



Washington State
Department of Transportation



EAST VALLEY – MOXEE TO YAKIMA CORRIDOR STUDY FINAL REPORT



SR 24 / I-82 to Walters Road

MP 0.0 to MP 6.5

Washington State Department of Transportation

South Central Region Planning Office

2809 Rudkin Road Union Gap, WA 98903

September 2023

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Acronyms and Abbreviations

AADT	Average annual daily trips
ADA	Americans with Disabilities Act
AT	Active Transportation
EJSCREEN	US Environmental Protection Agency Environmental Justice Screening and Mapping Tool
EPA	Environmental Protection Agency
FGTS	Washington State Freight and Goods Transportation System
FHWA	Federal Highway Administration
LTS	Level of Traffic Stress
M2 Team	Multi-modal and multi-disciplinary internal stakeholder team
M3 Team	Multi-modal, multi-agency, and multi-disciplinary stakeholder team
MP	Milepost
OEO	Office of Equal Opportunity
PLCE	Planning Level Cost Estimation
RDI	Route Directness Index
SCR	South Central Region
SOV	Single occupancy vehicle
SR	State Route
Study	East Valley-Moxee to Yakima Corridor Study
TDM	transportation demand management
TSMO	transportation systems management and operations
WSDOT	Washington State Department of Transportation
YVCOG	Yakima Valley Conference of Governments

Executive Summary

Background and context

The City of Moxee and the surrounding area in East Valley are experiencing increased urban growth and development as landowners are converting agricultural and low-density lands to urban density-housing to meet the housing needs of the Yakima Metropolitan area. The growth is affecting the transportation system, including reduced intersection capacity, travel time reliability and function. Many of the local roads are transitioning from rural to urban standards and the intersections on State Route (SR) 24 have an increased number of crashes and travel delays. The increased traffic and rural road conditions are barriers to multimodal demands and needs in this area.

The connection of Moxee to Yakima is not a new issue. A study was completed in 1991 that recommended constructing a freeway style road from I-82 to Moxee. This option is no longer valid due to the high cost and impacts to surrounding properties. Many of the issues in the 1991 study were addressed when SR 24 was widened in 2007 from I-82 to University Parkway. WSDOT is still receiving citizen comments wishing SR 24 to be widened to four lanes the rest of the way to Moxee.

The Washington State Department of Transportation (WSDOT) authorized the **East Valley – Moxee to Yakima Corridor Study** (Study) to re-evaluate issues and to identify recommendations for solutions based on current contexts. The four partner agencies (City of Moxee, Yakima County, Yakima Valley Conference of Governments and WSDOT) agreed that a coordinated plan needed to be developed for the SR 24 corridor. The study is a collaboration between these four partner agencies with WSDOT coordinating the Study.

Issues

The following transportation issues were identified for this area because of the changing character:

- **Traffic volumes have grown and much of the system has not kept up with the growing demand leading to increasing travel time and crash frequencies. Vehicle traffic consists of a mix of privately owned vehicles and freight with large speed variances that cause reduced system performance, especially at intersections. Operational performance of intersections is a concern and will continue to degrade as the area continues to develop.**
- **The current system has some parts of an active transportation system but is incomplete.**
- **There are limited public transportation options for non-driving populations and people with limited access to vehicles.**

Planning study process

A multi-modal, multi-agency, multi-disciplinary team (M3 team) was formed to oversee the process. The M3 Team includes local partners and other local, state and federal agencies. The M3 team determined that the purpose of the study was to address the transportation network performance, accessibility, and safety gaps to support local communities and the traveling public.

The study identifies ranked solutions to increase mobility and transportation alternatives for all modes while maintaining or improving the safe operation of the transportation network.

The M3 team reviewed transportation issues in the corridor and used WSDOT's Practical Solutions approach to identify solutions. This approach is composed of least-cost planning and practical design applications that include performance-based approval to decision-making. Along with the M3 team involvement, community input was gained by two public online surveys and both an online and in person open house. A total of 3,053 direct mailing flyers were sent twice to addresses within the study area. In addition, WSDOT provided links and social media posts and received a total of 1,382 survey responses from two online surveys.

Strategies, performance measures and solutions

Six different strategies (including a No Action strategy) were identified as ways to address transportation issues in the corridor. The M3 Team approved these strategies:

- Bicycle and pedestrian connectivity and level of traffic stress
- System upgrades to urban standards
- Transportation Systems Management & Operations
- Add Capacity
- Intersection Optimization
- No Action (existing conditions)

A list of solutions for each strategy was made based on suggestions from staff and members of the public through the community engagement process and approved by the M3 Team for further evaluation. The solutions are potential ways to address the identified issues in the corridor.

Performance measures help determine how well a solution meets the study goals. Each solution was scored according to each of the four performance measures adopted by the M3 Team:

- Multimodal systemic safety data
- Delay for vehicles
- Bicycles
- Pedestrians

Recommendations

The M3 Team reviewed the priorities for the City of Moxee, Yakima County and WSDOT and agreed with all of them without any changes. The recommendations fall into two categories: short-term solutions and long-term solutions for further evaluation. Ongoing coordination is needed as the agencies move to implement the study recommendations. The transportation system in the study area is interconnected and decisions made by one jurisdiction can affect the others.

WSDOT recommendations are based on the department's direction of safety and state of good repair. The department is also required to provide for pedestrian and bicycle safety needs as part of the Complete Streets Law. The department does not have discretionary funding to implement

highway expansion projects. The City of Moxee and Yakima County did not give insight on how they arrived at their recommendations.

The most popular citizen solution, four traffic lanes on SR 24 from University Parkway to Bell Road, was not moved forward for lack of an agency willing to seek funding for this solution.

Short-term and long-term solutions

The short-term solutions (0 to 10 years) incorporate intersection performance, active transportation connectivity, and complete streets for the City of Moxee, Yakima County and WSDOT. Funding has not been secured for the solutions and the next step will be to pursue funding. Some may be tied to one another meaning they both need to be implemented to address an issue. One solution without another one may not work.

Figure ES-1. City of Moxee Transportation Priorities – Short Term

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane
16	Mieras Rd - Upgrade to urban standards; Birchfield intersection to approximately Beaudry
17	Faucher Rd - Upgrade to urban standards – E. Charron to Postma
18	East Charron - Upgrade to urban standards; north half roadway from Faucher intersection to match length of improvements on South side

Figure ES-2. Yakima County Transportation Priorities – Short Term

Solution Number	Description
19	Ekelman Rd - Upgrade to urban standards; from Mieras Rd to Duffield Rd
37	Beaudry/Bittner/Wendt Roads- Construct bridge across Roza Canal to connect streets and improve traffic flow and connectivity; Upgrade Beaudry Rd to a three-lane local collector approximately 400 ft south of the intersection to 200 ft north of the intersection

Figure ES-3. WSDOT Transportation Priorities- Short Term

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane adjacent to SR 24
2	SR 24 Pathway Extension – Phase 2 (Morrier Lane to Bell Road or Faucher intersection) adjacent to SR 24
28	Beaudry Road - Replace existing signalized intersection with a single-lane roundabout. -Considered as priority location for complete streets requirements due to vicinity of schools and lower-income housing on opposites sides of SR 24
25	Birchfield Road - Construct southbound right turn lane

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Long-term solutions (greater than ten years) require additional review and can be more expensive. Additional collaboration among the partners will continue to be important. Some solutions could affect other parts of the transportation system. The City of Moxee and Yakima County had no long-term solutions identified. WSDOT's long term priorities are listed in the table below.

Figure ES-4. WSDOT Transportation Priorities- Long Term

Solution Number	Description
TSMO Solution	TSMO - Intersection Safety & Efficiency – Retain 2 lanes from University Parkway to Bell Rd and replace signals with Roundabouts at University, Birchfield, and Beaudry Rd intersections.
8	Modified - SR 24 reconfigure lanes - Between University Parkway and Beaudry to 3 lanes, the additional lane in westbound direction, per segment as needed. (No pavement widening)
12	Beaudry Road - Eastbound / Westbound free right accel lane on SR 24 at Beaudry Rd *Consider additional turn lane/acceleration lane/deceleration lane options

1 - Background and Context

Introduction

The City of Moxee and the surrounding area are located in part of the greater Yakima Metropolitan Area called “East Valley” which is experiencing increased urban development and population growth. The growing population and associated housing demands triggered the conversion of long-term agricultural and low-density residential uses to urban development.

The East Valley is confined to the north and south by two ridges and bisected east and west by the Yakima River. There are currently only two river crossings over the Yakima River. Population and development in the portion of the metro area east of the river (“East Valley”) will house about one-fifth of the growing metropolitan population. This increases travel pressure on the two river crossings. Yakima County is addressing the northern river crossing issue with a Connecting Washington project, the “East-West Corridor.” This project is located too far north to address the issues on the southern river crossing, which includes the State Route (SR) 24 corridor. The southern river crossing provides access to the Moxee and Black Rock valleys, as well as to the Hanford Reach National Monument and the Hanford Site. Over 70% of the trips from the Moxee area travel west over the Yakima River (SR 24).

This growth affects the transportation system between Moxee and Yakima along the SR 24 corridor by reduced highway capacity, travel time reliability, and function. Many local roads are transitioning from rural to urban standards and intersections on SR 24 are experiencing an increased number of crashes and travel delays. There are also multi-modal deficiencies on the southern routes, especially to adjoining urban centers. There is a lack of transit service and active transportation connectivity.

Through ongoing and continuous public and local coordination and outreach, residents and local governments have expressed strong concerns regarding increased travel time and travel reliability on the southern corridor. Transportation agencies recognize that these issues are barriers to multimodal demands and needs and have partnered on the **East Valley – Moxee to Yakima Corridor Study** (study), with a focus on the southern Yakima River crossing. This study includes early stakeholder and community engagement, data-informed decision making, and performance-based outcomes to guide the future development and delivery of transportation investments. The partners acknowledge and promote multi-modal solutions including active transportation (bicycle and pedestrian) and public transportation options that provide many benefits including reduced vehicle trips on the transportation network.

Yakima Valley Conference of Governments (YVCOG) previously completed a corridor study¹ in 1991 that reviewed transportation improvement alternatives on SR 24 to address access, safety, and increased traffic volumes which at that time, was growing by four percent annually and was forecasted to reach 26,645 vehicles by 2020 near University Parkway. This study recommended constructing a full access controlled four lane divided highway with Interchanges between I-82

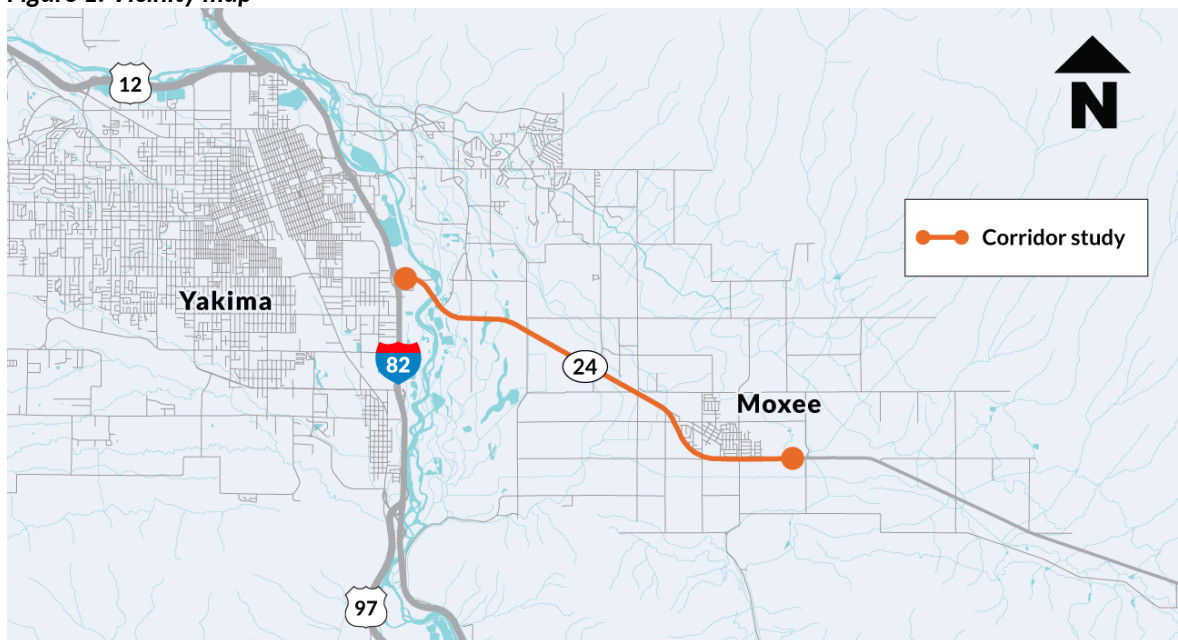
¹ YVCOG SR 24 Corridor Study, February 1991

and Faucher Road. It also recommended an improved connect from SR 24 to Terrace Heights. In 1992, WSDOT did a traffic analysis of the preferred alternative from the YVCOG study to better identify the route(s) for the freeway and its associated traffic impacts. Because of the high cost and impacts of the YVCOG study alternative, WSDOT did a second traffic study from I-82 to Keys Road in 2000 to address crashes and traffic backups crossing the Yakima River and I-82 interchange. This analysis recommended a four-lane express way (at-grade intersection and no median) from the I-82 to Keys Road. In 2003, the Washington Legislature awarded the recommendation in the 2000 Traffic analysis funding in the Nickel funding package. This project was completed in 2007 and connected to the new north south connection (University Parkway) to Terrace Heights. No other funding has been identified for SR 24 by the Legislature in any of the subsequent funding packages approved.

SR 24 serves as the trunk line for southern East Valley, as it has an essential river crossing. The route runs diagonally through the valley, bisecting the local grid network. SR 24 provides for agricultural and industrial transport, freight traffic, commuters to Yakima and Hanford, and for alternate access to the Tri-Cities. Further east, it includes a crossing of the Columbia River and serves as a regional connector to southeast Washington. In addition to the SR 24 corridor, the study includes part of the local system located approximately one mile north of SR 24 to (Norman Road) and two miles south of SR 24 to Rattlesnake Hills. The study area includes the following transportation features:

- SR 24 between I-82 (milepost 0.10) and Walters Road (milepost 6.5)
- Intersections on SR 24: University Parkway/Riverside Road, Birchfield Road, Morrier Lane, Beaudry Road, Bell Road, Rivard Road, Faucher Road and Walters Road
- Active transportation (bicycle and pedestrian) facilities

Figure 1. Vicinity map



Overview of Study

What are we trying to do (Purpose)

The study will collaboratively address the transportation network performance, accessibility, and safety gaps to support local communities and the traveling public in the study area. The study will identify ranked solutions to increase mobility and transportation alternatives for all modes while maintaining or improving the safe operation of the transportation network.

Why we are here (Need)

Much of the transportation system east of the Yakima River along the SR 24 corridor was designed and built to rural standards and does not meet the current and future needs of this transitioning area. This study will focus on the southern portion of East Valley near Moxee that would use the southern river crossing on SR 24 to connect to I-82, the Yakima Greenway, and the greater Yakima metropolitan area.

WSDOT will use the results of this study to help guide implementation of new Washington State 'complete streets' requirements for SR 24 within an incorporated area.²

What are the issues?

Traffic volumes have grown and much of the system has not kept up with the growing demand leading to increasing travel time and crashes. Vehicle traffic includes a mix of privately owned vehicles and freight with large speed variances that reduces system performance, especially at intersections. Operational performance of intersections is a concern especially during peak travel periods and will continue to degrade as the area continues to develop.

