TRANSPORTATION SYSTEMS PLAN

CITY OF UMATILLA

JANUARY 2023

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Executive Summary

This section will be forthcoming

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Chapter 1 - Introduction

1.1 Background

The City of Umatilla, in conjunction with the Oregon Department of Transportation (ODOT), developed and adopted their first Transportation System Plan (TSP) in 1999 to guide the management of existing transportation facilities as well as the development of future facilities. The Plan was prepared in compliance with the State of Oregon Revised Statute (ORS) 197.712 and the Transportation Planning Rule (TPR), consistent with the overall City Comprehensive Plan. Since the completion of the 1999 TSP, various other planning studies have been developed and are discussed below. The Urban Growth Boundary was recently expanded to the south. The current city limits and UGB are shown in Figure 1-1.

1.2 Purpose of the Plan

The City of Umatilla allocated funding to prepare a new Transportation System Plan to address anticipated growth the next 20 years. This TSP update reviews existing conditions and anticipated future growth impacts with new 20-year traffic forecasts and identify improvements needed to serve anticipated growth. The TSP is incorporated by reference in the City's Comprehensive Plan, acts as part of the City's development standards and guides its Capital Improvement Program. The TSP is intended to meet the Transportation planning requirements of OAR 660-012-0000.

This TSP focuses on the update of the Road Plan Element. In particular, the functional classification of the road network (existing and proposed) will be reviewed, and areas of future growth will be identified. A roadway inventory and capacity needs assessment was performed and other TSP elements such as trails, rail were addressed consistent with OAR 660-012-0020.

1.3 Goals

The following goals were adopted with the original TSP:

TSP Goal 1 – Promote a balanced, safe, and efficient transportation system.

Objectives

1. Develop a multi-modal transportation system that avoids reliance upon one form of transportation as well as minimizes energy consumption and air quality impacts.
2. Protect the qualities of neighborhoods and the community.
3. Provide for adequate street capacity and optimum efficiency.
4. Promote adequate transportation linkages between residential, commercial, public, and industrial land uses.

TSP Goal 2 – Ensure the adequacy of the roadway network in terms of function, capacity, level of service, and safety.

Objectives

1. Develop a functional classification system that addresses all roadways within the study area.
2. In conjunction with the functional classification system, identify corresponding street standards that recognize the unique attributes of the local area.

Umatilla Transportation Plan

Figure 1-1
Planning Area

Columbia River
WASHINGTON
OREGON
DEVORE RD
FERRY RD
GLINE AVE
3RD ST
3RD ST
5TH ST
6TH ST
6TH ST
7TH ST
8TH ST
SCHMEER RD
SCHMEER RD
LAUNCH LN
GRAIN GROWER LN
RIVERSIDE AVE
ROXBURY RD
BEACH ACCESS RD
RIO SENDA DR
JOHN DAY ST
WILLAMETTE AVE
COLUMBIA BLVD
WALLA WALLA ST
BUD DRAPER DR
MARGARET ST
POWER CITY RD
LIND RD
WILDWOOD LN
730
COLUMBIA RIVER HWY
730
SOUTHSHORE DR
OXBOW LN
POWERLINE RD
82
PINE TREE AVE
395
BOWDIN LN
PURDY RD
LIND RD
BENSEL RD
PROGRESS RD
RADAR RD
Umatilla Drain
Umatilla River
82
COONEY LN
UMATILLA RIVER RD
KLAUS RD
SAGEBRUSH RD
SPEARMAN RD
OTT RD
LAUBACK ST
OLDFIELD ST
UMATILLA-STANFIELD HWY
ALPINE DR
WOLFLYN
BAGGETT LN
WALLS RD
SUNSHINE LN
KIK RD
FOLLETT LN
GLEMM RD
SHOOP LN
JOY LN
CULP LN
COLUMBIA LN
POWERLINE RD
MCNARY HWY
LN

Railroad
Umatilla City Limits
Urban Growth Boundary
County Boundary

0 1,200 2,400
Feet

N

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3. Identify existing and potential future capacity constraints and develop strategies to address those constraints, including potential intersection improvements, future roadway needs, and future street connections.
4. Evaluate the need for modifications to and/or the addition of traffic control devices, including evaluation of traffic signal warrants as appropriate.
5. Identify access spacing standards.
6. Provide an acceptable level of service at all intersections in the City, recognizing the rural character of the area.
7. Identify existing and potential future safety concerns as well as strategies to address those concerns.
8. Provide enhanced access to Highway 730 for the Umatilla Rural Fire District Station 1.

TSP Goal 3 – Promote alternative modes of transportation.

Objectives

1. Develop a comprehensive system of pedestrian and bicycle routes that link major activity centers within the study area.
2. Encourage the continued use of the Columbia River as a means of transportation.
3. Encourage the continued use of local freight rail service provided by Union Pacific Railroad.
4. Encourage the continued use of public transportation services.

TSP Goal 4 – Identify and prioritize transportation improvement needs in the City of Umatilla and identify a set of reliable funding sources that can be applied to these improvements.

Objectives

1. Develop a prioritized list of transportation improvement needs in the study area.
2. Develop construction cost estimates for the identified projects.
3. Evaluate the adequacy of existing funding sources to serve projected improvement needs.
4. Evaluate new innovative funding sources for transportation improvements.

1.4 Policies

The following system-wide Policies were adopted with the original TSP:

1. The City shall promote a balanced, safe and efficient transportation system. In evaluating parts of the system, the City will support proposals that:
    - Protect the qualities of neighborhoods and the community.
    - Provide for adequate street capacity, optimum efficiency and effectiveness.
2. The City will coordinate with ODOT in implementing its improvement program (Ord 544).
3. Development proposals, plan amendments, or zone changes shall conform to the adopted Transportation System Plan.
4. Amendments to the Comprehensive Plan, zoning map, and land use regulations that significantly affect a transportation facility shall assure that allowed uses are consistent with the function, capacity, and Level of Service of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:
    - Limiting allowed land uses to be consistent with the planned function of the transportation facility;
    - Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,

- Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

5. A proposed Comprehensive Plan amendment or zoning change significantly affects a transportation facility if:
    - It changes the functional classification of an existing or planned transportation facility;
    - Changes the standards implementing a functional classification system;
    - Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or,
    - Would reduce the level of service of the facility below the minimum acceptable level identified in the Transportation System Plan.

1.5 Accomplishments

The City of Umatilla and the ODOT have both completed efforts to improve transportation facilities that serve City residents and visitors. Physical improvements as well as planning studies are briefly discussed below that have been completed since the adoption of the TSP in 1999.

