuel sales for off-highway recreational purposes be transferred from the Highway Trust Fund to the Trails Trust Fund for recreational trail and facility improvements. This program provides grants for non-motorized and motorized trails, including the construction and maintenance of trails and facilities, staging areas, trailheads, restroom facilities, and trail signing.

Learn more at <u>https://stateparks.</u> <u>utah.gov/resources/grants/</u> <u>recreationaltrails-program/</u>

County Funding

Washington County has several options for local sources of transportation funding. One of the most common sources of funding for local governments is revenue bonding for projects intended to benefit the entire community. General obligation bonds are debt paid for utilizing the general fund revenues-which are taxes collected primarily through property and sales taxes. Typically, general obligation bonds are not used to fund facilities that are needed primarily for new growth but instead are reserved for operation and maintenance purposes, or to fund the expansion or introduction of specific services. Common tools for funding transportation projects needed for new growth include Special Improvement Districts (SID) and Special Assessment Areas (SAA), developer contributions, and impact fees.

Special Areas and Districts

SIDs are organized for the purpose of funding a single specific project that benefits a definable group of properties. Similarly, an SAA can be created for infrastructure needs that benefit or encompass specific areas. The boundaries and services provided by the area must be specified and a public hearing must be held prior to creation. Once created, funding can be obtained from tax levies, bonds, and fees when approved by the majority of the qualified electors of the SAA. These funding mechanisms allow the costs to be spread out over time. Through the SAA, tax levies and bonding can apply to specific areas needing to benefit from the improvements.

Developer Contributions

Developer contributions, whether required or volunteered, are a common tool utilized by all local governments. Developers are typically required to construct the local streets within platted subdivisions. In addition, agreements can be made for developers to dedicate ROW and participate in the construction of collector/arterial streets adjacent to their developments. This usually occurs where the collector/arterial in question is not a priority for the County (either due to funding availability or lack of regional demand) but with private participation an agreement can be reached to initiate construction sooner than originally planned.

Impact Fees

Impact fees are another popular tool for new growth. The state of Utah allows local governments to collect impact fees to fund all or a portion of projects that are necessary due to new residential or commercial growth. These fees are assessed as a result of the impacts a particular development will have on the surrounding roadway system, such as the need for traffic signals or street widening. To collect and spend impact fees for transportation projects, the County would need to complete an Impact Fee Facilities Plan and Impact Fee Analysis to determine the impact of new growth on the system and calculate the appropriate fee.

Interfund Loans

Since infrastructure must generally be built ahead of growth, it must sometimes be funded before expected impact fees are collected. Bonds are the solution to this problem in some cases. In other cases, funds from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project. As impact fees are received, they will be reimbursed. Consideration of these loans will be included in an impact fee analysis and should be considered in subsequent accounting of impact fee expenditures.



Figure 7.1 Pine Valley Reservoir (Source: Avenue Consultants).

NEXT STEPS

Cities should be on the lookout for unique opportunities such as their roadway resurfacing schedule, emerging developer agreements, or parks and open space plans that might include paving or creating a shared-use path. Project prioritization beyond the completion of the Backbone Network should reflect each community's goals. The projects in the Washington County TMP are intended to give each community a list of improvements that are needed to form the Backbone Network. It will be up to each city to ensure the funding and building of them. Projects that are low-hanging fruit or easiest to complete within a municipality may be prioritized. Still, an eye should be kept on the primary goal of completing the connected Backbone Network.

The Washington County TMP is a collective vision. This transportation master plan is a useful tool that can support specific projects and may also allow funding to become more accessible.

Prioritizing the development of the Backbone Network will benefit regional connectivity. Once completed, it will be a manifestation of the multi-jurisdictional commitment for a safe, efficient , and connected transportation network, as expressed in the vision statement. However, when seeking funding, whether individually or multi-jurisdictional, it is advantageous for communities to be flexible and adaptable.

After the Washington County TMP is adopted, energy and efforts should be focused on completing the Backbone Network and all other fundable projects that connect key origins and destinations throughout the six cities. All projects should contribute to the overarching goal of providing a regional active transportation system based on user needs, comfort level, and ease of accessibility.