The current system has an incomplete active transportation network that jurisdictions are actively working to identify and address gaps:

Yakima Greenway is an existing, high-quality bicycle-pedestrian trail that parallels both I-82 and US 12 adjacent to the Yakima and Naches Rivers and is a 20-mile-long non-motorized system that connects the Union Gap, Yakima, Selah and Naches communities. Access to the trail in the study area exists at SR 24 and University Parkway.

The proposed SR 24 Pathway multi-use path project will parallel SR 24 and connect the Yakima Greenway to the City of Moxee. Phase 1 of the project has funding for design but not construction. It extends a multi-use trail from University Parkway to Morrier Lane which is improved with sidewalks and bike lanes and connects to other improved city streets. Phase 2 continues easterly to Bell Road and downtown Moxee. Only some local roads have sidewalks and bike lanes causing high levels of traffic stress due the need to walk or bike on the road shoulder or in traveled lanes on roads with no shoulders.

² RCW 47.24.060 Street access—Principles of complete streets—Requirements (2022).

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There are limited public transportation options for non-driving populations. People For People, a nonprofit agency, provides the only public transportation services in the study area (on-demand transportation services). Fixed route transit service does not extend east of I-82 and the city limits of Yakima and into the study area.

The study area includes the city of Moxee and its urban growth area (UGA), the East Valley School District facilities, regional commercial services, single family developments and extensive agricultural crop lands and processing facilities of regional, statewide and national importance. The Yakima River and its floodplain are located on the western end of the study (generally west of University Parkway) and is undergoing significant river and floodplain restoration efforts that ultimately may reduce mapped floodplain designations and allow potential future industrial developments.

This report presents findings and recommendations to help address these issues.

2 – Corridor Study Process

The East Valley - Moxee to Yakima Corridor study began in 2019 but paused due to the pandemic and restarted in 2022. Four partner agencies (City of Moxee, Yakima County, Yakima Valley Conference of Governments (YVCOG) and the Washington State Department of Transportation (WSDOT) agreed that a coordinated transportation study was needed for the SR 24 corridor.

In July of 2022, the first stakeholder group (Multimodal, Multi-disciplinary and Multi-agency (M3 Team) workshop was held. The M3 Team's oversight of the study concluded in April 2023 after conducting an in-person and online open house and the fourth M3 Team workshop.

This chapter summarizes WSDOT's Practical Solutions context, and the formation and functions of the M3 Team to guide and complete the study with oversight by WSDOT's internal multi-modal, multi-disciplinary (M2 Team).

Planning study process

The study incorporated a structured decision-making process, as well as community engagement efforts that incorporated WSDOT's Practical Solutions approach. Practical Solutions is a performance-based approach to transportation decision-making. This data-driven approach uses the latest tools and performance measures to analyze potential changes or improvements to help identify lower-cost efficiencies in operating the transportation network and managing demand to save money and reduce the need for building costly new infrastructure expansion.

The Practical Solutions framework considers and implements transportation demand management (TDM) and operational improvements before capital improvements. Such strategies consider implementation timelines, community input, current conditions, and system performance. Agreed-upon needs and strategies were identified to assist in making decisions on improving highway and local system efficiencies and reducing congestion. In this context, Practical Solutions can lead to solution implementation.

The study used performance data and collaborated with partners to identify and evaluate the full range of potential operational and multi-modal solutions, and to recommend the most appropriate solutions for future review and investment. Collaboration occurred via the M3 Team to evaluate potential strategies and to recommend which solutions should be carried forward for further action. In accordance with Practical Solutions, operational strategies are prioritized over capacity expansion investments. For recommendations on SR 24, solutions that are high performing relative to the cost to the public will be considered for further review, design, and implementation by WSDOT depending on state-wide agency priorities and funding.

Multimodal, multi-disciplinary, and multi-agency (M3) team

The M3 Team included representatives from the local community and agencies that represent different modes of travel and have different areas of expertise and interests. A Technical Subcommittee to the M3 Team was formed to develop and conduct the solution evaluation and scoring processes. In addition, a Public Transportation Policy Group was formed to help guide public transportation recommendations for the Moxee community.

Focusing on the SR 24 corridor, the M3 Team met to identify and evaluate current issues and concerns in the study area, and strategies and solutions that would address corridor needs. Also, the M3 Team adopted a framework to guide this study, including:

- **Issues, strategies, and solutions**
- **Multimodal solutions**
- **Performance gaps**
- **Performance measurements**
- **Community engagement and public input**

The M3 Team included transportation professionals representing multiple modes and disciplines (such as design, traffic, planning, etc.), as well as local, state, and federal agencies. In addition, agricultural trucking, local businesses, and trail/bicycle citizen group representatives were invited. The diverse roles and experience of the M3 Team were critical to an accurate characterization of the current function of the SR 24 corridor and local road network, where performance gaps occur, and what travel options exist for various modes of travel.

M3 Team participation from partner agencies included Planning, Traffic, Maintenance, Program Management, Project Development, Construction, and Active Transportation offices. The WSDOT Study Team supported the process by collecting traffic data and crash history on the corridor and leading the analyses and modeling, including intersection design alternatives within the SR 24 corridor. The M3 team members are listed in Appendix A.

Figure 2. M3 team members

Central Washington Railroad (invited)
 City of Moxee
 City of Yakima Community Development
 East Valley Community Enhancement Association
 East Valley School District
 Federal Highway Administration
 Greater Yakima Chamber of Commerce (invited)
 Loftus Ranches (invited)
 People For People
 Roy Farms
 Van Horn Farms (invited)
 Washington State Patrol
 Washington State Tree Fruit Association
 WSDOT
 Yakama Nation Engineering (invited)
 Yakima Bikes and Walks
 Yakima County - Sheriff
 Yakima County Department of Human Services
 Yakima County Planning (invited)
 Yakima County Roads
 Yakima Greenway
 Yakima Health District, Community Health
 Yakima Hispanic Chamber of Commerce (invited)
 Yakima Transit
 Yakima Valley Conference of Governments

Multimodal and multi-disciplinary (M2) Team

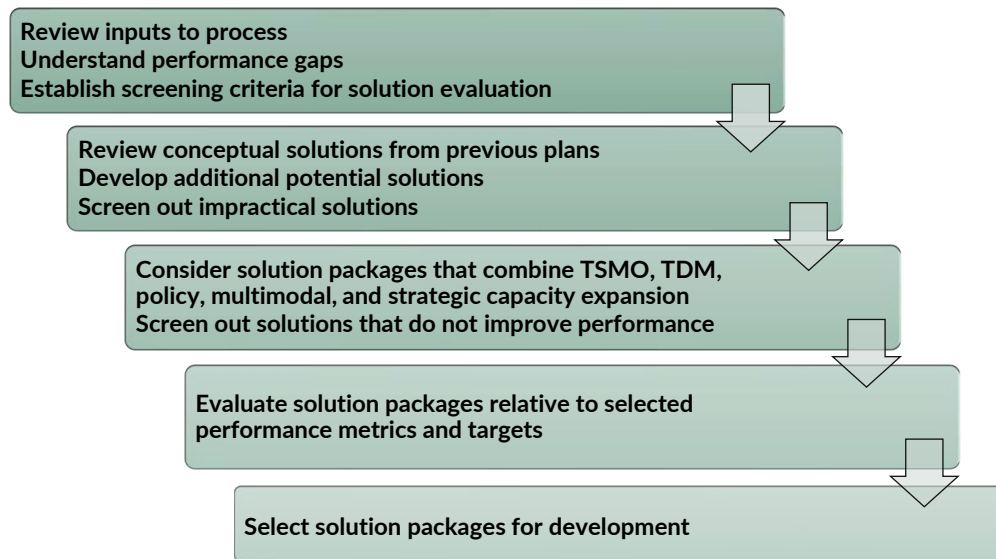
The M2 Team, comprised of WSDOT subject matter experts, provides input and a statewide perspective to the regions on the content of a planning study at specific study decision points. The M2 team members are identified in Appendix A.

The WSDOT Study Team presented an overview to the M2 Team on February 10, 2020, and January 9, 2023, to solicit feedback during stages of the study.

M3 Team framework

WSDOT's Multimodal Planning and Data Division guidance provides detailed instructions on the stepwise progression of tasks for planning studies. To guide the study, WSDOT based the framework on previous plans and processes and then developed new guidance and documents to govern and structure the M3 Team, solution identification and solution scoring.

Figure 3. WSDOT's Multimodal Planning and Data Division Guidance



The study Charter was the first guiding document prepared and adopted solely for the study (see Appendix B). The study charter was used to identify and develop the need, purpose, vision, goal, objectives, ground rules, roles and responsibilities, communication protocols, decision-making criteria and process, dispute resolution process, and commitment of resources.

The M3 Team developed the following objectives for decision-making during the study implementation:

- M3 team members will strive to reach agreement by consent in a way where they as partners are willing to accept the proposed action.
- Minority opinions will be reflected in the final report on recommendations.

Below are identified data and resources to guide decisions during the analysis:

- Future vehicle traffic volumes from YVCOG Traffic model
- Vehicle counts from existing information and new data collection.
- Bicycle/pedestrian information and analysis
- Safety factors analysis
- Synchro and SIDRA traffic modeling
- Crash data
- Land use and demographic information

Selected Strategies

The M3 Team identified strategies that are consistent with regional/local transportation and land use plans, and refined the preliminary strategies and solutions developed by agencies involved. The study identified strategies that help address the transportation network conditions, performance and multimodal accessibility gaps. The study includes analysis of current and future conditions to improve the movement of people and goods through the corridor. These strategies focus on improvements that balance goals such as increasing mobility, providing transportation alternatives for all modes, maintaining, or improving the safe operation of the transportation network, and recognizing agency standards and limitations.

The objective of the study was to evaluate issues and to identify recommendations for the future of transportation in the area. This was done by engaging partners, transportation service providers, and the community to develop a plan that:

- Identified the future vision for the transportation network in the study area.
- Reached consent (general acceptance and not opposed) on what are the most pressing transportation needs.
- Identified the most cost-effective ways to address those needs.
- Created a strategy to implement or phase priority needs for funding and identifies next steps to seek funding.
- Ensures the community has been involved and is committed to the plan.

The goal of the study was to select strategies that:

- Create a safe and efficient transportation network that enhances mobility and connectivity.
- Provide for safe alternatives for all modes of transportation.
- Reduce potential for correctable fatal and serious crashes.
- Prioritize near-term and long-term needs for transportation that include operational improvements.
- Be balanced between different users (through mobility and local access) throughout the transportation network.
- Be compatible with planned land use and transportation plans.
- Be fundable with existing grant programs or operating funds.

The strategies were separated into the following categories:

- Active Transportation
- Intersection Optimization
- Transportation System Management & Operations
- Upgrade to urban standards
- Add Capacity

The study identifies specific changes or solutions based on the above strategies that were analyzed, including the review of current and proposed land use affects to the transportation network including mobility, travel reliability, safety and bicyclist / pedestrian connectivity.

Figure 4. Aerial photo of study area



Community Engagement

The WSDOT Study Team:

- Developed a Community Engagement Plan that identified initial actions for stakeholder input and tools and strategies for obtaining meaningful input from the public.
- Incorporated preliminary social and environmental justice information in the study

Key messages identified in the Community Engagement Plan are listed below. Additional information on community engagement efforts is provided in the Public Outreach section below and Appendices; D-Community Engagement Plan, E-Public Survey and F-Virtual Open House.

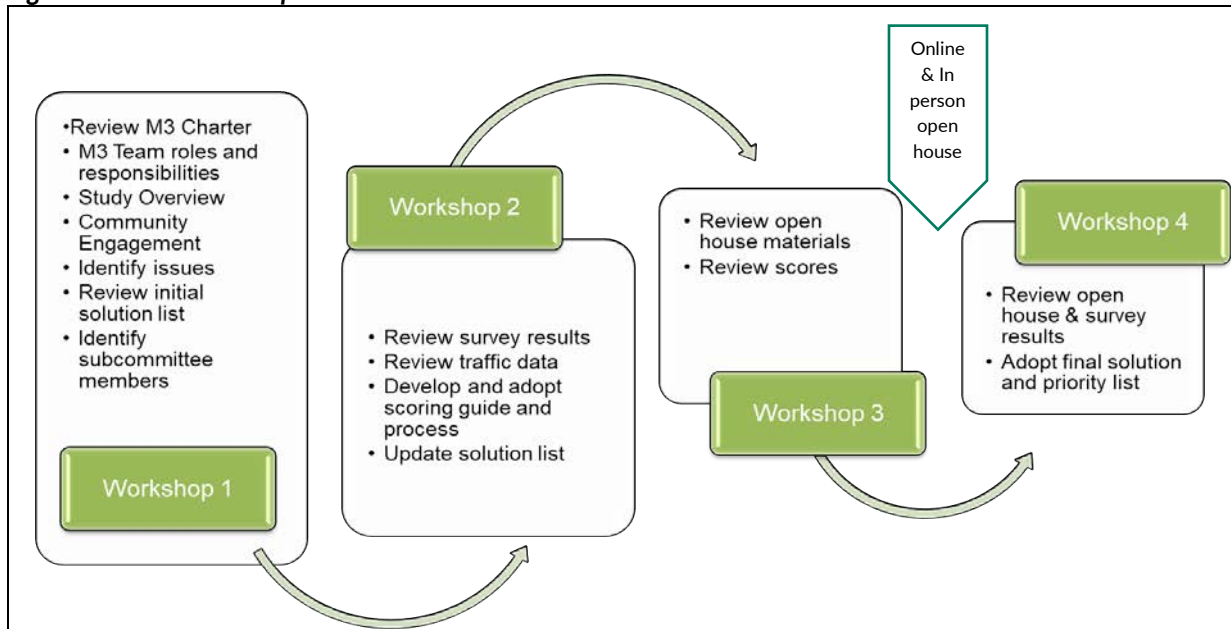
- Understand local concerns and comments, plans and perspectives along state highway corridors and multimodal options to adequately plan for the future.
- Engage local and regional partners and the community in fulfilling study objectives and anticipated outcomes throughout the process.
- Seek input from partners and community members along the corridor and will actively seek input throughout the study.
- Coordinate a collaborative approach to enhance the corridor.
- Include Transportation Demand Management information and benefits.

Work Plan

Figure 5 depicts the M3 Team's work plan to engage project partners and the public for the study. Four M3 Team workshops were held between July 2022 and April 2023. See Appendix C for

summaries and presentations developed for these workshops. The plan illustrates the stepwise progression of the M3 Team's tasks and shows when public input was received into the process.

Figure 5. M3 Team workplan



At the workshops, the M3 Team shared technical knowledge and expertise about the study area, developed the study charter, brainstormed ideas for reducing congestion, and then modeled, screened and ranked solutions. The Technical Subcommittee met four times and informed the M3 Team on the progress of the analysis underway.

The M3 Team collaboratively adopted through consensus performance measures, scoring guides, strategies, and solutions. The study partner agencies identified their priority solutions and at the last workshop, the M3 Team identified and adopted the priority final strategy and solution options to move forward. These solutions are further discussed in Chapter 5, Multimodal Solution Analysis and Scoring Results, and recommendations are discussed in Chapter 6.

Public Outreach

Public outreach primarily consisted of four opportunities for public input which were two online surveys and two open houses that were held in-person and online. Additional information on how public input was incorporated into the study and the M3 Team recommendations is listed in the Community Engagement Plan (Appendix D).

Online survey #1

WSDOT conducted an online public survey in mid-September through early October 2022. A direct mail flyer to 3,053 addresses was sent that announced the study and invited their participation in the online survey, which was offered in both English and Spanish. The intent of Survey #1 was to seek input about transportation issues and travel behaviors. The online survey was also promoted in collaboration with M3 Team members by leveraging their email distribution

lists, issuing a news release and posting links on websites and social media outlets (Facebook and Twitter).