1.5.1 Roadway Improvements

Since the original Transportation System Plan was prepared in 1999, the following major improvements have been completed:

- Powerline Road was realigned to intersect with US 730 further west of the Umatilla River in order to be able to add capacity and safety improvements. Sight distance was improved as well as incorporating a westbound left turn lane to reduced vehicle conflicts.
- Intersection improvements at Eisele Drive/US 730 were also constructed.
- Widening of US 730 to add a center turn lane from west of Bud Draper Road to east of Beach Access Road as well as westbound right turn lanes at both Beach Access Road and Bud Draper Road.
- Improvements to US 730 from I-82 west to the Umatilla River that implement a portion of the Downtown Revitalization Plan including filling in missing sidewalks, adding curb ramps for wheelchairs meeting ADA standards, adding pedestrian crossings, installing medians and consolidating access points as well as street trees and other downtown amenities.

1.5.2 Planning Studies

Several plans that are companion studies to this Transportation System Plan have also been completed and are listed below. These Plans are adopted as part of this TSP and included by reference. Summaries of these documents are provided in Appendix A.

- 2000 – US 395 North Corridor Plan
- 2002 -- Downtown Revitalization and Circulation Plan
- 2007 -- US 730 Corridor Refinement Plan
- 2011 – I-82/US 730 Interchange Area Management Plan
- 2020 -- Master Trails Plan
- 2022 – Umatilla River Bridge Preliminary Engineering Report

Chapter 2 - Existing Conditions

2.1 Land Use

The City of Umatilla is a relatively small community located along the Columbia River in northeast Oregon. There is a mix of residential, commercial, and industrial land uses. The zoning that corresponds to each of these designations is shown in Table 2-1. Figure 2-1 depicts the current land use designations.

The City's Comprehensive Plan is the City's guide for future growth. The City's Comprehensive "Plan Map" designates current zoning and provides a framework for growth opportunities outside the City limits.

Table 2-1 Zoning Designations

Comprehensive Plan Map Designations	Zoning
Residential	Single-Family Residential (R-1), Medium Density Residential (R-2), Multi-Family Residential (R-3), Downtown Residential (DR)
Commercial	Neighborhood Commercial (NC), Downtown Commercial (DC), General Commercial (GC), Downtown Transitional (DT), McNary Center Mixed Use Commercial (MC)
Industrial	Light Industrial (M-1), Heavy Industrial (M-2)

From Table 10-2-1 of City of Umatilla's Zoning Ordinance

2.2 Current and Historical Population

The historical population of the City of Umatilla is presented in Table 2-2. Population increased rapidly from 1970 to 1980. Since the 1990's, the City has been experiencing positive growth.

Table 2-2 Historical Population

Year	Population	Percent Increase
1920	390	97.0%
1930	345	-11.5%
1940	370	7.2%
1950	883	138.6%
1960	617	-30.1%
1970	679	10.0%
1980	3,199	371.1%
1990	3,046	-4.8%
2000*	4,978	63.4%
2010*	6,906	38.7%
2020†	7,363	6.6%

Source: U.S. Census Bureau

Umatilla Transportation Plan

Figure 2-1
Land Use

Land Use

- CS, Community Service
- DR, Downtown Residential
- DT, Downtown Transitional
- DC, Downtown Commercial
- NC, Neighborhood Commercial
- MC, McNary Center Mixed Use
- GC, General Commercial
- GC/CS, General Commercial/Community Service
- R-1, Single-Family Residential
- R-1/CS, Single-Family/ Community Service
- R-2, Medium Density Residential
- R-2/CS, Medium Density/ Community Service
- R-3, Multi-Family
- M-1, Light Industrial
- M-1/CS, Light Industrial/ Community Service
- M-2, Heavy Industrial
- M-2/CS, Heavy Industrial/ Community Service
- R, Residential Plan
- C, Commercial Plan
- M, Industrial Plan
- NR, Natural Resource Plan
- PF, Public Facility Plan
- R-O/S, Recreation-Open/ Space Plan
- Umatilla City Limits
- Urban Growth Boundary

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0 1,500 3,000
Feet

N

Columbia River
WASHINGTON
OREGON
SOUTHSHORE DR
OXBOW LN
730
6TH ST
5TH ST
7TH ST
8TH ST
3RD ST
CHANEY AVE
FERRY RD
3RD ST
DEVORE RD
SCAPLEHORN RD
LAUNCH LN
GRAIN GROWER LN
RIVERSIDE AVE
ROXBURY RD
RIO SENDA DR
JOHN DAY ST
COLUMBIA BLVD
WILLAMETTE AVE
WALLA WALLA ST
BUD DRAPER DR
BEACH ACCESS RD
730
82
MARGARET ST
POWER CITY RD
WILDWOOD LN
LIND RD
COLUMBIA RIVER HWY
PINE TREE AVE
POWERLINE RD
POWERLINE RD
BOWDIN LN
PURDY RD
395
BENSEL RD
PROGRESS RD
KLAUS RD
SPEARMAN RD
CRAIG RD
LAUBACK ST
OLDFIELD ST
CONEY LN
UMATILLA-STANFIELD HWY
SAGEBRUSH RD
WOLFE LN
BAGGETT LN
ALPINE DR
OTT RD
WALLS RD
SHOOP LN
FOLLETT LN
JOY LN
SUNSHINE LN
KIK RD
GILEMM RD
COLUMBIA LN
CULP LN
PUNKIN CENTER RD
HERMISTON HWY
MCNARY HWY
UMATILLA RIVER RD
COUNTRY LN
FIRST PL

2.3 Roadway Network

A roadway network is comprised of a hierarchy of roadways that are defined by their function. Generally, roadways serve two primary purposes: access and mobility. It is the degree to which the roadway serves these two functions that defines its functional classification. The functional classification system categorizes a roadway as an arterial, collector, or local road depending on the roadway's primary function.

Figure 2-2 shows the existing functional classification system for the City of Umatilla. There are three primary roadway facilities within the study area: Interstate 82 (I-82), U.S. Highway 730 (US 730), and U.S. Highway 395 (US 395).

Interstate 82 is an east-west divided Interstate Highway which connects I-90 at Ellensburg, WA to I-84 approximately 10.5 miles south of the Oregon-Washington border and serves the Tri-Cities approximately 20 miles to the north of Umatilla. There are two lanes in each direction separated by a center median. It has a posted speed limit of 70 MPH (65 MPH Trucks). In the study area I-82 is oriented in a north-south direction, thus for clarity and for the purposes of this TSP I-82 westbound will be referred to as northbound and I-82 eastbound.

US 730 serves as the primary east-west corridor through town. It connects to I-84 approximately 15 miles to the west and US 12 approximately 23 miles to the east. Entering the City from the west, US 730 has two lanes and adds a center two-way left turn lane as well as sidewalks from east of the Umatilla River to just west of I-82 where it adds one lane in each direction from there to east of US 395. East of US 395 it narrows to four lanes to west of Willamette Street where it briefly narrows to two lanes then adds a center two-way left-turn lane from there to east of Beach Access Road. Posted speed along US 730 ranges from 25 mph (near Umatilla Bridge Road and Jane Avenue) to 55 mph (near the east edge of the city limits).

US 395 is a north-south major route connecting to California and north to Canada. It connects Umatilla with the cities of Hermiston and Stanfield to the south. It has four lanes south of US 730 but adds a center two-way left-turn lane approximately one-half mile south of US 730. It has a posted speed limit of 55 mph between Umatilla and Hermiston.

Existing truck routes are identified in Figure 2-3 below. The major truck routes follow the three primary roadways: Highway 730, Interstate 82, and U.S. 385.

The remaining roads within the City Limits are predominately two-lane roadways. City of Umatilla has some significant barriers for travel, namely the Umatilla River that has a single crossing, I-82 which has only two interchanges for the City, and the railroad that runs east-west north of US 730 which has two crossings west of I-82 and three to the east. Several intersections were selected for evaluation of traffic operations. Their lane configurations and traffic control are shown in Figure 2-4.

Umatilla Transportation Plan

Figure 2-2
Functional Classifications

Functional Classifications
- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Umatilla City Limits
- Urban Growth Boundary

0 1,500 3,000
Feet

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Umatilla Transportation Plan

Figure 2-3
Truck Routes

Columbia River
WASHINGTON
OREGON
3RD ST
6TH ST
5TH ST
7TH ST
8TH ST
GUNE AVE
FERRY RD
SCAPLEHORN RD
DEVORE RD
LAUNCH LN
GRAIN GROWER LN
RIVERSIDE AVE
ROXBURY RD
RIO SENDA DR
JOHN DAY ST
COLUMBIA BLVD
WILLAMETTE AVE
WALLA WALLA ST
BUD DRAPER DR
BEACH ACCESS RD
MARGARET ST
POWER CITY RD
WILDWOOD LN
SOUTHSHORE DR
OXBOW LN
730
82
COLUMBIA RIVER HWY
PINE TREE AVE
POWERLINE RD
LIND RD
395
BOWDIN LN
PURDY RD
RADAR RD
BENSEL RD
PROGRESS RD
UMATILLA-STANFIELD HWY
KLAUS RD
LAUBACK ST
OLDFIELD ST
SAGEBRUSH RD
WOLF LN
CRAIG RD
SPEARMAN RD
OTT RD
ALPINE DR
BAGGETT LN
WALLS RD
SHOOP LN
COONEY LN
UMATILLA RIVER RD
FOLLETT LN
JOY LN
KIKI RD
SUNSHINE LN
GLEMM RD
COLUMBIA LN
CULP LN
HERMISTON HWY
CABANA RD
PUNKIN CENTER RD
MCNARY HWY
COUNTRY LN

Identified Freight Route (ODOT)
Umatilla City Limits
Urban Growth Boundary

0 1,500 3,000
Feet

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Umatilla Transportation Plan

Figure 2-4
Existing Intersection Geometry, Traffic Control, & Traffic Volumes

Umatilla Est. 1862

1 A
25 25
20 15
40 25
STOP

Columbia River
WASHINGTON
OREGON
CLINE AVE
82
BROWNELL BLVD
FERRY RD
DEVORE RD
3RD ST
SCAPLEHORN RD
2ND ST
CHERRY ST
5TH ST
6TH ST
7TH ST
8TH ST
EISELE DR
JONES SCOTT RD
730
POWER CITY RD
MARGARET ST
LINDRD
WILDWOOD LN
DEVORE RD
LAUNCHER
RIVERSIDE RD
RIVERSIDE AVE
GRAIN GROWER LN
ROXBURY RD
RIO SENDA DR
EL MONTE ST
JOHN DAY ST
COLUMBIA BLVD
POMONO DR
CHENOWITH AVE
WILLAMETTE AVE
KLICKITAT ST
YAKIMA ST
WALLA WALLA ST
WENATCHEE ST
LEWIS ST
COWLITZ AVE
PENDLETON AVE
BUD DRAPER DR
BEACH ACCESS RD
APRICOT LN
POWERLINE
DEAN AVE
CAROLINA RD
MARTIN DR
POWERLINE RD
STEPHENS AVE
TRUMAN AVE
WASHINGTON ST
ORCHARD
MONROE ST
MADISON ST
VAN BUREN DR
PINE TR
PHEASANT RIDGE ST
BLUE JAY ST
CANYON AVE
POWERLINE RD
UMATILLA RIVER RD
MCNARY HWY
BONNEY LN
395

13 B: 10 180 / 15 5 / 10 160 (STOP)

2 D: 425 75 / 340 165 / 55 115 (STOP)

3 D: 15 <5 20 / 20 545 10 / 25 480 30 / 10 <5 15 (STOP)

4 F: 485 155 / 455 105 / 125 90 (STOP)

5 C: 20 5 120 / 25 605 <5 / 50 685 10 / 10 5 40

6 B: 340 <5 310 / 660 110 / 400 65

7 F: 305 665 / 470 440 / 30 <5 125 (STOP)

8 D: 40 15 5 / 5 275 445 / 5 380 245 / 470 10 250

9 B: 130 <5 / 495 / 540 (STOP)

10 E: 165 30 / 340 160 / 80 380 (STOP)

11 B: 40 10 / 10 180 / 5 410 (STOP)

12 B: 200 35 / 20 175 / 5 130 (STOP)

B Level of Service
100 PM Peak Hour Volumes
Lane Configurations
Intersections
Umatilla City Limits
Urban Growth Boundary

0 500 1,000 1,500
Feet

N

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2.4 Pavement Condition

In May 2022, J-U-B Engineers, Inc. collected data on different types and quantities of pavement distresses to analyze the existing condition of each paved road within the City of Umatilla limits and the Urban Growth Boundary. Data collection was based on the Pavement Data Collection (PDC) Manual (October 2021) while the subsequent calculations and pavement ratings were based on the State of Oregon GFP Pavement Condition Rating Manual (2010). The typical methods prescribed in these manuals involve recording the linear footage or number of distresses such as longitudinal cracking, fatigue cracking, transverse cracking, potholes, or pavement patches at a variety of severity levels as determined by specific criteria such as crack widths, pothole depths, fatigue crack patterns, etc. This data was then used in specific calculations that are based on the GFP Pavement Condition Rating Manual and the Computation of Indices in the State of Oregon 2020 Pavement Condition Report. The goal of these methods is to remove bias and subjectivity from the rating of each paved road by using empirical data to return a numerical index ranging from 0-100 which corresponds to a rating of Very Good, Good, Fair, Poor, and Very Poor.