A total of 938 responses to the first survey were received. In addition to answering the survey questions, 244 additional comments were provided by the participants which included opinions on issues in the corridor. The top issues or concerns identified were traffic congestion and safety. The top overall suggestion for improvements to the transportation system was to add additional lanes on SR 24, followed by adding roundabouts and turn lanes at most of the intersections. Adding deceleration/acceleration lanes to improve travel time and safety were also suggested. There were also some comments about safety of the future SR 24 Pathway project and connecting to the Greenway near a designated homeless camp.

Online survey #2

The second online public survey was held between mid-February through early March 2023. The survey was offered in English and a Spanish version was available upon request. Promotion of the second survey was similar to the first survey.

Flyers with the survey information were distributed to 3,053 addresses and emailed to approximately 3,000 recipients. There were 2,181 Facebook visits with 24 public comments posted. Twitter coverage had 3,441 views to its post.

A total of 444 persons participated and an additional 119 comments were received. The solutions with the most votes for improvements to both SR 24 lanes and intersections are listed in Figure 6. See Appendix E for additional information.

Figure 6. Survey #2 Results – Top Solutions

Survey Question	Top Solution	Total Votes	Percent of Total Votes
What is your favorite solution for SR 24?	Extend the four-lane section from University Parkway and Bell Road	378	85%
What is your favorite solution at SR 24 and Birchfield Road?	Add a roundabout	106	24%
What is your favorite solution at SR 24 and University Parkway/ Riverside Road?	Add a double-left turn lane on University Parkway	294	66%
What is your favorite solution at SR 24 and Morrier Lane?	Add an eastbound/westbound right turn and acceleration lanes	243	55%
What is your favorite solution at SR 24 and Beaudry Road?	Add an eastbound/westbound free right turn lane	146	33%
What is your favorite solution at SR 24 and Rivard Road?	Add a free right turn lane from SR 24 to Rivard	123	28%
What is your favorite solution at SR 24 and Faucher Road?	Add a free right turn lane from SR 24 into Faucher	217	49%
What is your favorite solution at SR 24 and Walters Road?	Add right turn lane deceleration lanes from SR 24 onto Walters	352	79%

Survey Question	Top Solution	Total Votes	Percent of Total Votes
What is your favorite pedestrian/bike path solution?	Add a multi-use pathway from Greenway connection at University Parkway to Morrier Lane	126	28%

Online Open House

An online open house was held between February 9 and March 3, 2023, to provide updates and results of the analysis and promote input on solutions. The methods of outreach to promote the open house was similar to announcing the online surveys. The webpage included links to the second survey. The Open House provided an overview of the study process and list of the solutions to vote on. The open house webpage was viewed a total of 2,589 times.

In Person Open House

Figure 7. February 2023 Open House



An in-person open house was held on Monday, February 13, 2023, at the Moxee Elementary school from 4:00 pm to 6:00 pm. Approximately 40 people attended and reviewed the informational displays on hand and asked questions about the study. Most attendees expressed the need for additional lanes on SR 24. They also provided comments concerning roundabouts at intersections that were evenly split for and against roundabouts. Some supported safety benefits of roundabouts while others

stated agricultural trucks would have issues navigating and causing more delay if a roundabout was constructed.

Other comments were about public transit service needs and options along the corridor. Many said a transit service would only work with frequent routes every 10 minutes, or if the area had a denser population. Attendees also suggested more police enforcement would keep the corridor safer. See Appendix F for additional information.

3 – Study area Character

This chapter describes the characteristics and various attributes of the study area. It provides information about the corridor for local and regional context.

Figure 8. SR 24 traffic



The study area focuses on the southern transportation connections between Moxee and the Yakima metro area. The study area extends from I-82 to just east of the Moxee Urban Growth Area (UGA) boundary and the local street network between Norman Road (about 1.5 miles north of SR 24) and south of SR 24 to Rattlesnake Hills. It includes the City of Moxee and its UGA that abuts the City of Yakima's eastern UGA boundary.

The area is generally flat with slight rolling elevations with its lowest elevations near the Yakima River on the west boundary. The area is mainly agricultural with suburban growth mainly north of SR 24. City of Moxee is the only incorporated city with the study area.

Land use

The City of Moxee and the surrounding area is experiencing population growth and increased housing demands. North of SR 24 and east of Morrier Lane, the area is either urban or transitioning to urban densities, while the area south of SR 24 continues to be used in valuable agricultural production, with rural residential.

The City of Moxee and its UGA are generally located north of SR 24. The western boundary of the city limits is at Birchfield Road and the eastern boundary ends just east of Faucher Road. The City's UGA extends westerly from Birchfield Road where it abuts the City of Yakima's UGA boundary and easterly to Walters Road. Between 2000 and 2020 the City of Moxee population grew over 500% from 821 to 4,326³, and the residents mostly commute to other urban areas for employment and shopping, putting additional pressure on the existing transportation system. In addition, housing demands and lack of housing availability in Yakima have put demands on adjacent communities like Moxee and their surrounding roadways.

Recent land use developments include several residential subdivisions and commercial land uses near West Moxee Avenue and West Seattle Avenue in the downtown area, and Bale Breaker Brewery and Ace Hardware Distribution Center off Birchfield and Duffield/Beaudry Roads. There are numerous agricultural processing and storage facilities throughout the study area, including Washington Fruit, Roy Farms and Olympic Fruit. Additionally, there are still large pockets of underdeveloped, vacant, or crop lands within the Moxee city limits and urban growth areas.

³ Washington OFM City population website

Figure 19. New housing developments north of SR 24



Between I-82 and University Parkway, most of the area is within the Yakima River floodplain with various development restrictions. While there are some existing residential and commercial land uses in this area, the majority of the land is used by Yakima Arboretum Park, State Park, open space, and other outdoor recreation and bicycle-pedestrian pathways. The Yakima County Flood District, U.S. Bureau of Reclamation and others are partnering on river and floodplain restoration which may reduce the extent the designated floodplain that could allow additional development with fewer restrictions. This area is currently designated for industrial land uses.

The lands north of SR 24 and west of Beaudry Road are mostly zoned for industrial land uses and are mostly occupied by rural, vacant, commercial, and agricultural uses. Planning for a safe and reliable transportation system must consider the different land uses allowed. Generally, small to medium industrial developments have less of an impact to the transportation system than high density residential uses. Per state laws, local agencies review new developments for potential transportation impacts and require mitigation such as proportionate contributions to necessary transportation improvements to maintain the safety and function of the affected highway or local system.

Social, Demographic, and Environmental Justice

Preliminary planning-level review of potential social and environmental justice issues in the study area was completed. General demographic information was compiled to help identify transportation needs and issues, priority populations, and effective community engagement options.

The study area boundary is described in Chapter 1. The total size of the study area is approximately 31.5 square miles with a population of 7,672 persons. In 2022, a review of the general demographics and potential social and environmental justice characteristics of the study area was compiled using data from the Washington State Office of Financial Management and the US Environmental Protection Agency Environmental Justice Screening and Mapping Tool.

(EJSCREEN)⁴ data. In 2023, these data sources were rechecked with similar results. See Appendix I for additional details. The results are as follows:

Summary:

Total population estimate:	7,672
People of Color:	46%
Hispanic population:	39%
Speak English at home:	70%
Speak Spanish at home:	30%
Less than high school degree:	19%
Annual Income below \$25,000:	17%
Persons over 65 years old:	13%
Owner occupied housing:	78%

Origin – Destination Data

To better understand people movement and destinations, in 2019 WSDOT completed an Origin-Destination (O-D) analysis for several areas within the SCR, including the SR 24 corridor using StreetLight Data. This program compiles data from location-based services using individual cellphones and reports the data in relative percent of person-trips (not as traffic vehicle counts). It can identify where trips originate (origin) and terminate (destination). The O-D analysis used data between August 2016 and April 2018 to determine the following parameters:

- Travel patterns around Moxee during the a.m. and p.m. peak travel
- People flow into and out of the southern part of East Valley
- People flow between rural areas and destinations or commercial areas

The model identified travel analysis zones (TAZ) which are geographic areas with street network boundaries within the study area to track trips during peak travel periods (6:00 to 9:00 am and 3:00 to 6:00 pm). There are limitations to this data such as determining the O-D of each trip that may have intermediate stops such as school drop off/pick up and errands, but it does provide some useful insight on travel patterns. The highest trip count from one zone was 2,002 but this TAZ included part of Terrace Heights neighborhood. The Moxee downtown area (Zone 30) had 904 trips.

See Appendix G for additional details including a map of the TAZ areas. The five TAZs summarized for the study area are #5, 25, 26, 29 and 30. Below is a summary of the PM trips (highest travel period).

- Southeast Valley, south of SR 24, rural (Zone 5)
 - PM-42% of originating trips in Zone 5 remained in the greater East Valley area and 18% within Zone 5.
 - PM-46% of trips ending in Zone 5 are from the greater East Valley area
- West Terrace Heights, north of SR 24, near Yakima River (Zone 25)
 - PM- trips from Zone 25: 20% are destined for East Valley area and 46% of trips cross the river for greater Yakima area

⁴ [EJScreen: Environmental Justice Screening and Mapping Tool | US EPA](#)

- PM -Trips destined for Zone 25: 26% trip from East Valley and 38% of trips cross the river from greater Yakima area
- Main Terrace Heights residential area (Zone 26)
 - PM-35% destined for East Valley
 - PM-21% to Terrace Heights
 - PM-20% to downtown Yakima
 - PM-26% in East Valley are destined to Zone 26
- West part of Moxee and Moxee UGA and along SR 24 (Zone 29)
 - PM-35% remained in the greater East Valley, 22% cross the river for the greater Yakima area and 10% go to Moxee
 - PM-13% of trip come from the Union Gap
- Main residential area of Moxee (eastern Moxee, old Moxee) (Zone 30)
 - PM-43% remained in the greater East Valley area while 26% cross the river for the greater Yakima area
 - PM-32% of trip cross the river from the greater Yakima area

Road Network

The local road network is arranged in typical grid formation with roads generally located one-quarter mile apart. The local roads provide access to a variety of rural and urban uses, from agricultural lands and production to high density residential developments and public-school facilities. Over the last 20 years, the local roads north of SR 24 have been upgraded to urban road standards to meet the needs and demands of urbanization. Most of Moxee city limits and its UGA are located north-northeast of SR 24.

SR 24 plays an important role of connecting agricultural lands and industries in East Valley with regional markets. It provides a direct route to the Moxee and Black Rock Valleys, Hanford Reach National Monument and the Hanford Nuclear Site for employment and commerce. SR 24 provides for agricultural and industrial transport, freight traffic, commutes to Yakima and the Hanford Site, and for alternate access to the Tri-Cities.

SR 24 was constructed in the 1950s and extends between Yakima and Othello and is the only state highway in the study area and serves as a regional connector to eastern Washington. SR 24 has one of two bridges that crosses the Yakima River that connects Yakima and I-82 to East Valley, including the Moxee community.

Road Functional classification

The roadway functional classification is a federal highways system that indicates the relative importance of roads with higher classifications typically having higher speeds, higher traffic volumes, more restrictive access from adjacent properties, and generally used for longer distance travel. Lower classifications have lower speeds and traffic volumes, provide frequent access to adjacent properties, and are used for shorter distance travel. A classified roadway is eligible to receive federal funding for projects. All other streets / roads are classified as local and not eligible for federal funding.

Roadway functional classifications also vary between rural and urban locations and measure both the intended and actual use of the road. They are generally described as interstate, urban (or principal) freeway, rural freeway, major arterial, minor arterial, major collector and minor collector.

The following roads were included for evaluation in the study area and are classified as urban minor arterials north of SR 24 or major collectors south of SR 24: University Parkway/Riverside Road, Morrier Lane and Birchfield, Beaudry, Bell, Rivard, and Faucher Roads. A few other roads are considered minor arterials or collector roads but not included in the study. Most of the road system is classified as local streets.⁵

SR 24 is classified as an Urban Other Freeway/Expressway from I-82 to University Parkway and Rural Other Freeway/Expressway to Faucher Road, making this section of SR 24 part of the National Highway System. East of Faucher, SR 24 is classified as a rural minor arterial.

Bicycle-Pedestrian Network

Historically, the study area was primarily used for rural and agricultural uses. As the area has grown and is transitioning to urban densities, bicycle-pedestrian connectivity has been introduced over time in specific locations. The Yakima Greenway Trail now runs along the western boundary of the Area, west of the Yakima River, and extends between Union Gap and Naches for a total of almost 20 miles.

In 2007, SR 24 was improved from the I-82 Interchange to University Parkway which included a longer bridge over the Yakima River and bicycle-pedestrian facilities. At the same time, Yakima County improved University Parkway with bicycle/pedestrian facilities between SR 24 and Terrace Heights Boulevard in the northern part of East Valley.

As the City of Moxee has developed, urban street improvements have been made that include sidewalks and bicycle lanes. However, gaps in the network remain, creating challenges and limitations, often requiring pedestrians and cyclists to use vehicle lanes or shoulders. Even though the city may have sidewalks and biking areas, most do not meet WSDOT standards for Bikes and Pedestrians of LTS2. In 2020, Yakima County published a county-wide trails plan⁶ that includes several bicycle-pedestrian trails and pathways locations throughout the county. Some of the more notable projects listed for the study area include trails along SR 24 between Yakima and Moxee and bicycle routes from SR 24 to the Yakima Valley Highway using Konnowac Pass Road. Other proposed regional projects would connect the Yakima Greenway from Union Gap south to Toppenish (future Heritage Connectivity Trail). Currently a bicycle-pedestrian trail adjacent to SR 24 connecting to the Yakima Greenway to Morrier Lane adjacent to SR 24 is being designed and right-of-way secured; however, no construction funding is secured. (Identified as Solution #1 in this study).

⁵ [WSDOT Functional Classification Map \(wa.gov\)](https://www.wa.gov)

⁶ Yakima County Trails Plan (2020)

Transportation Demand Management

Public transportation services are limited or non-existing in the study area but have been identified as a future need. There are no fixed route transit services in the study area. People For People provides demand response services for individuals with special transportation needs (such as individuals with disabilities), low-income, older adults, youth, veterans, and non-driving populations. The Yakima Valley Transportation Plan (YVTP 20/45)⁷ identified the East Valley Transit Center and Park and Ride east of I-82 near the S. 24th Street intersection as a long-term transit project (2035-2045). See Chapter 5 for additional information about future public transportation recommendations and other Transportation Demand Management programs for the study area.

There are three official Park and Ride sites within the study area:

- **SR 24 and University Parkway/Riverside Rd.** – Located on the northeast corner at the SR 24 and University Parkway. It has 50 parking spaces and is managed by Yakima County.
- **SR 24 and Beaudry Rd.** – Located on the northwest corner of SR 24 and Beaudry Rd. It has approximately 50 parking spaces and is managed by WSDOT.
- **SR 24 and Deeringhoff Rd.** – Located on the northwest corner of SR 24 and Deeringhoff Rd. It has 32 parking spaces and is managed by WSDOT.

Freight

SR 24 is an important freight corridor in Washington State and classified as a T-2 corridor⁸ which is the second highest freight classification. The segment of SR 24 within the study area carries 4.9 million tons⁹ of freight annually with commercial trucks averaging 8% to 12% of the total daily traffic. Freight trucks generally carry agricultural products from the Moxee Valley to local processing facilities and markets, as well as to I-82 to access markets in western Washington. During seasonal harvest times, most local roads in the study area see an increase of slow, heavy agricultural vehicles, from tractors to semi-trucks. During peak harvest periods, safety and traffic flow become a greater concern, especially at intersections when crossing or accessing SR 24 from local roadways during peak travel times.