The methods referenced above are typically employed by the State of Oregon Pavement Services Unit to rate the pavement conditions of the Oregon State Highway System. The data collection is primarily accomplished by this agency via a Pavement Condition Data Collection Vehicle (DCV) which is a truck equipped with computer, sensor and video equipment that automates much of the data collection. However, the Pavement Data Collection Manual allows for the collection of most data to be conducted manually if a DCV is not available. Furthermore, as this method was designed primarily for highways, the 0.1-mile sample measurement was modified in some cases where roads were not at least 0.1-mile long by projecting the length or combining a representative section with similarly conditioned roads located nearby. Lastly, measurements and calculations were based off two lane/travel directions as opposed to one-lane (as specified in the PDC Manual) to provide a wider sample of each road and account for variations in lane distresses.

The total length of roadway within the Urban Growth Boundary is 48.5 centerline miles. The number of miles that fall under each category of pavement condition are shown in the table below and graphically represented in Figure 2-5 Detailed pavement data collection for each roadway segment is provided in Appendix B.

Table 2-3 Pavement Condition Miles

Very Poor	Poor	Fair	Good	Very Good
11.5 miles	7.8 miles	12.3 miles	13.0 miles	3.9 miles
23.7%	16.1%	25.4%	26.8%	8.0%

Table 2-4 Good Fair Poor Pavement Rating Sheet

Rating	GFP	Stability	Structural Weakness	Fatigue	Transverse Block	Patching	Ride Qualities	Deformation and Rutting	Comment
Very Good	100 - 96	Stable	None	None	None	None	Excellent	Rut depth less than 1/4”	Nothing would improve this road
Good	95 - 80	Stable	None Evident	Generally Hairline and Hard to Detect	Minor amounts may be present	Minor amounts may be present	Very good	Deformation minor, rut less than 1/2”	May have dry or light colored appearance
Fair	75 - 50	Generally Stable	Minor Areas Evident	Easier to Detect but Low Severity	May have widespread low and/or intermittent moderate severity	May be patched, but not excessively (i.e. less than 100%	Good to acceptable	Deformation more easily noticed, rut less than 3/4”	Typ. Treatment need: Low vol.: chip seal High vol.: 2” resurface
Poor	45 - 25	Areas of Instability	Marked Evidence of Structural Deficiency	Large Crack Patters (Alligatoring) Present	May have widespread moderate and/or intermittent severity	Heavy and numerous	Acceptable to poor	Deformation very noticeable, rut 3/4” or g greater if present	Typ. Treatment need: Low vol.: 2” resurface High vol.: >2” resurface
Very Poor	20 - 5	Numerous Areas of Instability	Majority Showing Structural Deficiency	Intermittent to Extensive High Severity	Extensive high severity	Intermittent to extensive high severity	Unacceptable, should slow down		Typ. Treatment need: Low vol.: >2” resurface High vol.: heavy rehab or reconstruction

Umatilla Transportation Plan

Existing Pavement Condition Inventory (May 2022)

Columbia River

WASHINGTON

OREGON

3RD

6TH

DEVORE

BEACH ACCESS

730

82

LIND

POWERLINE

COLUMBIA RIVER

395

BOWDIN

BENSEL

UMATILLA-STANFIELD

SAGEBRUSH

ALPINE

OTT

CRAIG

Umatilla Drain

Umatilla River

MCNARY

BAGGETT

Esri, NASA, NGA, USGS, FEMA

Street Conditions

- Gravel/Private
- Very Poor
- Poor
- Fair
- Good
- Very Good
- StateHighways
- Umatilla City Limits
- Urban Growth Boundary

0 800 1,600 2,400

Feet

N

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2.5 Traffic Volumes and Level of Service

Traffic volumes at study intersections were collected on Thursday May 19, 2022, from 4:00 – 6:00 PM, except for the intersection of Powerline Road/Madison Avenue which was collected on Thursday September 22, 2022. On US 730, the PM peak hour at US 395 and to the west was from 4:15 – 5:15 PM and east of US 395 it occurred between 4:00 and 5:00 PM. The two intersections that were evaluated that were not located on US 730, the PM peak hour occurred slightly later in the evening. The raw data collected is included in Appendix C.

2.5.1 Seasonal Adjustment Factors

Consistent with the methodology identified in the ODOT Analysis Procedures Manual (APM), 30th Hour Volumes for study intersections were developed using Automatic Traffic Recorder (ATR) data near the City of Umatilla that collect traffic data 24-hours a day, 365 days a year. Two ATRs are situated near the City, one on US 730 east of Umatilla and the other on I-84 just south of the Columbia River.

Data from the two ATRs for both the Average Daily and the Average Weekday conditions were gathered for purposes of comparison and are shown in Table 2-5.

Table 2-5 Seasonal Adjustment Factors

Month	2017	2018	2019	2020	2021	Average	Seasonal Adjustment
ATR 30-002 – US 730 0.24 miles east of OR 37 Average Daily							
Peak month (Aug)	144%+	121%	124%	95%*	N/A	123%	
Count month (May)	54%*	107%	112%	92%*	N/A	110%	1.118
ATR 30-002 –US 730 0.24 miles east of OR 37 – Average Weekday							
Peak month (Aug)	157%*	126%	124%	95%*	N/A	125%	
Count month (May)	55%*	110%	112%	92%	N/A	111%	1.126
ATR 30-025 – I-82 0.58 miles south of Columbia River -- Average Daily							
Peak month (Aug)	121%	117%	117%	125%*	116%*	118%	
Count month (May)	109%*	102%	109%	93%*	105%	105%	1.124
ATR 30-025 – I-82 0.58 miles south of Columbia River -- Average Weekday							
Peak month (Aug)	120%	115%*	120%	129%*	N/A	120%	
Count month (May)	109%*	102%	109%	99%*	N/A	106%	1.13

Note: Annual data shown by month is the percent of the Annual Average Daily Traffic for that month.
* Indicates values that were discarded from the average as indicated in the APM procedures.

Table 2-5 displays that average weekday volumes at both locations are slightly higher than Average Daily Traffic volumes. Using the Average Daily seasonal adjustment factors of both locations a combined factor results in 1.121 or a 12% increase in the traffic volumes collected in May to represent 30th Hour Volumes. The PM peak hour turning movement volumes collected in May were increased by 12% and rounded to the nearest 5 vehicles. The resulting traffic volumes are shown in Figure 2-4 above.

2.5.2 Traffic Operations Standards

The Oregon Highway Plan (OHP), Policy 1F, sets operational standards based on volume-to-capacity (V/C) ratios for various state highway categories. The V/C ratio targets for Non-Metropolitan Planning Organization areas are 0.80 for Interstate Highways, 0.85 for Freight Routes on a Regional or District Highways, including US 730 and US 395 in the City of Umatilla. These standards apply to the overall V/C ratio at signalized intersections and to the state highway approaches at unsignalized intersections. The minor street approaches that are stop-controlled at intersections have a target V/C ratio of 0.90. The policy indicates that the peak hour shall be the 30th highest annual hour, hence the preparation of 30th hour volumes discussed above. This approximates weekday peak hour traffic.