SR 24 connects to I-82 which is designated as a T-1 freight corridor, the highest freight classification that carries a minimum of 10 tons of freight annually. The Freight and Good classifications range from T-1 to T-5. Several other local roads in the study area have freight classifications as well: T-3 for University Parkway and Birchfield, Mieras, Postma, Beaudry, Faucher/Konnowac Pass Roads and T-4 for Bell Road.

The Level of Travel Time Reliability (LOTTR) index is a required federal performance measure for freight on the National Highway System with lower numbers indicating higher reliability in travel time. SR 24 east of I-82 to Faucher Road, has between a 1.1 and 1.2 LOTTR which is below the

⁷ [Yakima Valley Transportation Plan YVTP 20/45](#)

⁸ [Freight System Plan | WSDOT \(wa.gov\)](#)

⁹ WSDOT Freight and Goods data (2020)

unreliability threshold for Washington state of 1.5 LOTTR and was considered stable for the years 2019-2021.

Freight usage and characteristics are a part of the overall highway system performance. The I-82/SR 24 interchange is identified as a truck bottleneck, or truck mobility issue per the 2022 Washington State Freight System Plan. This location ranked as the second highest priority in the WSDOT South Central Region (SCR) but is not listed in the top ten locations statewide. Bottlenecks can cause congestion or be a result of congestion and generally occur in urban areas and high travel corridors at higher rates than other areas.

The Central Washington (CW) Railroad¹⁰ provides freight rail service to businesses within the City of Moxee. This spur (dead end) rail line extends approximately 7.5 miles, between the old Cascade Mill site near I-82 and US 12 interchange in north Yakima, crossing over the Yakima River into East Valley. The railroad crosses Birchfield Road and parallels SR 24, crossing both Morrier Lane and Beaudry Rd before moving away from SR 24 to City of Moxee. As last reported, railroad services support fertilizer related business such as Simplot Grower Solutions and Ultra Yield Micronutrients. According to CW, this spur is used approximately four times per week with a total of 150 cars carrying approximately 15 tons. The railroad right of way in the study area reduces from a typical 70-foot width east of Morrier Lane to 25 feet, which is the minimum necessary for railroad track access and maintenance.

Access management

Access management of highways promotes the safe and efficient use of the transportation system. It prescribes if an intersection or driveway is allowed on a particular roadway segment, as well as the spacing and design requirements of allowed access points to help road users safely and efficiently access desired locations like residences, businesses and other services. Highways are designated as limited or managed access with various levels of requirements.

SR 24 is designated as a limited access partially controlled highway in the study area with acquired access rights. This means it was originally designed for through-traffic and when constructed, access rights were acquired from abutting properties and no new access points are allowed except through special legal processes. This designation promotes use of frontage and local roads. The previous 1991 study described in Chapter 1 recommended that the access designation of SR 24 be changed full access control with access only at interchanges.

Operating conditions

Within the study area, SR 24 has a posted speed limit of 55 mph and is constructed with four lanes between I-82 for approximately 1.25 miles to the signalized intersection at University Parkway/Riverside Road. From this point, SR 24 is a two-lane highway with ten to eight-foot-wide shoulders to the eastern end of the study area. There are three signalized intersections on SR 24 in the study area: University Parkway, and Birchfield and Beaudry Roads. All other intersections along SR 24 are stop-controlled (stop signs) on the local roads.

¹⁰ https://cbrr.com/companies/central_washington_railroad.html

The YVTP 20/45 states that SR 24 experiences significant operational and safety concerns near the I-82 interchange and University Parkway intersection due to high traffic volumes. The plan forecasts that by 2045, SR 24 will also experience congestion from University Parkway to Moxee due to increased traffic volumes and the limited east-west routes to I-82. It also identifies that the Birchfield and Bell Road intersections as crash reduction sites.

The YVTP 20/45 plan identified an expected traffic volume growth rate on SR 24 between I-82 and Moxee of 1.49% per year over the next 25 years. East of Moxee, traffic volumes have increased less than one-half percent per year since 1996.

Investments in public road projects have improved and modified traffic patterns along University Parkway and Birchfield Road. The YVTP 20/45 recognizes the need for improved or additional north-south arterials in East Valley to improve circulation, help reduce the volume of local area traffic on the east-west arterials and improve emergency services. The University Parkway upgrades by Yakima County and the Morrier Lane extension project by Moxee are examples of a north-south projects, the latter building upon the street improvements around Morrier Lane and Duffield Road near the East Valley schools.

Level of Service (LOS) is a standard set by state law to categorize the levels of performance and operating conditions of roadways and is defined by delay for intersections and by factors like speed and/or density for roadway segments and freeways. The categories range from LOS A to F with F being the worst. For all state highways in urbanized areas, the target LOS standard is D which recognizes that travel speeds tend to decline due to increased traffic volumes typically found in urban areas. When roadway segments fall below their LOS standard, this indicates that the traffic flow is unstable or nearing capacity or that congestion should be mitigated. The LOS standard for SR 24 in the study area ranges from LOS D to LOS C. Between the I-82 interchange to University Parkway, and again between Morrier Lane and Rivard Road the standard is LOS D.

The SR 24 mainline currently operates at a general acceptable LOS most of the day with the existing number of lanes. However, increased travel delay during peak travel periods especially at certain intersections often occurs. The intersections on SR 24 operate at varying levels of service with some nearing their capacity. Improvements to intersections would likely improve the overall travel time on SR 24 mainline in the study area. See Chapter 5 for additional information and comparison of existing conditions with the proposed solutions for the future year 2045.

Traffic flow and patterns

Collecting traffic data over time improves our understanding of the current conditions and allows forecasting of future conditions to help manage traffic demand, operational risks and public safety. Average Annual Daily Traffic (AADT) is a widely used parameter that describes traffic flow and patterns. It identifies the number of vehicles that travel over a defined section of roadway during periods of time during an average day and has been collected for most of the heavier used roads in the study area. AADT provides information about traffic volumes, including average, low and peak periods.

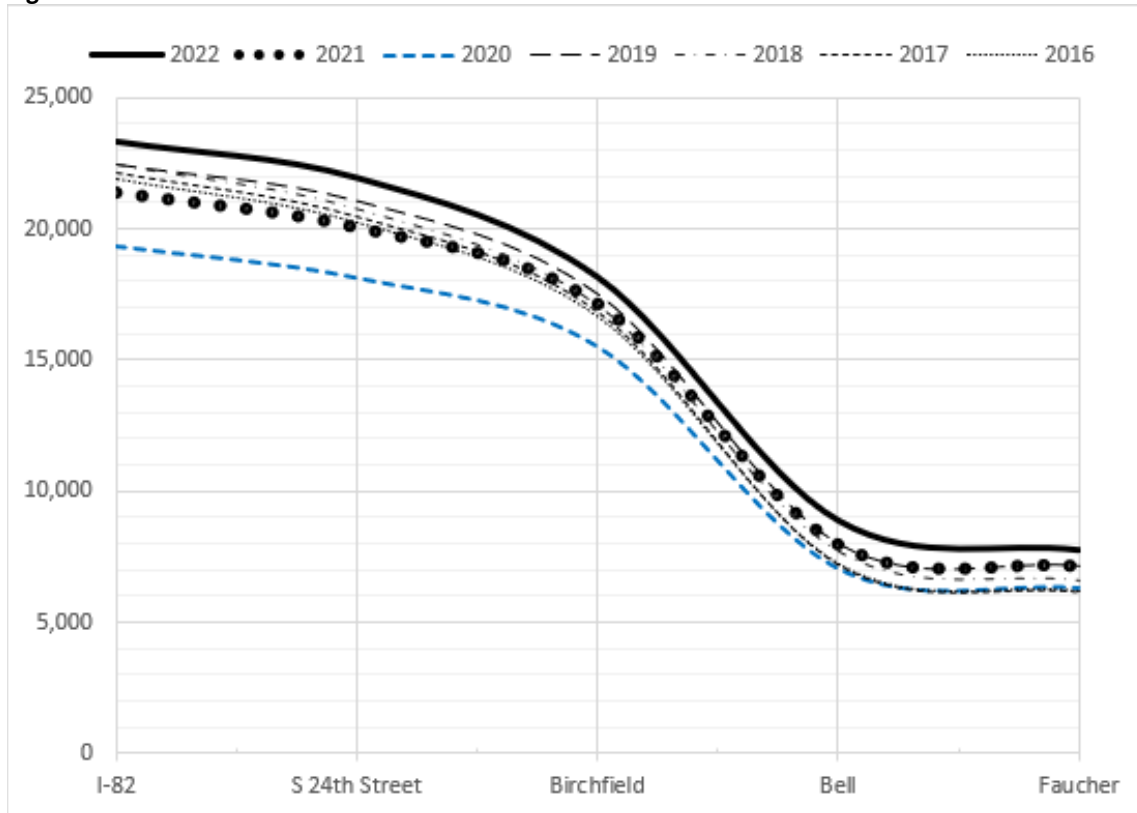
SR 24 is the heaviest used roadway in the study area and the 2022 traffic volumes between major intersecting local roads are shown in Figure 9¹¹ and includes the AADT for both directions of travel and percentage of trucks. The AADT just west of I-82 is 23,334, then decreases to 8,847 near Bell Road and further decreases to 4,932 AADT near Walters Road.

Figure 9. SR 24 AADT with percent of truck traffic

From	To	2022 AADT	Truck Traffic %
I-82 Westbound ramps	South 24 th Street	23,334	9.5%
South 24 th Street	Birchfield Road	21,947	9.4%
Birchfield Road	Bell Road	18,114	10.2%
Bell Road	Rivard Road	8,847	8.1%
Rivard Road	Faucher Road	7,724	8.1%
Faucher Road	Walters Road	4,932	8.3%

Figure 10 below compares the AADT volumes and trends between 2016 to 2022 on segments of SR 24. It shows that traffic volumes decrease on SR 24 moving from I-82 to the eastern end of the Study. It also shows that AADT has increased each year except for 2020 during the COVID-19 pandemic, which is commonly found statewide. Between 2019 and 2022 at SR 24/Birchfield Road, the AADT increased by 3.6%, which is higher than the 1.49% estimate for the whole corridor identified in the YVCG 20/45 Plan.

Figure 10. SR 24 AADT between 2016 and 2022



¹¹ WSDOT COGNOS, AADT History Report 2022

Figure 11 shows that in 2018, the hourly AADT on SR 24 from I-82 to University Parkway for both directions with traffic volumes highest in the late afternoon. The eastbound and westbound volumes are not the same but have similar patterns. The highest hourly or “peak” AADT occurs eastbound at 2,400 vehicles at 5 pm. These patterns are based on 2018 data but are similar to current volumes.

Figures 11 and 12 use the 2018 data for a longer segment between University Parkway and Bell Road. The volumes decrease as you travel further east and there are similar patterns hourly in both an AM and PM peak traffic periods.

Comparing AADT between different road segments help define traffic patterns and allows planning for future demand. Additional information on AADT for this study can be found in Appendix G.

Figure 11. SR 24 – I-82 to University Parkway Traffic Volumes (2018)

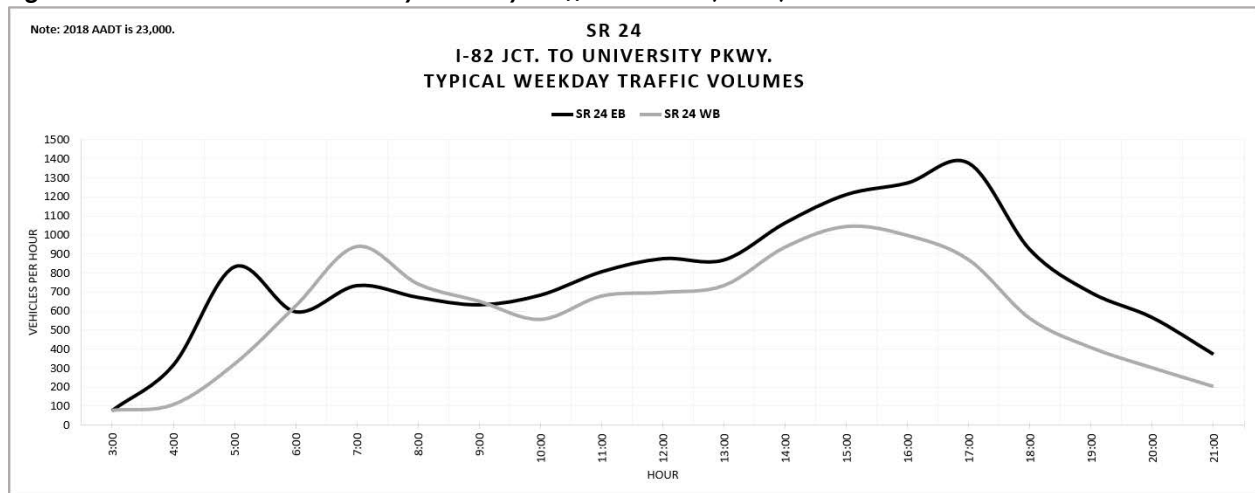


Figure 12. SR 24 – University Parkway to Bell Road Traffic Volumes (2018)

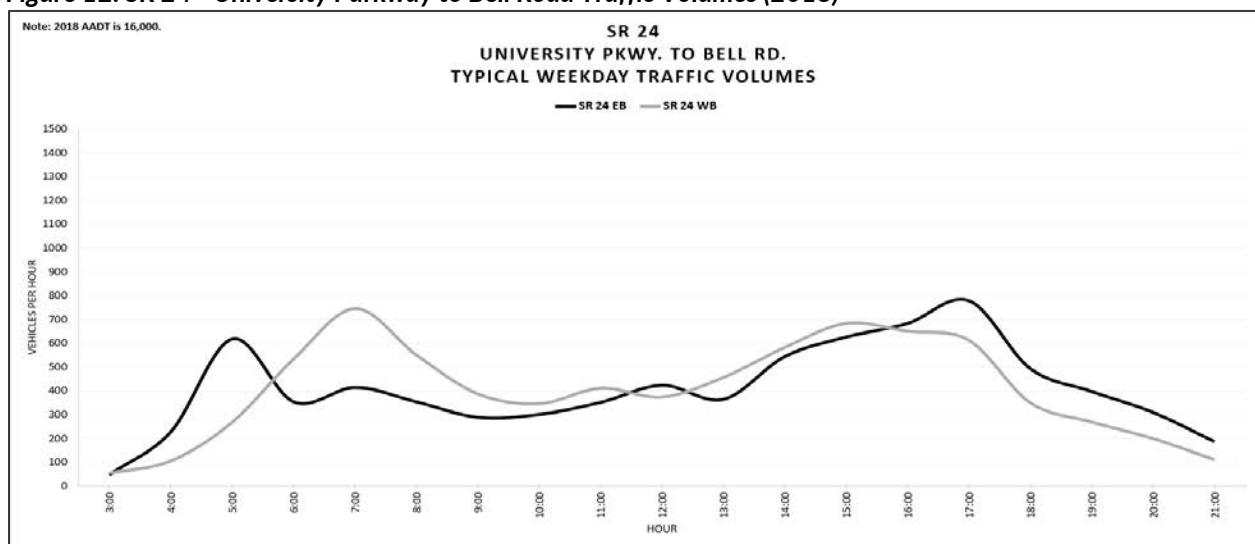


Figure 13. SR 24 / Birchfield traffic back up



Crash history

Between 2017 and 2021, there were 452 crashes within the study area on both SR 24 and the local system. Of the 452 total crashes, 87 (19%) were on city roads, 134 (30%) on county roads and 231 (51%) on SR 24.

The different crash severities include:

- Fatal Collisions
- Suspected Serious Injury Collisions
- Suspected Minor Injury Collisions
- Possible Injury Collisions
- Property Damage Only Collisions
- Unknown

The crashes involved 782 vehicles and included three fatalities and 170 injuries (all types). Two fatalities occurred on SR 24 (near Birchfield and Rivard Roads) and one on Rivard Road approximately one-half mile south of SR 24. Of the 170 total reported injuries, 101 (59%) occurred on SR 24, 56 (33%) on county roads and 13 (8%) on city roads. Of the 231 crashes on SR 24, 118 (51%) were rear-end related and 130 (56%) crashes were at or near intersections.

Figure 14. SR 24 - SR 24 crash involving fruit truck (Yakima Herald)



Four crashes involved pedestrians and three involved bicycles. Of the four pedestrian-related crashes, two occurred on SR 24 near South 24th Street, one on Mieras Road (near Coombs Road) and one within the City of Moxee near East Moxee Avenue and South Centennial Street. Of the three crashes involving bicycles, none occurred on SR 24, one occurred on both Postma and Birchfield Roads, and one within the City of Moxee near East Charron Rd and North Chinook Street.

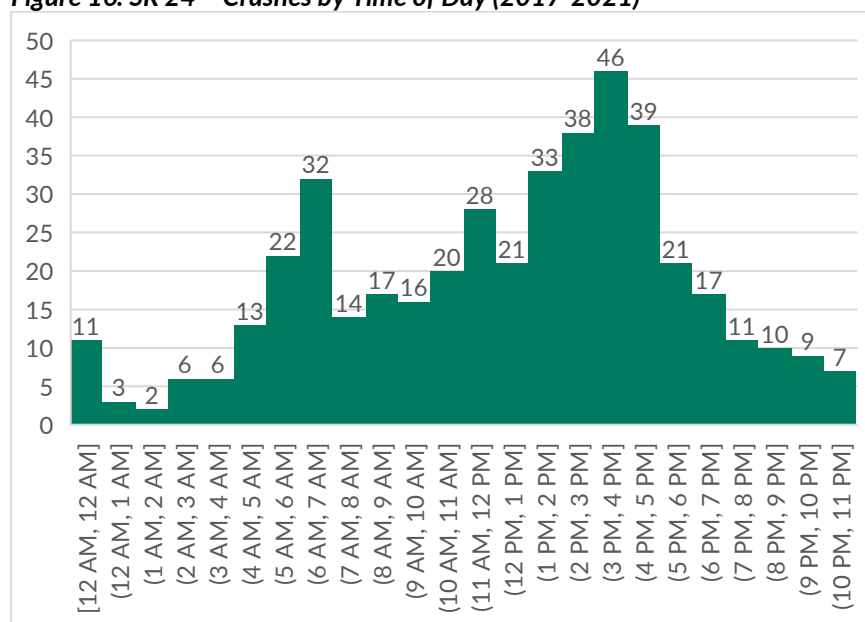
There were 21 crashes involving tractor-trailers and agricultural vehicles with the majority occurring on SR 24 throughout the study area. See Figure 15.

Figure 15. Crash Summary for the study area (2017-2021)

Crash Type	SR 24	County Roads	City Roads	TOTAL
Vehicle crashes	231 (51%)	134 (30%)	87 (18.5%)	452 (100%)
Vehicles involved	439	192	151	782
Fatalities	2	1	0	3
Involving injuries	101	56	13	170
Involving pedestrians	2	1	1	4
Involving bicyclist	0	2	1	3
Rear-end related	118	9	8	135
Total intersection related	130	39	40	208
Total involving freight or agricultural trucks	12	5	4	21

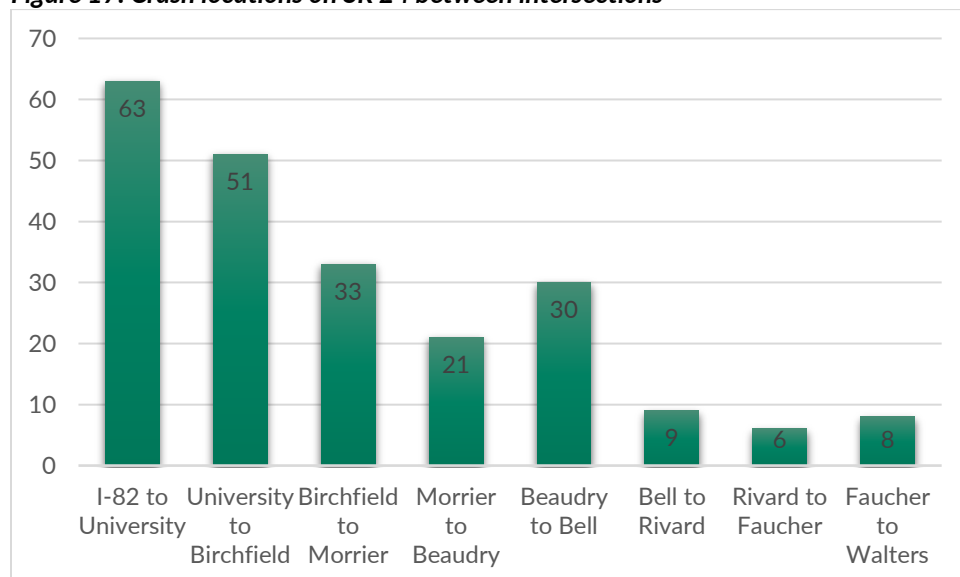
The time of day that crashes occur also provides useful information for safety analyses of the transportation system. Using the same data in Figure 14 above, Figure 16 shows that the highest risk of a crash occurs between 3 pm and 4 pm with a second highest period between 6 am and 7 am both peak travel periods.

Figure 16. SR 24 - Crashes by Time of Day (2017-2021)



Using the same crash data above, Figure 17 shows the number of crashes between intersections on SR 24 with most occurring in the western portion of the corridor with higher traffic volumes. A total of 231 crashes of the total 452 (51%) in the study area occurred on SR 24.

Figure 17. Crash locations on SR 24 between intersections



Other transportation projects in the study area

Figure 18 lists identified transportation projects in the study area from various plans and sources that were not included in the technical analysis process for this study but were included as part of the studies base line. As the lead agencies are currently reviewing or implementing these projects. These projects did not result from the East Valley – Moxee to Yakima Corridor Study.

Figure 18. Identified improvements in the East Valley – Moxee to Yakima Corridor study area

Improvement	Location	Lead
Bike-Ped Trail / Pathway	Selah-Moxee Canal & Other Canals (<i>off- system/canal pathways segments in study area only</i>)	Yakima County
Bike-Ped Trail / Pathway	Greenway connection: Lower Yakima Trail Extension South of SR 24-Birchfield to Thorp Rd (<i>to boat landing east side of Yakima River</i>)	Yakima County
Bike / Ped. Bridge	Greenway connection: Bike/ped bridge across Yakima River – South of SR 24 near Lester Lane	Yakima County
SR 24 / Bell Rd.	Roundabout at SR 24, milepost 4.34	WSDOT
SR 24 Paving	Repaving I-82 to Faucher Road	WSDOT
SR 24 – I-82 to Riverside – American with Disabilities Act	South Side of SR 24	WSDOT

In 2019, WSDOT reviewed state-wide data using a proactive, preemptive approach to reduce crashes based on 5-year data (AADT and crashes for 2014-2018). Specific criteria had to be met for any location to be considered for an improvement. The criteria included the percent of at-angle intersection crashes and the anticipated reduction of serious and fatal crashes.

Three locations in the WSDOT South Central Region met the criteria, including the SR 24 and Bell Road intersection. The SR 24/Bell Road design solution is a compact roundabout that includes a fully mountable (no curb and unobstructed) center island. Design on this project is planned to start in 2023 with construction estimated for 2025.

YVTP 20/45 identified the future widening of SR 24 between University Parkway and Faucher Road as a region priority to alleviate long term capacity, safety and operational impacts that would connect residential and industrial uses in East Valley to I-82 and the rest of the Yakima metropolitan area. This was identified in the 1991 study previously mentioned; however, state transportation funding priorities have not elevated its implementation.

Environmental Assets

As required for studies involving the state transportation system, a planning-level environmental review was completed for the study area. This review focused on certain environmental assets on or near state-owned facilities that must be protected or have the potential to influence the scope of future investments and projects. This review helps ensure that these environmental assets are a part of the study and its recommendations. It includes information on key environmental assets within a study area that WSDOT must maintain in good condition, and other long-term considerations.

The environmental assets identified and reviewed for the study area, specifically adjacent to SR 24, include wetlands, climate vulnerability, chronic environmental deficiencies, stormwater facilities and retrofit, and habitat connectivity. The results are shown in Figure 20 below. See Appendix H for additional details.

Figure 20. Environmental Asset Review Summary

Environmental Asset	Summary of Findings
Wetlands and Environmental Restoration Sites	Several potential wetlands. No wetland mitigation sites or banks. Opportunities for advanced wetland mitigation.
Climate vulnerability	Moderate – fire.
Noise walls	No existing or proposed noise walls.
Chronic Environmental Deficiencies	None.
Fish passage	No known barriers. 2 fish passage features assessed as non-barriers: Mile Post 1.07 and 1.70 – need reassessment.
Historic resources	Several eligible and registered properties.
Stormwater facilities and retrofit priorities	6 natural dispersion type BMPs; 3 TMDLs including maximum limits for suspended sediment, DDT, toxics, and bacteria; Low stormwater retrofit priority.

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Environmental Asset	Summary of Findings
Habitat connectivity ranks	Wildlife-related safety – some medium segments; Ecological stewardship –Low; Pollinator – some medium segments. Urban gateway – some High and Medium segments; Monarch – Very High for all segments.

4 – Evaluation and Scoring Process

This chapter summarizes how the M3 Team listed, screened, reviewed and analyzed the multimodal strategies and solutions using an innovative approach to rank, prioritize and create multimodal solution packages (groups of solutions). More information on the list of solutions and scoring results are provided in Chapter 5. A more detailed description of the solution evaluation process including methodologies for review and scoring is in Appendix J.

Overview

At the beginning of the Study, both the M3 and WSDOT Study Teams:

- Identified transportation issues
- Developed strategies to address these issues
- Proposed a list of solutions for each strategy based on suggestions from agency staff and members of the public divided the solution list into two categories: one category would be analyzed and scored, and the other category would be reviewed but not analyzed or scored
- Obtained concurrence using the following guidance documents in the evaluation:
 - Performance measures to assess how well each solution met the Study's goals
 - Scoring guide for each performance measure
- Analyzed solutions using both spot location analysis and region model analysis. The spot analyses modeled the effects at specific intersections.
- Obtained costs from engineering estimates or used a generalized planning level cost estimating program

The M3 Team's Technical Subcommittee members examined all aspects of the evaluation in more detail and made scoring recommendations to the entire M3 Team.

Initial Solution Screening – Analyzed and Non-analyzed Solutions

A draft list of possible solutions to address issues in the study area was developed and reviewed by WSDOT and the M3 Team. Solutions are potential ways to address various transportation issues throughout the corridor. The solutions had various origins including the WSDOT Corridor Sketch process, or they were listed as unfunded projects in local transportation improvement plans, from agency staff or from general public comments.

The M3 Team approved six different strategies (listed in Chapter 1) including a No Action strategy were identified as ways to address the issues in the corridor. The M3 Team separated a total of 61 solutions into two categories:

- **Analyzed and Ranked** - included solutions or ideas that could be technically analyzed with quantifiable changes to the four performance measures selected for the Study.
- **Non-analyzed or Ranked** - included solutions or ideas that could not be quantified and analyzed or were not selected for the Study.

A total of 40 solutions initially moved forward for technical analysis. During these later steps, several solutions were removed, added, or revised (split into 2), resulting in 40 being scored and ranked. The 40 solutions to be analyzed were grouped by these strategies. See Appendix M.

Several solutions were removed:

- **Solution #6 (duplicate of #8) & #10 (not needed due fact that part of the improvement already exists and low turning movement volumes)**
- **Due to fatal flaws found during analysis**
 - **#7 - Additional right of way needed would equal Solution #38 to add 2 lanes in each direction**
 - **#34 - SR 24/Faucher turn lane restrictions -would lengthen distance of re-routed traffic and also conflict with Solution 3A/3B**

Two solutions were split to address two different design options:

- **3a Multi use path on Konnowac Pass Rd (separated path)**
- **3b Bike Lane on Konnowac Pass Rd (adjacent to vehicle lanes)**
- **4a Multi use path (separated path)**
- **4b Bike Lane on Konnowac Pass Rd (adjacent to vehicle lanes)**

Two solutions were added at SR 24/Walters Road:

- **#39 Roundabout**
- **#40 Deceleration lanes eastbound and westbound**

Performance Measures

Performance measures determine how well a solution meets the study goals. Each solution was scored according to each of the four performance measures listed below. For example, one of the proposed performance measures is “Delay for Vehicles.” Each solution was scored according to how well it reduced vehicle delay, or travel time.

- **Multimodal systemic safety data (Safety)**
- **Delay for vehicles**
- **Bicycles (Level of Traffic Stress and Connectivity)**
- **Pedestrians (Level of Traffic Stress and Connectivity)**

Solutions can involve constructing or modifying transportation facilities or changing operations of a facility. The scoring guide provides guidance in scoring each of the performance measures for each proposed solution. Solutions with higher overall scores indicate they perform the best for addressing the goals. The scores for all the solutions are in the Solutions Master spreadsheet in Appendix M.

Cost Estimates

Planning-level cost estimates completed for the study are meant to be approximations. Each jurisdiction will produce detailed designs and cost estimates as selected solutions move forward in their respective project development process. Estimates for local system upgrades were listed in YVCOG’s 2022-2025 Metropolitan and Regional Transportation Improvement Program. Yakima County staff prepared engineering estimates based on their methods.

WSDOT’s Planning Level Cost Estimation (PLCE) software was used to estimate the costs for most solutions within WSDOT’s jurisdiction. The PLCE is a generalized planning level cost estimating

program that can quickly determine an approximate cost, including a range. For this study, the range included 10% below and 20% above the estimated cost. See Appendix K.

Traffic Analysis – Microsimulation Analysis

Microsimulation models analyze a limited area or spot location, like an intersection where the behavior of every individual vehicle is simulated. The analysis estimated the reduction in vehicle delay when implementing a solution. Many solutions in the Intersection Optimization, Transportation Systems Operations, Local System-Urban to Urban Standards and Add Capacity strategies could be analyzed using this type of analysis. The three traffic analysis programs used for this study include Synchro, SIDRA, and Vissim.

Traffic Analysis – Macrosimulation Analysis

Macrosimulation models simulate traffic flows on a larger or regional, section-by-section basis rather than tracking individual vehicles. Macrosimulation models can analyze regional flows throughout a network identifying broader large-scale traffic trends that microsimulation models cannot simulate. The YVCOG Regional Model was used for this study using Visum macrosimulation software to project what effects the solutions will have on the regional transportation system. Solutions that were thought to have more potential for affecting regional traffic flows were input into this model.