The City of Umatilla Level of Service (LOS) standard for non-state-highway intersections, is based on the delay at intersections, consistent with the Highway Capacity Manual (HCM). The analysis of LOS is a means of quantitatively describing the quality of operational conditions of a roadway segment or intersection and the perception by motorists and passengers. Service levels are identified by letter designation, A – F, with LOS "A" representing the best operating conditions and LOS "F" the worst. Each LOS represents a range of operating conditions and one or more Measures Of Effectiveness (MOE's) are used to quantify the LOS of a roadway element. For intersections the MOE used is average control delay in seconds per vehicle. While there are several methodologies for estimating the LOS of intersections, the most commonly used is presented in the HCM and is the methodology used in this study (HCM 6th Edition). The Highway Capacity Manual LOS criteria for intersections are summarized in Table 2-6.

Table 2-6 Level of Service Criteria for Intersections

Level of Service (LOS)	Average Control Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	< =10	< =10
B	>10 - < 20	>10 - < 15
C	>20 - < 35	>15 - < 25
D	>35 - < 55	>25 - < 35
E	>55 - < 80	>35 - < 50
F	>80	>50

Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board, National Research Council, Washington, D.C., 2017.

For unsignalized intersections, "delay" is based on the availability of gaps in the major street to allow minor street movements to occur. The methodology prioritizes each movement at an unsignalized intersection consistent with rules that govern right-of-way for drivers. In other words, major street through and right turn traffic has absolute priority over all other movements. Major street left turns must yield to opposing through traffic and right turns. Minor street through traffic and right turns yield to major street higher priority movements, and the minor street left turns have the lowest priority and must yield to all other movements. As traffic volumes increase, the availability of gaps will decrease and greater delay tends to

result in driver frustration and anxiety, loss of time, unnecessary fuel consumption, and contributes to unnecessary air pollution. The City of Umatilla standard for Level of Service is LOS "D" for intersections, meaning the overall intersection LOS must be "D" or better for signalized intersections and the critical minor street approach for unsignalized intersection must be LOS "D" or better.

2.5.3 Traffic Operations Analysis

The Highway Capacity Software was used to evaluate stop-controlled intersections while Synchro software was used to evaluate signalized intersections. Existing lane configurations shown in Figure 2-4 were used with the 30 hour volumes also shown in the figure. Existing traffic signal timing plans at the 3 signals in the study area were obtained from ODOT. The results of the capacity analysis are shown in Table 2-7, with the capacity analysis worksheets included in Appendix D. Although different standards apply to different intersections both delay, LOS and V/C are reported for comparative purposes in Table 2-7. For the purposes of this analysis a V/C of 0.90 for the side street approaches to US 730 at unsignalized intersections will apply.

Table 2-7 Summary of Existing (2022) PM Peak Hour Delay and Level of Service

	2022 PM Peak Hour					
	Overall Intersection			Worst Approach		
Intersection	Delay	LOS	V/C	Delay	LOS	V/C
1. Brownell/Third	*			NB--9.3	A	0.09
2. Powerline/US 730	*			NB--20.5	C	0.44
3. Switzler/US 730	*			SB-- 29.0	D	0.23
4. River Road/US 730	*			NB--87.4	F	0.95
5. Brownell/US 730	20.2	C	0.43	SB--25.0	C	0.55
6. SB I-82 ramps/US 730	17	C	0.56	WB--22.0	C	0.35
7. NB I-82 ramps/US 730	*			NB--214.3	F	2.13
8. US 395/US 730	53.1	D	0.68	NB--95.8	F	1.21
9. Columbia/US 730	*			SB--12.9	B	0.27
10. Willamette/US 730	*			SB--46.0	E	0.76
11. Bud Draper/US 730	*			SB--12.9	B	0.12
12. Beach Access/US 730	*			SB--10.9	B	0.29
13. Powerline/Madison	*			EB--10.9	B	0.04

LEGEND

60.8/E -- 0.05 Delay and Level of Service and V/C ratio using existing lane configurations

* Uncontrolled Movements (major street through) not provided for overall intersection Analysis for Two-way Stop Controlled Intersections

NB = northbound, SB = southbound, WB = westbound, EB = eastbound

The table above indicates that intersections 1 and 13, which are on the City streets, function well above standards. There are four intersections that currently function with poor LOS or high V/C ratios for the worst movement, however only two of those intersections exceed the ODOT V/C targets discussed above. The northbound I-82 ramp terminal at US 730 during the PM peak hour experiences significant delay and has a V/C ratio over 2.0. The northbound approach of River Road also has an unacceptable V/C ratio at 0.95. The other two intersections that function with poor LOS either have an acceptable V/C ratio for the minor street approach, such as in the case of the Willamette Avenue intersection at US 730, or has overall intersection V/C that indicates it has available capacity in the signal cycle meaning that adjustments to the signal cycle could be made to reduce the delay for the worst approach as is the case at the US 395/US 730 intersection.

2.6 Crash History

Between the years 2016 and 2020, there were a total of 214 vehicular incidents. Summary data is shown below in Tables 2-8 through 2-10, Crash Frequency and Crash Severity are graphically shown in figures 2-6 and 2-7. Over 60% of all incidents resulted in no apparent injury. The most common collision types are as follows: Same direction, one stopped (23%), Entering at an angle (18%), and Fixed Object (14%). The intersection of I-82 and Highway 730 had the highest crash frequency within the City.

The relatively low number of collisions compared to the traffic volumes calculates to collision rates less than 0.80 per million entering vehicles. This low rate combined with the fact that the intersections with the highest number will be considered for capacity improvements led the project team to not consider mitigation measures at this time. Safety improvements should be considered at the time of design for any capacity improvements.

Table 2-8 Injury Type

Injury Type	Number	Percent
Suspected Serious Injury	5	2%
Suspected Minor Injury	24	11%
Possible Injury	57	27%
No Apparent Injury	128	60%
Total	214	100%

Table 2-9 Incident Type

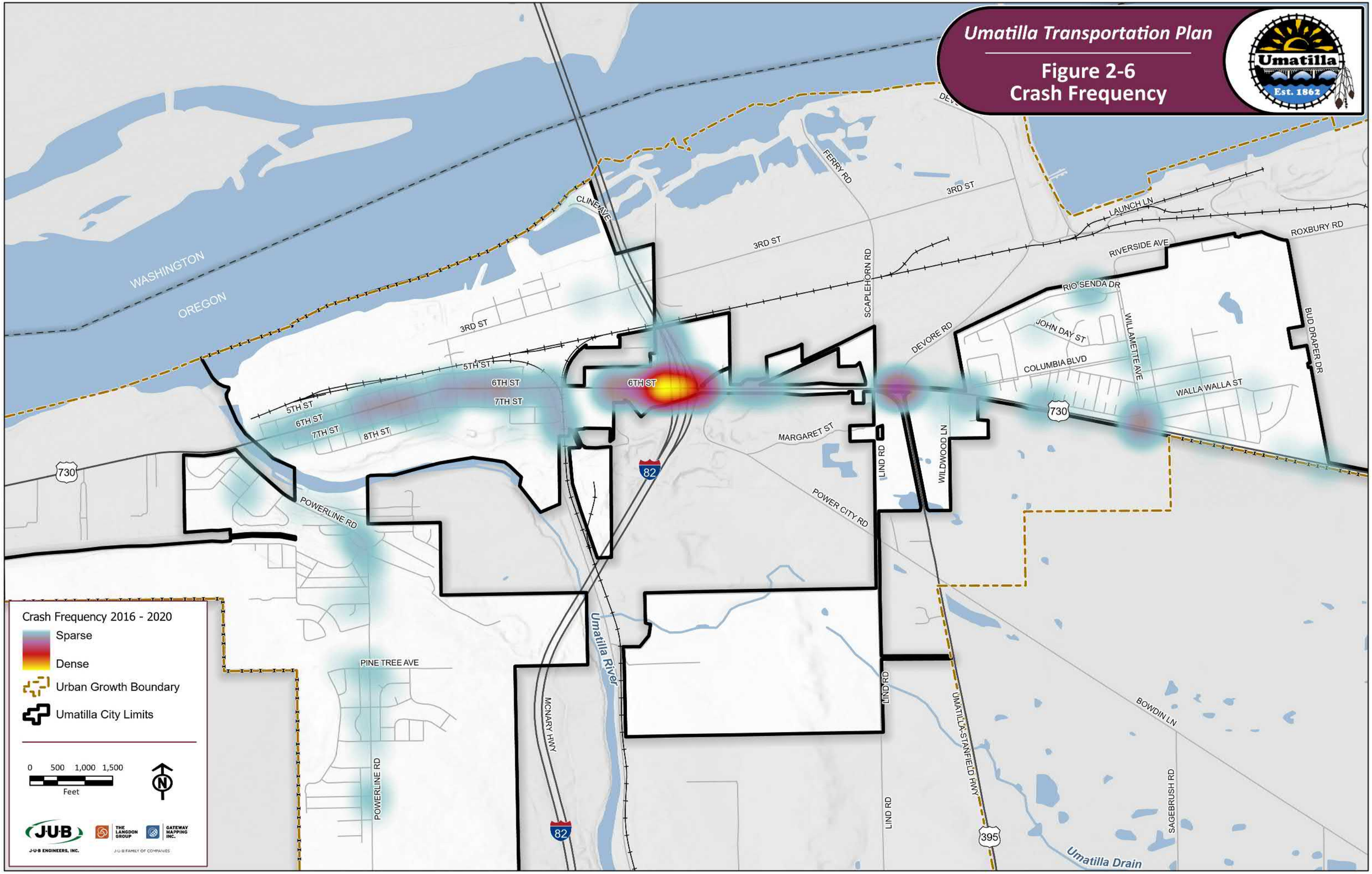
Collision Type	Number	Percent
Same direction, one stopped	49	23%
Entering at an angle	39	18%
Fixed object	31	14%
Same direction, both going straight	24	11%
Parked motor vehicle	18	8%
Opposite direction, one straight, one left turn	17	8%
Opposite direction – all others	9	4%
Animal	5	2%
Same direction, one turn, one straight	5	2%
Same direction, all others	5	2%
Overturned	4	2%
Other object	3	1%
Pedestrian	3	1%
Other non-collision	2	1%
Total	214	100%

Table 2-10 Collision Type by Intersection

Intersection	Injury Type				
	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	No Apparent Injury	Total
6th St (Hwy 730) & McNary Hwy (I-82)	0	7	12	28	47
6th St (Hwy 730) & Brownell Blvd	1	3	4	10	18
Columbia River Hwy & Umatilla-Stanfield Hwy	0	2	6	2	10
Columbia River Hwy & Willamette Ave	0	3	3	4	10
6th St (Hwy 730) & Eisele St	0	2	1	6	9
Columbia River Hwy & Bud Draper Rd	0	3	0	3	6
6th St (Hwy 730) & Switzler Ave	0	1	1	3	5
6th St (Hwy 730) & Yerxa Ave	0	0	3	2	5
Columbia River Hwy & Columbia Blvd	0	0	1	3	4
Total	1	21	31	61	114

Umatilla Transportation Plan

Figure 2-6
Crash Frequency



Umatilla Transportation Plan

Figure 2-7
Crash Severity (2016 - 2020)

Crash Severity (2016-2020)
- Serious Injury
- Moderate Injury
- Minor Injury
- Property Damage Only
- Umatilla City Limits
- Urban Growth Boundary

0 500 1,000 1,500
Feet

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Chapter 3 - Other Modes of Transportation

3.1 Umatilla Master Trails Plan

The City of Umatilla developed and adopted a city-wide trail plan in February 2020. The goal of the trail plan is to create a system of trails that serve as an alternative to motorized transportation, that enhance public health and foster the development of a premier outdoor recreation experience and destination for tourism. The Trail Plan serves as a concept for future development, improvement, and management of the proposed and existing network of trails, pathways and sidewalks in the City.

Umatilla's unique location at the confluence of the Umatilla and Columbia Rivers, together with the desire of City Council and residents to enhance livability and walkability and the relatively moderate climate, positions the city to become one of eastern Oregon's premier park and recreation destinations. With rich history shaped in part by transportation, Umatilla is ideally located within the region at the confluence of two rivers and the intersection of two interstate systems. The rivers have been significant since Native American tribes first inhabited the land since time immemorial. The highways, Interstate 82 and Highways 730 and 395 are significant regional freight and vehicle facilities. Today, Umatilla continues to be a transportation hub for trade and is dominated by infrastructure for automotive, railroad, and river transportation of people and goods.

The Umatilla Trail Plan builds upon the foundation of previous planning efforts to improve non-automotive transportation in Umatilla and to support exercise, outdoor recreation and tourism. The City hosted a variety of opportunities for public involvement, both formal and informal (paper and online surveys with Umatilla School District students and City Parks & Recreation Committee hosted Open House). Less traditional outreach was implemented to include the diverse population, such as translating documents to Spanish, providing translators at public engagement events, etc.

Over a two-year period, an inventory of existing facilities was conducted. In total, the trail network consists of 34 miles of trails that are owned and maintained by a number of local, state and federal agencies. The trails consist of varying surface materials suitable for different modes of transportation. Segments of trails located outside of the Urban Growth Area connect to the City and are an important part of the regional trails system. This inventory also identified approximately 17 miles of sidewalk within the city limits, compared to the 55 linear miles of streets (excluding HWY 395, HWY 730 and I82). Potential trail connections were evaluated based on how they would improve the walkability between "pedestrian generators", otherwise known as locations, that attract high traffic of walkers and/or bicyclists, such as food and convenience stores, check, city-owned parks, schools, etc.