Scoring Guide

The Technical Subcommittee:

- Developed a scoring guide to differentiate between the solutions and rank them. The guide was based on the M3-approved performance measures and the factors for scoring each solution listed in the Scoring Guide.
- Scored each solution for each performance measure where possible. 0 to 10-point system was developed to score each of the four-performance measure divided into three ranges (low, medium, and high) with the highest score indicating the best score. This scoring system works best when there are quantitative numeric data for the performance measure. After discussions with various subject-matter experts, it was determined several performance measures do not have any quantitative data available for this process. Instead, a qualitative analysis was done with the help of the experts.
- Reviewed options for scoring that included objective (or quantitative) and subjective (or qualitative) data or information. Objective scoring uses objective measures that do not require subject matter expertise but can be observed or measured. For example, active transportation does not have numeric data to measure the delay for bicycles or the potential reduction in crashes. However, there are objective measures to score them. The speed limit, width of facility, number of lanes crossed are all objective measures used to score active transportation. In some cases, engineering judgement was also used when analyzing safety and delay performance measures. See Figure 21.

Figure 21. Scoring Scale for All Performance Measures.

Performance Measure	Numeric Data Available?	Objective or Subjective Scoring	Scoring Scale
Multimodal Systemic Safety	Yes	Objective	0-10 points
Delay	Yes	Objective	0-10
Bicycle	No	Objective	0-10
Pedestrian	No	Objective	0-10

Scoring Process

Each of the performance measures was scored according to the methodologies discussed in this chapter and in more detail in Appendix J. Solutions with higher overall scores indicate they perform the best for addressing the goals. The scores for all the solutions are in the Solutions Master spreadsheet in Appendix M.

Active transportation (bicycle and pedestrian) performance measure scoring overview

The Active Transportation (AT) methodology includes both bicycle and pedestrian performance measures. For this Study, when the terms bicycles and pedestrians are used it includes the entire range of AT modes including wheelchairs, roller blading, foot scooters, electric-assist bicycles, skateboards, cross-country skiing, and other similar types of human-powered travel.

The AT analysis is consistent with WSDOT's Active Transportation Plan 2020 and Beyond and analyzed the Network Level of Traffic Stress (LTS), Intersection LTS, Network Connectivity, and Out of Direction Travel/Route Directness Index (RDI) to obtain an overall level of service score for both the bicycle and pedestrian systems. See Appendix J for additional details.

Delay performance measure scoring overview

The traffic analysis calculating delay used Synchro and Vissim for most solutions and SIDRA for proposed new roundabouts. Delay was calculated for two timeframes:

No Build – Year 2045 traffic volumes on the existing infrastructure

Build – Year 2045 traffic volumes with one or more proposed solutions implemented

The Delay score is based on the change between the Year 2045 No Build and the Year 2045 Build conditions (No-Build delay minus Build delay). Delay for the current year was not compiled or scored. Traffic data for Year 2045 was projected using the YVCOG regional traffic model which is created using the Visum traffic modeling software.

Multimodal systemic safety performance measure scoring overview

The safety performance measure evaluated using both historic crash data and preventative countermeasures that are likely to potentially reduce the severity and number of crashes. This is

called a multimodal systemic safety approach. The Federal Highway Administration defines systemic safety method as: *“A systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types. The approach helps agencies broaden their traffic safety efforts at little extra cost.”* They also indicate that crashes alone are not always sufficient to determine what countermeasures to implement. Crash densities can be lower on low volume local and rural roadways, or where certain types of conflicts between vehicles and vulnerable road users (pedestrians, bicyclists, and motorcyclists) are not as high.

The solutions were evaluated for potential reductions in crashes and for potential improvements in multimodal systemic safety. For some types of solutions, an approved crash modification factor was not available, or a crash frequency could not be calculated. In these instances, this was noted and either a change of ‘0’ was entered or engineering judgement was used.

Non-analyzed Solutions

A total of 21 solutions were reviewed but they were not analyzed, scored or ranked. These solutions are summarized below. Experts were consulted in the development of the response and recommendation for each of these solutions. See Appendix N for more details.

- Three Active Transportation solutions identified in the Yakima County Trails Plan were not selected because they lacked bicycle/pedestrian connections to the Moxee network or were located near the Yakima River and south of SR 24 that is undergoing significant river and floodplain restoration efforts that should be completed prior to non-motorized infrastructure improvements like locating a multi-use trail.
- Four Transportation Demand Management¹² solutions included employer/employee outreach, Commute Trip Reduction program, park and ride improvements in the study area were referred to the Yakima Valley Conference of Governments who are re-starting these programs after being on hold during the pandemic. One solution involved Public Transportation Service Options for the study area which is further discussed below.
- Fourteen solutions involved various transportation system operational changes or maintenance improvements were referred to WSDOT Traffic and/or Maintenance offices for further review and action. Examples are signal synchronization, signage and pavement markings improvements.

Public Transportation Recommendations

Investigating public transportation and human services transportation needs and options for priority and at-risk populations in the study area was identified as a goal of the Study. This included other options or mode choices other than single occupancy vehicles, such as fixed route transit or commuter transit service in the study area.

A full evaluation of new public transportation services was beyond the scope of the study because of the extensive investigation required for implementation of a new service and its costs. The M3 Team wanted the study to help continue conversations on future public transportation service

¹² A range of strategies that helps leverage existing transportation infrastructure in ways that enhance mobility and optimize system efficiency.

options with the providers, experts, and the community. A public transportation policy group was formed to further analyze service options and make recommendations to the entire M3 team. A summary is provided in Appendix O and recommendations by the policy group are listed below.

As previously noted, the study conducted two public surveys. The first survey focused on issues and transportation behaviors in the study area and included several questions about public transportation service options. Most respondents stated that some public transportation services were needed; however, 78% said they wouldn't use it.

The second survey asked similar questions about a new fixed route service between Moxee and Yakima. The majority (59%) said they would not use it, followed by 23% responding that they may use it. The top reasons for not using a transit system were personal preference to drive their own vehicle or the inconvenience of transit service schedule. See Appendix E for additional information about the results of both surveys.

The policy group highlighted the complexities in funding and implementation requirements in the summary:

"There are various state and federal funding and implementation requirements to develop and operate public transportation programs and services, many with various levels of complexity regarding funding. In support of the East Valley-Moxee to Yakima Corridor Study, this summary does not identify or explain the various funding and implementation requirements. It's important to reference this component in public transportation planning and programming. Examples include mandatory triggers for Paratransit services, transit agency service area boundary change, property taxation via elections and grants."

The policy group recommendations were accepted by the City of Moxee and are listed below:

The community of Moxee is encouraged to further review and pursue transportation opportunities that support public transportation options for priority and at-risk populations while also providing transportation mode choices other than single occupancy vehicles (SOVs). This includes continued updates to and involvement of the community."

The following public transportation recommendations for the study include promotional efforts as well as potential public transportation service options:

"Promotional efforts (in addition to seeking additional community input):

- Promote Ride Share programs or private van pools (including public websites and resource centers)
- Reach out to better understand community public transportation service needs
- Find ways to further promote and support alternatives to single occupancy vehicle use
- Research similar rural communities in Washington for comparable public transportation service options
- Increase public availability of data and reports (public libraries, city hall website) related to public transportation programs, service costs

Public transportation service options:

- Commuter (community connector like Ellensburg Route); requires 5-miles between stops to qualify as this type of service (and avoid Paratransit requirements). Providers could be Yakima Transit or others.
- Hybrid transportation ideas such as (that may or may not trigger paratransit requirements):
- On-demand system (smaller bus or van services to multiple individuals made with reservations)
- Micro-transit services (smaller system with ability to expand)
- Transit service with set routes and stops for vans/shuttles with/without deviations / experimental
- Commuter linkages to transit center, employment center and city center”

5 - Multimodal Solutions Analysis and Scoring Results

This chapter identifies and defines specific solutions and summarizes the technical analyses, scoring and ranking results.

List of solutions and scoring results

The following provides a general summary of the final list of solutions that were scored. The No Action alternative is not included in the total number of solutions though it was scored. The street and/or highway solutions fall into three jurisdictions: three are in the City of Moxee; two are in Yakima County and the remaining 28 are under WSDOT's jurisdiction. See (Figures 22 and 25 for solution locations).

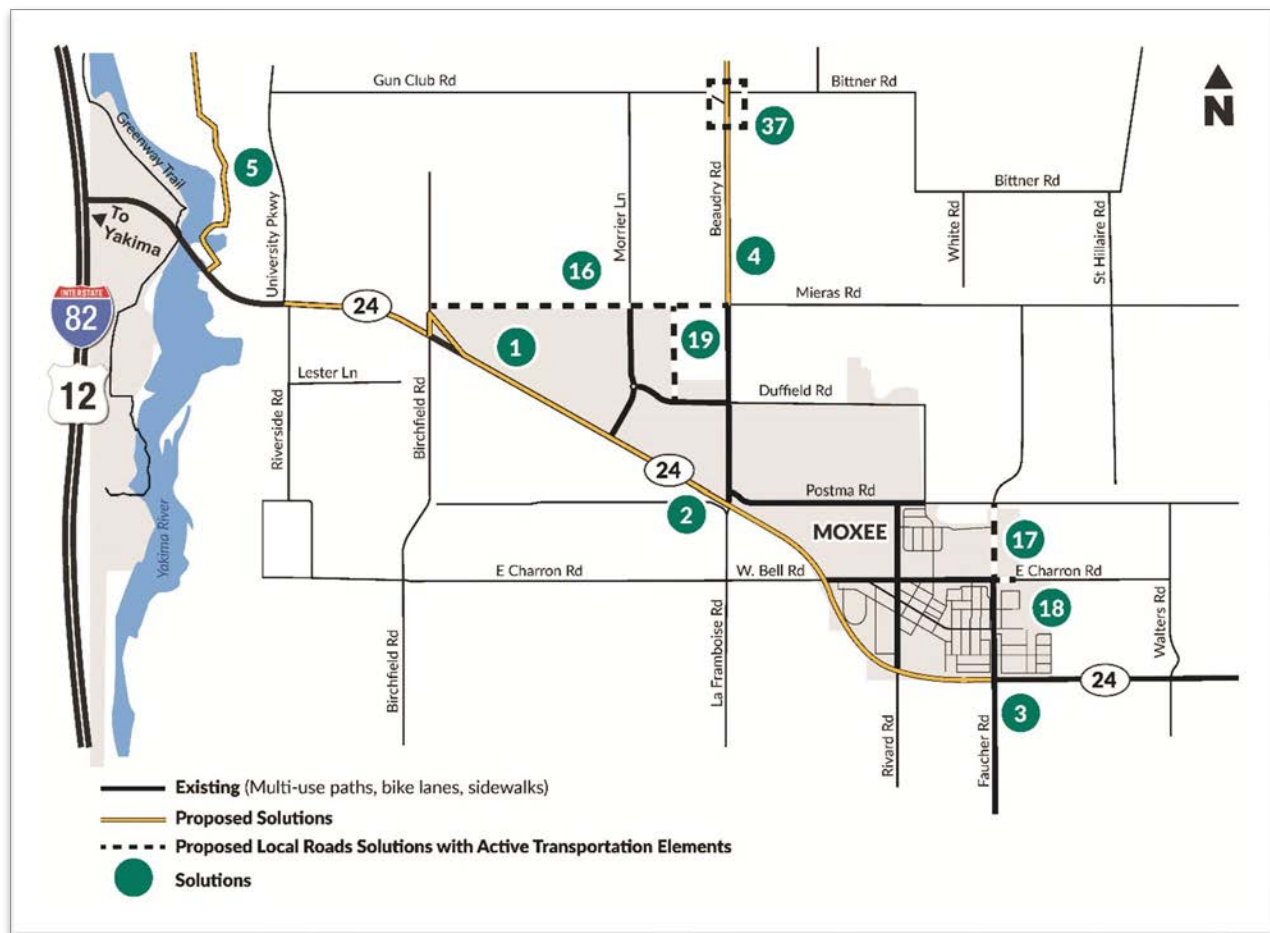
The following tables list and rank the solutions (grouped by strategies and locations) with the highest score for that strategy at the top and lowest at the bottom. The tables include a benefit-cost (B/C) ratio which is the score divided by the cost which is an alternative way to compare the effectiveness of a solution. The ratio indicates how much benefit could be expected for every dollar spent. For example, a ratio of 1.0 indicates for every one dollar spent, an equal dollar value of benefit would result. A ratio greater than one indicates a higher benefit than the cost. This ratio demonstrates that solutions with the highest score may not provide the most improvement for the money spent. For example, Solution 5 had the highest total score of 23 and a B/C ratio of 16 which is within the range of an average B/C ratio (23) for this Study.

Three solutions (No 27, 32 and 36) on SR 24 shown with a gray background in the table have scores that are below the No Action alternative total score of 8. These solutions are considered to have a fatal flaw since their score indicates there is more benefit in doing nothing than in implementing the solution. Further analysis may still show enough benefit to warrant implementing the solution. Solutions No., 12, 13, 14, 15, 24, 29, 30 and 40 have a total score of 8 which is equal to the no action solution.

Future improvements at the intersection should include design features that incorporate active transportation and overall improve the intersection function. In some cases, active travelers would cross SR 24 and in others the proposed share-use path only involves crossing on one leg, but it is still a crossing. Also, it is also important to design roundabout crossings to optimize AT safety. Single lane roundabouts work better for active travelers than multilane and roundabout designs should avoid also including slip lanes that allow right turning drivers to maintain higher speeds.

The tables below show all solutions and their scores based on strategies and/or locations. See Appendix M for other examples of sorting and ranking of solutions, such as overall top score, cost estimates, etc.

Figure 22. Active Transportation and Local System Solutions



*Existing facilities may not meet WSDOT LTS standards.

Active Transportation (Bicycle and Pedestrian) Strategy

The Active Transportation strategy has seven solutions, the second most after the Intersection Optimization Strategy (See Figure 23). Most of the AT solutions have high scores and they rank in the top ten of all solutions. The highest scoring solution, Solution No. 5, proposes a multi-use path on the east side of the Yakima River between SR 24 and Terrace Heights Drive on an existing levee. This path would be similar to the Yakima Greenway path on the west side of the river. It scored higher mostly because there is no interaction with streets or intersections, so its Level of Traffic Stress measurement is lowest.

The SR 24 Pathway solutions (No. 1 and No. 2) were the second and third highest scoring solutions overall. Solution Numbers 3a and 3b (6.5-mile multi-use path or bike lane on or adjacent to Faucher/Konnowac Pass Road) are the lowest scoring and most expensive active transportation solutions and cost between \$7.8 and \$14.8 million.

Figure 23. Active Transportation Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Score / Cost Ratio (in millions)	Jurisdiction
5	Multi-use path SR 24 - Terrace Heights Drive east of Yakima River and through the State Park	\$409 - \$545	23	51	Yakima County
2	SR 24 Pathway Extension – Phase 2 (Morrier Lane to the SR 24/Faucher intersection) adjacent to SR 24	\$1,513 - \$2,017	22	13	Moxee / WSDOT
1	<i>SR 24 Pathway. Phase I - University Parkway to Morrier Lane</i>	\$1,186 - \$1,581	21	16	Moxee/ WSDOT
4a	Multi-use path on Beaudry Road	\$4,667 - \$6,223	19	4	Yakima County
4b	Bicycle lanes on Beaudry Road	\$2,516 - \$3,354	18	7	Yakima County
3a	Multi-use path from SR 24/Faucher Rd /Konnowac Pass Road intersection to Yakima Valley Hwy	\$10,792 - \$14,389	14	1	Yakima County
3b	Bicycle lane from SR 24/Faucher Rd /Konnowac Pass Road intersection to Yakima Valley Hwy	\$7,891 - \$10,521	10	1	Yakima County

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

System Upgrade to Urban Standards Strategy

The System Upgrade to Urban Standards Strategy includes improving street sections to urban standards such as wider vehicle lanes, and adding bike lanes, sidewalks, curbs, and gutters. The street sections have been identified by the City of Moxee as priorities are listed in the 2022-2025 Metropolitan and Regional Transportation Improvement Program and are a continuation of street upgrades recently completed or underway within the city limits. WSDOT encourages the City and County to incorporate WSDOT LTS design standards in their urban design standards. In addition, Solution #37 led by Yakima County proposes a bridge across the Roza Canal that would improve traffic flow between Roza Drive and SR 24 and the Moxee area. It would also alleviate indirect routes and reduce demand on the I-82/Terrace Heights Drive Interchange.