The Umatilla Trail Plan is primarily conceptual but also includes varying degrees of detail, understanding that specific projects will require refinement plans for design and engineering, as well as a strategy for funding and capital improvement. The development of a trail plan created an opportunity to rethink the purpose of transportation as a means of commuting with vehicles but also for pedestrians and bicyclists. By prioritizing trails, streets will be viewed for multiple purposes, for both pedestrians and bicycles as well as for automobiles and trucks. Streets are valuable infrastructure which can serve a dual purpose for bicycles and pedestrians if designed accordingly.

The plan includes 11 major projects that will result in a trail system that connects the three regions of the City: McNary, Downtown and South Hill. The existing trail network and proposed projects are shown in Figure 3-1. The Trail Plan is designed to connect the City trail system with the west Umatilla County Umatilla River Trail, the Morrow County Heritage Trail and the Lewis & Clark Trail. The community was invited to prioritize the projects, one for each of the three regions in the City: South Hill, Downtown and McNary. The community ranked project #1, "South Hill Connector" for the South Hill Region, project #11, "Marina to Umatilla Landing Park" for the Downtown Region and, project #3 "McNary Connector" was ranked highest for the McNary neighborhood. Accordingly, upon adoption of this plan, City staff will make it a priority to secure funding for these three projects. However, as explained during the community meetings, other projects may be constructed earlier if opportunities for funding arise. Examples include project specific grant criteria, projects funded directly by new development or conservation grants that would combine habitat restoration and trail construction.

The 11 trail projects identified in the Umatilla Trail Plan will be developed over the next 5 – 10 years as funding becomes available and as other development and improvement opportunities arise. The projects are designed so they can be either stand-alone projects or developed in tandem or as part of other capital improvement projects. Pages from the Master Trails Plan depicting the trails system and the 11 projects are included in Appendix E.

The pedestrian bridge over the Umatilla River was damaged a few years ago and rendered unusable. The City has secured funding to replace the bridge which is anticipated to occur in 2023. The City is also in the process of designing an improved connection to Powerline Road to the new bridge that will facilitate trips from the South Hill area to the downtown and especially school trips.

The City of Umatilla also worked with several jurisdictions to create the Umatilla River Trail adopted in 2021. The Plan discusses the benefits of a trail, interpretive opportunities, types of trail and provide detailed maps of Umatilla River trail segments stretching from the City of Echo to the Columbia River. It addresses signage and wayfinding, sign types, trail environments, trailheads, public art, fencing and lighting as well as road crossing and trail management. Pertinent pages to the portions of the trail in the City of Umatilla are included in Appendix E.

Umatilla Transportation Plan

Figure 3-1
Trails Plan

Columbia River
WASHINGTON
OREGON
FERRY RD
3RD ST
DEVORE RD
LAUNCH LN
GRAIN GROWER LN
ROXBURY RD
RIVERSIDE AVE
CLINE AVE
SCAPLEHORN RD
RIO SENDA DR
JOHN DAY ST
COLUMBIA BLVD
WILLAMETTE AVE
WALLA WALLA ST
BUD DRAPER DR
BEACH ACCESS RD
5TH ST
6TH ST
7TH ST
8TH ST
MARGARET ST
POWER CITY RD
LIND RD
WILDWOOD LN
SOUTHSHORE DR
OXBOW LN
730
82
COLUMBIA RIVER HWY
PINE TREE AVE
POWERLINE RD
395
BOWDIN LN
PURDY RD
RADAR RD
BENSEL RD
UMATILLA-STANFIELD HWY
SAGEBRUSH RD
KLAUS RD
LAUBACK ST
OLDFIELD ST
ALPINE DR
COONEY LN
UMATILLA RIVER RD
BAGGETT LN
SUNSHINE LN
KIK RD
FOLLETT LN
JOY LN
MCNARY HWY

Trail Projects:

1. South Hill Connector
2. Paved Walking/Bike Path to Foot Bridge
3. McNary Connector
4. Third and Main Connector to Sixth
5. Umatilla River to Landing Park Connector
6. McNary to Downtown Connector
7. McNary to McNary Beach
8. Third Street to Marina
9. Umatilla River Crossing
10. Route to West County Trail System/Rail to Trails
11. Marina to Landing Park/Old Town Rail

*Details are in the Appendix

- Proposed Trails
- Existing Trails
- Lewis & Clark Trail
- Urban Growth Boundary
- Umatilla City Limits

0 1,300 2,600
Feet

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3.2 Transit

Public transportation within the City of Umatilla is limited to Kayak Public Transit. Kayak is operated by the Confederated Tribes of the Umatilla Indian Reservation and is providing Commuter Bus Routes, Fixed Routes, and ADA Paratransit service to 14 cities and 4 counties as a free rural regional transportation system reaching into southeastern Washington and northeastern Oregon. Kayak currently has 8 stops located within the City of Umatilla (see Figure 3-2). See Table 3-1 below for arrival and departure times.

Table 3-1 Kayak Umatilla Service

Bus Stop Location	AM	Mid AM	Mid PM	PM	Sat AM	Sat PM
McNary Market (205 Willamette St)	--	9:41 AM	2:17 PM	6:31 PM	9:52 AM	4:52 PM
Umatilla Recycle Depot (6th Street & Yerxa Ave)	--	9:45 AM	2:23 PM	6:37 PM	9:58 PM	4:58 PM
6th St & B St	--	10:00 AM	2:27 PM	--	10:02 PM	5:02 PM
6th St & Village Square	--	10:21 AM	2:48 PM	6:39 PM	10:22 AM	5:22 PM
6th St & Yerxa	--	10:21 AM	2:49 PM	--	--	--
Umatilla Post Office (1900 6th St)	6:04 AM	10:23 AM	2:51 PM	6:42 PM	10:25 AM	5:25 PM
Arrive McNary Market (205 Willamette St)	6:08 AM	10:28 AM	2:56 PM	--	10:30 AM	5:30 PM
Depart McNary Market (205 Willamette St)	6:08 AM	--	--	--	10:43 AM	5:43 PM

The City of Umatilla no longer has Greyhound services. The nearest Greyhound stop is located in Stanfield at the Pilot Travel Center (2115 S Highway 395, Stanfield, OR 97875).

The City supports other efforts in improving transit service within the City and connections to services in Hermiston.