Solution #16 (Mieras Road) and Solution #17 (Faucher Road) are the two highest scoring local system improvements due, in part, to the active transportation benefits. (See Figure 22).

Figure 24. System Upgrade to Urban Standards and Add Bridge Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Score / Cost Ratio (in millions)	Jurisdiction
16	Mieras Rd - Upgrade to urban standards; Birchfield intersection to approximately Beaudry	\$4,856 - \$6,475	14	3	Moxee
17	Faucher Rd-Upgrade to urban standards - E. Charron to Postma	\$1,852 - \$2,470	11	5	Moxee
37	Beaudry/Bittner/Wendt Roads- Construct bridge across Roza Canal to connect streets and improve traffic flow and connectivity; Upgrade Beaudry Rd to a 3-lane local collector approximately 400 ft south of the intersection to 200 ft north of the intersection	\$7,381 - \$9,841	10	1	Yakima County
18	East Charron - Upgrade to urban standards; north half roadway from Faucher intersection to match length of improvements on South side	\$478 - \$637	10	20	Moxee
19	Ekelman Rd - Upgrade to urban standards; from Mieras Rd to Duffield Rd	\$900 - \$1,200	10	10	Yakima County

Corridor and Intersection Solutions Overview

Both safety and delay of travel time were identified as primary issues to address in this study and were also the top two concerns identified in the first public survey. Survey #1 also identified the following top four intersections of concern (in priority order): Birchfield Road, Beaudry Road, University Parkway, and Faucher Road. Survey #1 also identified 86% of those submitting additional comments wanted additional lanes on SR 24.

General takeaways from the analyses completed for delay and safety issues are listed below.

Delay

- Changes to travel time varied depending on existing problems at each intersection
- Signals and roundabouts generally scored lower due to introduced controls
 - Exceptions at University Parkway and Beaudry Road
- Add or modify lanes on SR 24 had highest decrease in delay

Safety

- Roundabouts scored higher due to reduced speed, number of and severity of crashes and fewer conflict points and vehicle interactions
- Solutions that added lanes scored lower due to the higher speeds, number or crashes and higher crash severity and higher potential higher vehicle interactions

Corridor - Add Capacity and Transportation Operations Solutions

This section combined both the Add Capacity and Transportation System Management & Operations solutions for comparison purposes of system wide solutions focusing on SR 24 (Figure 25). The corridor solutions did not include intersection improvements beyond that necessary to

accommodate the new lane. The previous 1991 SR 24 Study, the YVTP 20/45 plan and responses from recent public surveys have identified that ‘adding lanes’ on SR 24 as a much-needed improvement to improve travel time on the corridor. This study further addresses this issue along with addressing safety concerns.

Figure 25. SR 24 highway and intersection solutions



The three solutions proposing to add lanes scored equally but had lower scores than other solutions. Each solution showed improvements to travel time between 46 and 80.5 seconds per vehicle but had the highest potential increase in crash frequency s. Two of the three solutions had the highest costs of all the solutions (\$6,154,000 and \$15,404,000).

Solution #9 (SR 24 part-time shoulder use as a travel lane) had an overall B/C ratio of 13 while solution #37 and #8 had ratios of 1 or 2, respectfully. A separate safety B/C ratio for these corridor solutions could not be calculated. This solution had the highest concern from the freight / trucking industry. They have experienced, if they move over to accelerate passenger vehicles will not let them back into stream of traffic.

Solution #8 (SR 24 add a lane in just one direction) had benefits in travel time especially westbound where 30.7 to 46 seconds in delay improvements may result. The Future 2045 No Build scenario shows future LOS near University Parkway and Birchfield and Beaudry Roads ranging from C to E. The analysis shows that Solution #8 would improve the LOS at these signalized intersections to LOS C and D. However, this solution was tied for the second highest increase of 3.85 to the crash frequency generally due to the additional travel lanes and likelihood for more vehicle interactions.

For Maintenance once shoulders are reduced, some work that could have been completed with shoulder closures, would then require lane closures.

Solution #9 was tied for the highest benefits in travel time where 80.5 seconds in delay improvements may result. The Future 2045 No Build scenario (no changes) shows future LOS near University Parkway, and Birchfield and Beaudry Roads ranging from LOS C to E. The analysis shows that Solution #9 would improve the LOS at these signalized intersections to LOS B and C. However, this solution was tied for the second highest increase of 3.85 to the crash frequency generally due to the additional travel lanes and likelihood for more vehicle interactions. Solution #9 had the lowest cost estimate.

Solution# 38 (add one lane in each direction on SR 24) was tied for the highest benefits in travel time where 80.5 seconds in delay improvements may result. However, this solution had the highest increase of 7.7 to potential the crash frequency generally due to the additional travel lanes and likelihood for more vehicle interactions. The Future 2045 No Build scenario shows future LOS on SR 24 near University Parkway and Birchfield and Beaudry Roads ranging from C to E. Solution #38 had the highest cost estimate.

After the initial analysis, a fourth corridor solution was added. It combined improvements at three signalized intersections with retaining just two lanes on SR 24 east of University Parkway for comparison purposes. This solution would add roundabouts at University Parkway and Birchfield and Beaudry Roads. This scenario showed benefits in both travel time and safety. It had high benefit in travel time (43.4 seconds) and also a high decrease in the crash frequency of 3.56.

Figure 26. Corridor wide –Solutions (All WSDOT jurisdiction)

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Total Score	B/C	Change in crash frequency	Change in Delay (in seconds)
38	<i>SR 24 Add Lanes - Extend the four-lane section from University Parkway to Bell Rd</i>	\$11,553 - \$15,404	12	1	-7.7 increase	80.5 decrease
8	SR 24 Restripe lanes - Between University Parkway and Moxee Ave to 3 lanes and convert additional lane to a fixed second lane in the direction experiencing the worse congestion	\$6,154 - \$8,206	12	2	-3.85	46
9	SR 24 Restripe lanes - Part-time highway shoulder use as travel lane - University to Rivard	\$853 - \$1,138	12	13	-3.85	80.5
TSMO-System efficiency	Intersection Safety & Efficiency – Retain 2 lanes from University Parkway to Bell Rd and add Roundabouts at University, Birchfield, and Beaudry Rd intersections	\$6,995 - \$9,272	21	2.8	3.56	43.4

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

Intersection Optimization and Transportation System Management & Operations Strategies

The Intersection Optimization and Transportation System Management & Operations strategies had the highest number of solutions (22) and were located on SR 24 (See Figure 25). Because these two strategies pertain to specific locations, these two strategies are combined for further discussion and comparison.

The solutions with lower cost estimates were minor improvements like adding or extending turn lanes. Solution #30 (lengthen the left turn lane at SR 24/Beaudry Road) had the lowest cost estimate of \$25,000 to \$34,000. Solution #20 (add two-lane roundabout at University Parkway/Riverside Road) had the highest estimate of all the intersection improvements at \$3,435,000 to \$4,580,000.

The solutions that proposed adding or extending turn lanes had the highest B/C ratio. Solution #30 had the highest B/C ratio (286) of all intersection-related solutions. The next highest were also turn lane options at Beaudry Road. Solution #20 had the lowest of 5 options at this intersection. The median B/C ratio for all solutions is 20.3.

Some of the intersection solutions also have an additional measurement identified as a safety B/C ratio which focused on the benefits in dollars for only those changes to the crash frequency as compared to the overall B/C ratio. Solution 25 (add a southbound right turn lane at Birchfield) had the highest safety B/C ratio of 2.7 but also had an overall B/C of 152. Solution #22 (add a roundabout at Birchfield) had a safety B/C ratio of 2.5 and an overall B/C ratio of 10. Solution #27 (add a signal at Morrier Lane) had the lowest safety B/C ratio of negative 1.8 (which may be skewed due to the low traffic volumes) along with an overall B/C of 18.

Solutions with the most votes from public survey #2 are shown in bold italic text in the figures below. See Appendix L for additional details on the results of the analyses and Appendix K for cost estimates.

SR 24 / University Parkway Intersection

Solution #20 scored higher than the other solution at this intersection. It showed improvements to both the crash frequency and delay improving the LOS from LOS D to B. Solution #21 was the top choice in the survey for the intersection and had the higher B/C ratio but only had minor improvements to delay and no improvements to the safety crash frequency. Solution #21 is assumed to improve the southbound turning movements but not the overall intersection and traffic flow on SR 24, whereas Solution #20 showed improvements for all approaches.

Figure 27. SR 24/University Parkway Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
20	Replace existing signalized intersection with a 2-lane roundabout	\$3,435 - \$4,580	20	1.093	5	1.19	32.4
21	<i>Install double left turn lanes on University Parkway (north leg only)</i>	\$418 - \$558	10	--	22	0	0.3

*Solutions with the most votes from public survey #2 are shown in ***bold italic text***. See Chapter 2 and Appendix E.

SR 24 / Birchfield Road Intersection

Solution #22 (roundabout) scored highest of the five options analyzed at this intersection. Solution #22 showed improvements to the crash frequency but projected a 3.7 second increase in delay as analyzed. All intersection legs showed improvement over the no build except the Eastbound leg. The study did not have time to look at different roundabout configurations to correct the eastbound leg performance, but the Region Traffic Engineer is confident a better configuration can be found. Solution #22 was the top choice in the public survey but had a lower B/C ratio than other solutions. Solution #25 showed improvements to the crash frequency and a 20.7 second decrease in delay and had a high B/C ratio. Solution #23 would result in an 8.3 second decrease in delay.

Future improvements at the intersection should include design features that incorporate active transportation and overall improve the intersection function. Adding a roundabout or other design features may have higher costs than the estimates below.

Figure 28. SR 24/Birchfield Road Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
22	<i>Replace existing signalized intersection with a single lane roundabout</i>	\$1,752 - \$2,336	19	2.53	10	1.58	-3.7
25	Construct southbound right turn lane	\$112 - \$150	16	2.7	152	2.3	20.7
11	Eastbound / Westbound free right accel lane on SR 24 at Birchfield Rd	\$861 - \$1,148	11	--	11	0	0
23	Install double left-turn lanes on Birchfield Rd	\$890 - \$1,187	9	--	9	0	8.3
24	Lengthen the existing left-turn lanes on SR 24	\$59 - \$79	8	--	121	0	0

*Solutions with the most votes from public survey #2 are shown in ***bold italic text***. See Chapter 2 and Appendix E.

Figure 29. SR 24/Beaudry Road Intersection



SR 24 / Morrier Lane Intersection

Solution #26 scored highest than the other two options analyzed at this intersection. Solution #26 showed improvement to the crash frequency but projected a nine second increase to delay. Solution #13 was the top choice in the public survey but had a low B/C ratio. Solution #27 scored lower than the No Action solution and was estimated to increase the travel time and crash frequency and worsen the intersection LOS.

Figure 30. SR 24/Morrier Lane Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
26	Construct a single lane roundabout	\$1,752 - \$2,336	13	0.591	7	0.22	-9
13	<i>Eastbound / Westbound free right accel lane on SR 24 at Morrier Ln</i>	\$861 - \$1,148	8	--	8	0	0
27	Install new signal	\$304 - \$406	6	-1.865	18	-0.2	-14.2

*Solutions with the most votes from public survey #2 are shown in ***bold italic text***. See Chapter 2 and Appendix E.

SR 24 / Beaudry Road Intersection

Solution #28 scored higher than the other three options and showed improvement to the crash frequency and delay, including improvement in the westbound approach from LOS D to A. Solution #12 was the top choice in the public survey but had little improvement in delay and no effect on the crash frequency or LOS. Solution #29 had an increase in delay of 13.4 seconds and no change to the crash frequency. Solution #30 scored no change to travel time and crash frequency but had a high overall B/C ratio of 286.

Future improvements at the intersection should include design features that incorporate active transportation and overall improve the intersection function. Adding a roundabout or other design features may have higher costs to improve traffic flow.

Figure 31. SR 24/Beaudry Road Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
28	Replace existing signalized intersection with a single lane roundabout	\$1,768 - \$2,357	15	1.382	8	0.79	14.7
12	Eastbound / Westbound free right accel lane on SR 24 at Beaudry Rd	\$795 - \$1,060	8	--	9	0	0.7
29	Install double left-turn lanes on Beaudry Rd	\$924 - \$1,232	8	--	8	0	-13.4
30	Lengthen the existing left-turn lanes on SR 24	\$25 - \$34	8	--	286	0	0

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

SR 24 / Rivard Road Intersection

Solution #31 scored highest than the other three options analyzed. Solution #31 showed improvement to the crash frequency but projected a 7.4 second increase to delay. Solution #22 showed improvement of the northbound and southbound approaches from LOS F to B. Solution #14 was the top choice in the public survey but had the lowest B/C ratio. Solution #32 scored lower than the No Action solution and was estimated to increase the travel time, result in re-routed vehicles and loss of access, and have no change to the crash frequency.

Figure 32. SR 24/ Rivard Road Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
31	Construct a new compact single lane roundabout	\$1,066 - \$1,421	15	1.413	13	0.31	-7.4
33	Construct a new right-in/right-out/left-in	\$297 - \$396	12	--	36	0.14	0
14	SR 24 Construct free right turn lane	\$795 - \$1,060	8	--	9	0	0
32	Install new signalized intersection	\$304 - \$406	7	1.515	21	0	-7.1

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

SR 24 / Faucher Road Intersection

Solution #35 scored higher than the other two options. Solution #35 showed improvement to the crash frequency and improved the northbound and southbound approach from LOS F to A but projected an overall 8.7 second increase in delay. Solution #15 was the top choice in the public survey but had a low B/C ratio and no change to delay or the crash frequency. Solution #15 would eliminate delay southbound from Faucher Road onto SR 24. Solution #36 scored lower than the No Action solution and was estimated to increase the travel time and had no change to the crash frequency.

Figure 33. SR 24/Faucher Road Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
35	Construct a new compact, single lane roundabout	\$1,075 - \$1,433	14	1.402	12	0.31	-8.8
15	SR 24 construct free right turn lane	\$795 - \$1,060	8	--	9	0	0
36	Install new signalized intersection	\$307 - \$409	7	1.44	21	0	-8

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

SR 24 / Walters Road Intersection

Solution #39 scored higher than the other option. Solution #39 showed improvement to the crash frequency but projected a 6.6 second increase in delay. Solution #40 was the top choice in the public survey but would have no change to the travel time or crash frequency. Solution #40 may not meet the current WSDOT Highway Design Manual warrants for turn lanes but could be considered an option if safety benefits result.

Figure 34. SR 24/Walters Road Intersection Solutions

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Safety B/C	Overall B/C	Change in crash frequency	Change in Delay (in seconds)
39	Construct compact, single lane roundabout	\$1,066 - \$1,421	15	1.060	13	0.23	-6.6
40	Construct right turn, deceleration lanes Eastbound and Westbound	\$384 - \$512	8	--	19	0	0

*Solutions with the most votes from public survey #2 are shown in **bold italic text**. See Chapter 2 and Appendix E.

No Action Strategy

The No Action alternative, which are the existing or base conditions with no changes made to the transportation infrastructure or services. The No Action alternative is used to evaluate proposed solutions versus doing nothing.

Figure 35. No Action Strategy

Solution No.	Solution	Total Cost Estimate Range (in \$1,000)	Score	Score / Cost Ratio	Jurisdiction
n/a	Live with existing conditions No changes.	\$0	8	N/A	Multiple

Key scoring highlights

Active transportation solutions and roundabouts scored very well. The highest scoring solution was an active transportation solution. Signals tended to score poorly. Here are other highlights of the results:

- Highest overall score of 23: Solution #5 – Multi use path east of the Yakima River between SR 24 and Terrace Heights Drive
- Lowest overall score of 6: Solution # 27 – Signalized intersection at Morrier Lane
- All Active Transportation solutions scored well except for #3a and #3b on Faucher Road/Konnowac Pass Road
- All roundabouts scored above other intersection solutions, including signals
- Extending or adding acceleration/deceleration lanes or turn lanes showed benefits to turning movements at most intersections but didn't score high but were lower or moderately priced

The following overall benefits of roundabouts are listed below:

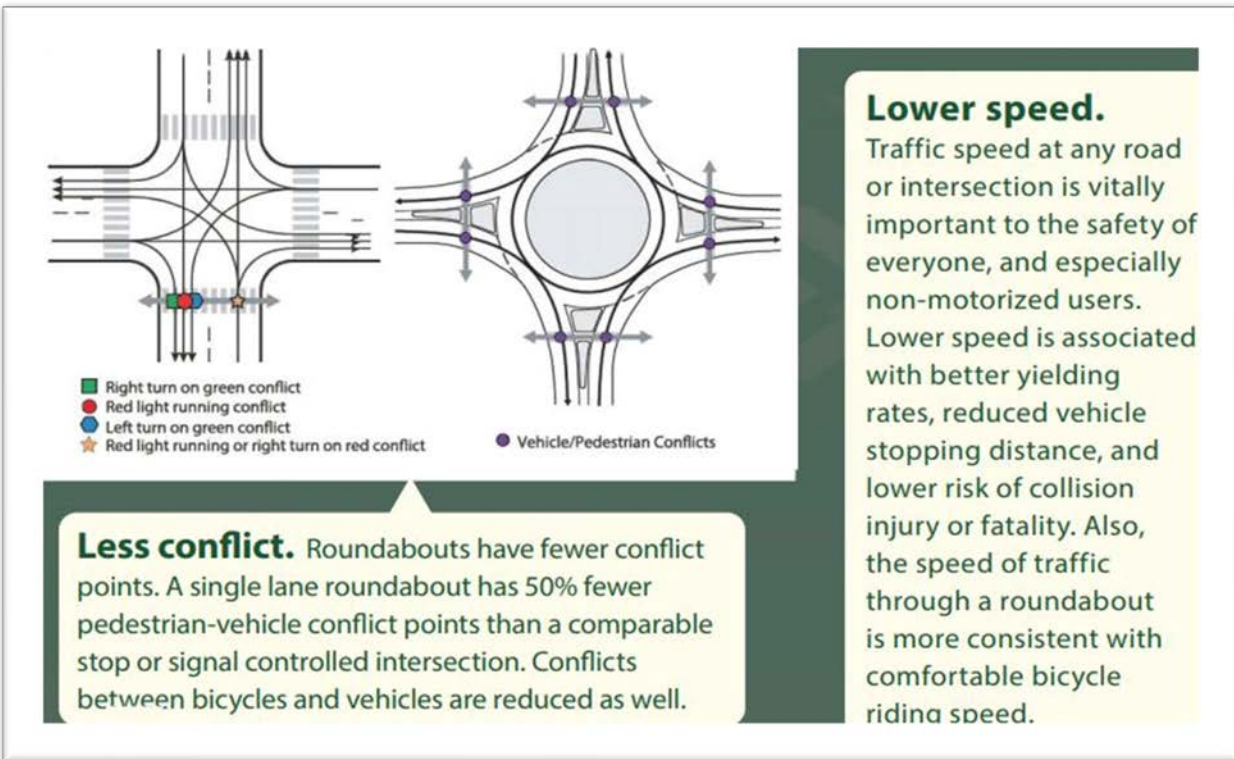
- Lowers vehicle speeds at intersections while allowing traffic to flow freely
- Reduce severity of crashes and injury due to low speeds
- Minimize traffic conflict points by 75%
- Reduce public costs of installing signals and operating/maintaining the highway system
- Reduce obstacles in crash zones as well as damage to private and public property
- Require less space to construct and maintain (typically)

Safety benefits of roundabouts are listed below and Figure 36.¹³

- 90% reduction in fatality collisions
- 75% reduction in injury collisions
- 40% reduction in pedestrian collisions
- 37% reduction in overall collisions.

¹³ [Roundabouts | WSDOT \(wa.gov\)](#)

Figure 36. Safety benefits of roundabouts



6 –Agencies and Active Transportation Priorities & M3 Team Recommendations

The City of Moxee, Yakima County and WSDOT identified priorities and recommendations on solutions to move forward for additional review and or pursuit of construction funding. The priorities and solutions are included in this chapter. The agencies agree that providing active transportation and public transportation options in the study area would provide many benefits, including reduced number of vehicle trips on the transportation network.

City of Moxee Transportation Improvement Priorities

The primary issues for the City of Moxee are to address the growing population and urbanization along with the needs of active transportation users. Moxee is experiencing rapid growth of medium to large-scale, low-density developments. Some of the existing streets are narrow rural roads with no shoulders. The priorities listed in the table below are also identified in the 2022-2025 Metropolitan and Regional Transportation Improvement Program.

Although many of the City of Moxee residents are in favor of widening SR 24 to four lanes (Solution #38), the city requests that this is a long-term priority for WSDOT.

Figure 37. City of Moxee Transportation Priorities

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane
16	Mieras Rd - Upgrade to urban standards; Birchfield intersection to approximately Beaudry
17	Faucher Rd - Upgrade to urban standards – E. Charron to Postma
18	East Charron - Upgrade to urban standards; north half roadway from Faucher intersection to match length of improvements on South side

Yakima County Transportation Improvement Priorities

Yakima County's priorities are to upgrade Ekelman Road to urban standards (Solution #19) due to its proximity to the local school system and completion of improvements in this area, and Solution #37 to improve connections between Roza Drive and SR 24. Although many of the County residents in the study area are in favor of widening SR 24 to four lanes (Solution #38), Yakima County does not identify it as a priority.

Figure 38. Yakima County Transportation Priorities

Solution Number	Description
19	Ekelman Rd - Upgrade to urban standards; from Mieras Rd to Duffield Rd
37	Beaudry/Bittner/Wendt Roads- Construct bridge across Roza Canal to connect streets and improve traffic flow and connectivity; Upgrade Beaudry Rd to a three-lane local collector approximately 400 ft south of the intersection to 200 ft north of the intersection

WSDOT Transportation Improvement Priorities

Safety and delay or travel time were primary issues identified for the study and were identified as study goals. Results of the study showed that only a few solutions or improvements can provide benefits to both safety and travel time while others showed benefits in one or the other. While reviewing the results of the study, WSDOT considered the following information in deciding its priorities to move forward. Similar to the local agency's priorities, although many residents in the study area are in favor of widening SR 24 to four lanes, WSDOT does not prioritize this project.

Acknowledges the need to comply with legal requirements to meet "Complete Streets" requirements adopted in RCW 47.24.060 in 2022 which requires incorporation of complete street requirements into highway projects within a municipality. In the study area, proposed repaving of the SR 24 would require inclusion of bicycle and pedestrian facilities in the project.

In accordance with Practical Solutions, operational strategies are prioritized over capacity expansion investments. For recommendations on SR 24, solutions that are high performing relative to the cost to the public will be considered for further review, design, and implementation by WSDOT depending on state-wide agency priorities and funding.

Emphasize that traffic volumes and flow on SR 24 are accommodated by the existing number of lanes and that back-ups and travel delays occur at the existing intersections. WSDOT's focus for improvements to SR 24 is at the intersections and the segments between the intersections will continue to be evaluated.

Acknowledge that future industrial land use and development of mostly undeveloped or agricultural land between the Yakima River and Beaudry Road on the north side of SR 24 will occur with likely effects to the capacity and function of the highway. Local agencies should require that transportation impacts to SR 24 be mitigated by these developments.

WSDOT will continue to monitor traffic volumes and patterns with any proposed highway improvements and incorporate into the final design of these projects. This could include, for example, if a two-lane roundabout at University Parkway/Riverside Road moves forward, that the highway segment between this intersection and the next intersection, Birchfield Road be analyzed to see if any lane modification or additional capacity is needed. The same would apply for the segments between Birchfield and Morrier Lane, and so on. Another example would be to change a single-lane roundabout to a two-lane roundabout if warranted.

Figure 39. WSDOT Transportation Priorities

Category	Solution Number	Description
Active Transportation	1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane adjacent to SR 24
Active Transportation	2	SR 24 Pathway Extension - Phase 2 (Morrier Lane to Bell Road or Faucher intersection) adjacent to SR 24
SR 24 Corridor	TSMO solution	Intersection Safety & Efficiency - Retain 2 lanes from University Parkway to Bell Rd and replace signals with Roundabouts at University, Birchfield, and Beaudry Rd intersections. (See priorities, under intersections.)
SR 24 Corridor	8 modified*	SR 24 reconfigure lanes - Between University Parkway and Beaudry to 3 lanes, the additional lane in westbound direction. (No pavement widening) *Consider phased segments between intersections prioritizing those.

SR 24 Intersection	28	Beaudry Road - Replace existing signalized intersection with a single-lane roundabout -Should be considered as priority location for complete streets requirements due to vicinity of schools and lower-income housing.
SR 24 Intersection	25	Birchfield Road - Construct southbound right turn lane
SR 24 Intersection	22	Birchfield Road - Replace existing signalized intersection with a single-lane roundabout -Should be considered as second priority location for complete streets requirements if Thorp Road reopens at Union Gap (bicycle connection to the lower valley).
SR 24 Intersection	12	Beaudry Road - Eastbound / Westbound free right accel lane on SR 24 at Beaudry Rd *Consider additional turn lane/acceleration lane/deceleration lane options
SR 24 Intersection	20	University Parkway - Replace existing signalized intersection with a 2-lane roundabout

Community and local business Priorities

Some of the business owners who participated on the M3 Team identified their solution priorities which are listed in Figure 40 in no particular order. Solution #20, replace the signal at University Parkway/Riverside Road with a roundabout was a priority solution for one representative, but not all.

Figure 40. M3 Team – Community and Local Business Owners’ Priorities

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane
2	SR 24 Pathway Extension. Construct bicycle-pedestrian path along SR 24 from Morrier Lane to the SR 24/Faucher intersection via either: A) Bell Road/W. Moxee Avenue to E. Charron Rd to Faucher Rd. or B) adjacent to SR 24 to Faucher Rd. -(used for analysis). Approx 2.5 miles long
37	Beaudry/Bittner/Wendt Roads- Construct bridge across Roza Canal to connect streets and improve traffic flow and connectivity; Upgrade Beaudry Road to a 3-lane local collector approximately 400 ft south of the intersection to 200 ft north of the intersection
40	Walters Road - Construct right turn, deceleration lanes Eastbound and Westbound
38	SR 24 Add Lanes - Extend the four-lane section from University Parkway to Bell Road

M3 Team Recommendations

The M3 Team reviewed the priorities for the City of Moxee, Yakima County, WSDOT and agreed with all of them without any changes. The list of the priorities is shown in the tables above.

Minority Opinions

The charter allowed for the inclusion of minority opinions. There was no minority opinion received.

7 – Next Steps

With the completion of this Study, partners will make recommendations on moving solutions forward to improve highway efficiency and reduce congestion on SR 24 and the local system. This includes recommendations outside of the highway that should be explored, encouraged, and implemented where appropriate.

This chapter provide more information about timelines for the solutions listed in Chapter 6 recommended for further action, as well as other needs identified in the study area.

Partner Collaboration

The study began by the four partner agencies (City of Moxee, YVCOG, Yakima County, and WSDOT) agreeing that a coordinated study and plan needed to be developed for the SR 24 corridor and study area. The transportation system in the study area is interconnected, and decisions made by one jurisdiction can affect the others. The recommendations fall into two categories: short-term solutions and long-term solutions for further evaluation. Ongoing coordination is needed as the agencies move to implement the recommendations.

For recommendations on SR 24, solutions that are high performing relative to the cost to the public will be considered for further review, design, and implementation by WSDOT depending on state-wide agency priorities and funding. In addition, WSDOT is required to comply with Practical Solutions guidance that prioritize operational improvements that benefit the transportation network over capacity or expansion investments.

Short-Term Solutions

The short-term solutions (zero to ten years) incorporate intersection performance, active transportation connectivity, and complete streets for the City of Moxee, Yakima County and WSDOT. Funding has not been secured for all the solutions. The next step is to pursue funding for these solutions. Some solutions may be tied to one another meaning they both need to be implemented for them to address an issue. One without another tied solution will not operate properly.

Figure 41. City of Moxee Priorities – Short Term

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane
16	Mieras Rd - Upgrade to urban standards; Birchfield intersection to approximately Beaudry
17	Faucher Rd - Upgrade to urban standards – E. Charron to Postma
18	East Charron - Upgrade to urban standards; north half roadway from Faucher intersection to match length of improvements on South side

Figure 42. Yakima County Priorities – Short Term

Solution Number	Description
19	Ekelman Rd - Upgrade to urban standards; from Mieras Rd to Duffield Rd
37	Beaudry/Bittner/Wendt Roads- Construct bridge across Roza Canal to connect streets and improve traffic flow and connectivity; Upgrade Beaudry Rd to a three-lane local collector approximately 400 ft south of the intersection to 200 ft north of the intersection

Figure 43. WSDOT Priorities- Short Term

Solution Number	Description
1	SR 24 Pathway. Phase I - University Parkway to Morrier Lane adjacent to SR 24
2	SR 24 Pathway Extension – Phase 2 (Morrier Lane to Bell Road or Faucher intersection) adjacent to SR 24
28	Beaudry Road - Replace existing signalized intersection with a single-lane roundabout -Should be considered as priority location for complete streets requirements due to vicinity of schools and lower-income housing.
25	Birchfield Road - Construct southbound right turn lane

Long-Term Solutions for Further Evaluation

Long-term solutions (greater than 10 years) will address the identified concerns for a longer period of time and in a more sustainable way. They often require additional review and can be more expensive. Additional collaboration among the partners will continue to be important. Some solutions could affect other parts of the transportation system.

The City of Moxee and Yakima County had no long-term solutions identified. WSDOT's long term priorities are listed in the table below.

Figure 44. WSDOT Priorities- Long Term

Solution Number	Description
TSMO Solution	TSMO - Intersection Safety & Efficiency – Retain 2 lanes from University Parkway to Bell Rd and replace signals with Roundabouts at University, Birchfield, and Beaudry Rd intersections.
8	Modified - SR 24 reconfigure lanes - Between University Parkway and Beaudry to 3 lanes, the additional lane in westbound direction, per segment as needed. (No pavement widening) Consider phased segments between intersections prioritizing those
12	Beaudry Road - Eastbound / Westbound free right accel lane on SR 24 at Beaudry Rd *Consider additional turn lane/acceleration lane/deceleration lane options

8 – Approvals and Signature Page

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

SOUTH CENTRAL REGION

East Valley – Moxee to Yakima Corridor Study Final Report

CORRIDOR LIMITS

SR 24 (MP 0.10 – MP 6.5)

Approved by:

W. Brian White, P.E.
WSDOT South Central Region Administrator

Date

Concurrence:

Karena Houser
WSDOT Multimodal Planning Division Director

Date