Umatilla Transportation Plan

Figure 3-2
Other Modes

Fourmile Canyon
WASHINGTON
OREGON
Columbia River
FERRY RD
3RD ST
DEVORE RD
CLINE AVE
SCAPLEHORN RD
LAUNCH LN
GRAIN GROWER LN
RIVERSIDE AVE
ROXBURY RD
RIO SENDA DR
WILLAMETTE AVE
BUD DRAPER DR
BEACH ACCESS RD
COLUMBIA BLVD
WALLA WALLA ST
3RD ST
5TH ST
6TH ST
7TH ST
8TH ST
MARGARET ST
POWER CITY RD
LIND RD
WILDWOOD LN
SOUTHSHORE DR
OXBOW LN
730
82
COLUMBIA RIVER HWY
PINE TREE AVE
POWERLINE RD
BOWDIN LN
PURDY RD
395
RADAR RD
BENSEL RD
PROGRESS RD
Umatilla Drain
KLAUS RD
SPEARMAN RD
CRAIG RD
WOLFE LN
SAGEBRUSH RD
ALPINE DR
BAGGETT LN
OTT RD
WALLS RD
LAUBACK ST
OLDFIELD ST
COONEY LN
UMATILLA STANFIELD HWY
POTATO LN
Umatilla River
UMATILLA RIVER RD
FOLLETT LN
SHOOP LN
SUNSHINE LN
KIK RD
JOY LN
GLEMM RD
COLUMBIA LN
CULP LN
MCNARY HWY
COUNTRY LN
FIRST PL
PUNKIN CENTER RD
HERMISTON HWY

- General Transit Feed Specification Stops
- General Transit Feed Specification Routes
- Gas Transmission Pipeline
- Hazardous Liquid Pipeline
- Railroad
- Umatilla City Limits
- Urban Growth Boundary

0 1,500 3,000
Feet

N

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3.3 Rail

Union Pacific Railroad operates a local freight rail line through portions of the City of Umatilla. The "Umatilla Turn" connects local manufacturers with Union Pacific's Hinkle Yard and main rail trackage to the south in Hermiston. From Umatilla, the rail line travels south roughly parallel to Umatilla River Road until reaching downtown Hermiston, where the line turns to the southwest and travels towards Union Pacific's main facilities at the Hinkle Rail Yard.

Because the rail line terminates along the banks of the Columbia River at the Port of Umatilla, it is operated as a spur and the frequency of freight trains varies based upon demand. Currently, service is provided on Mondays, Wednesdays, and Fridays during the evening hours. Typically, trains depart Hermiston for Umatilla at approximately 2:30 PM and arrive in Umatilla between 5:00 PM and 8:00 PM, depending on the number of local switching operations in route. The frequency of trains can be increased should shipping demand warrant additional service in the future.

There are six public at-grade rail crossings: Switzler Avenue and Brownell Blvd west of I-82, with Devore Road, Deschutes Avenue and Bud Draper east of I-82 crossing the east-west track and Jones Scott Road crossing the north-south track. There is also a private crossing of Jane Street serving the South Basin Packing parking lot north of US 730.

3.4 Air

No commercial or private aviation facilities are located within the City of Umatilla. Regional freight cargo and air passenger services are provided at the Eastern Oregon Regional Airport in Pendleton, located approximately 35 miles southeast of Umatilla via I-84 and in Pasco, Washington, located approximately 30 miles to the north. Both the Eastern Oregon Regional Airport and the Tri-Cities Airport provide regional passenger air service, connecting to national and international air service at the Portland International Airport and the Seattle-Tacoma International Airport. In addition, the City of Hermiston owns and operates a general aviation municipal airport. Hermiston's airport does not offer commercial flights, but charter service is available, and several local businesses make use of the facility. The airport provides facilities for crop dusting aircraft that serve farmers/foresters in the area.

3.5 Water

The Columbia River borders the City of Umatilla to the north and serves as a means of transportation for both commercial and recreational traffic. The McNary Dam, operated by the U.S. Army Corps of Engineers, is located approximately one mile east of Interstate 82 and serves both commercial barge traffic and recreational boats traveling along the Columbia River past of City of Umatilla.

The Port of Umatilla maintains two marine facilities along the Columbia River. The Umatilla Marina Park, located immediately west of Interstate 82, is located on property owned by the U.S. Army Corp of Engineers, though the marine facilities are operated and maintained by the Port. Approximately 124 slips are available at the marina as well as a boat launch ramp, a fueling dock, a 38-space recreational vehicle parking area, and restroom facilities.

The second marine facility operated by the Port is located on the east side of the McNary Dam and is used for commercial cargo handling purposes. A container terminal (shallow draft/barge dock) at this location is used to transfer containerized frozen potatoes using a 50-ton crane. Weekly barge service is provided to the area for potato shipments and electrical service is available at the docks to support up to 100

refrigerated containers. In addition, Pendleton Grain Growers operate a grain transfer facility and Tidewater Terminal Company operates a tank farm that provides for liquid fertilizer and fuel transfers. The port also serves as a terminal for transferring diesel fuel to a pipeline owned by Kaneb Pipeline Corporation, which in turn supplies Hinkle Rail Yard. The marine facilities at the port have access to rail service provided by Union Pacific, via the "Umatilla Turn."

Although recreational river traffic is generally limited to private vessels operating in the area, river cruise lines call at the Umatilla Marina Park for tourist related activities. Typically, the river cruise ships dock so that passengers can travel to Pendleton or Patterson to partake in regional tourist attractions. The Umatilla Marina Park is not considered a base of operations for the river cruise lines and does not serve as an origin for their trips.

3.6 Pipelines

A four-inch diesel line owned and operated by the Kaneb Corporation and servicing Union Pacific Railroad's Hinkle Railyard originates at the Port of Umatilla and carries fuel south. There is also a gas transmission pipeline that crosses the Columbia River west of the City and turns to the east, crossing the southern part of the City. These pipelines are shown in Figure 3-2.

Chapter 4 - Future Conditions

4.1 Future Population

The Coordinated Population Forecast for Umatilla County produced by Population Research Center at Portland State University indicates a forecast population growth from 7,363 in 2020 to 9,300 by year 2030 and 10,824 by year 2045. This calculates to a rate of 2.36% per year from 2020 – 2030, but an average annual rate of 1.55 percent from 2020 – 2045 for the City of Umatilla.

4.2 Anticipated Development

There has been significant activity and interest for residential and industrial development in the South Hill area off Powerline Road as well as for industrial development towards the east end of the City off Beach Access Road. The City has also recently expanded the Urban Growth Boundary to the south west of Powerline Road as well to accommodate industrial development interest. This expansion also involved changing some of the land use designations in the Comprehensive Plan to industrial uses. A new elementary school is also to be constructed in the South Hill area west of Powerline Road and north of Grant Street. Based on recent activity from developers for both residential and industrial uses, the City of Umatilla staff prepared the map shown as Figure 4-1 that indicates areas of anticipated growth.

4.3 Design Standards

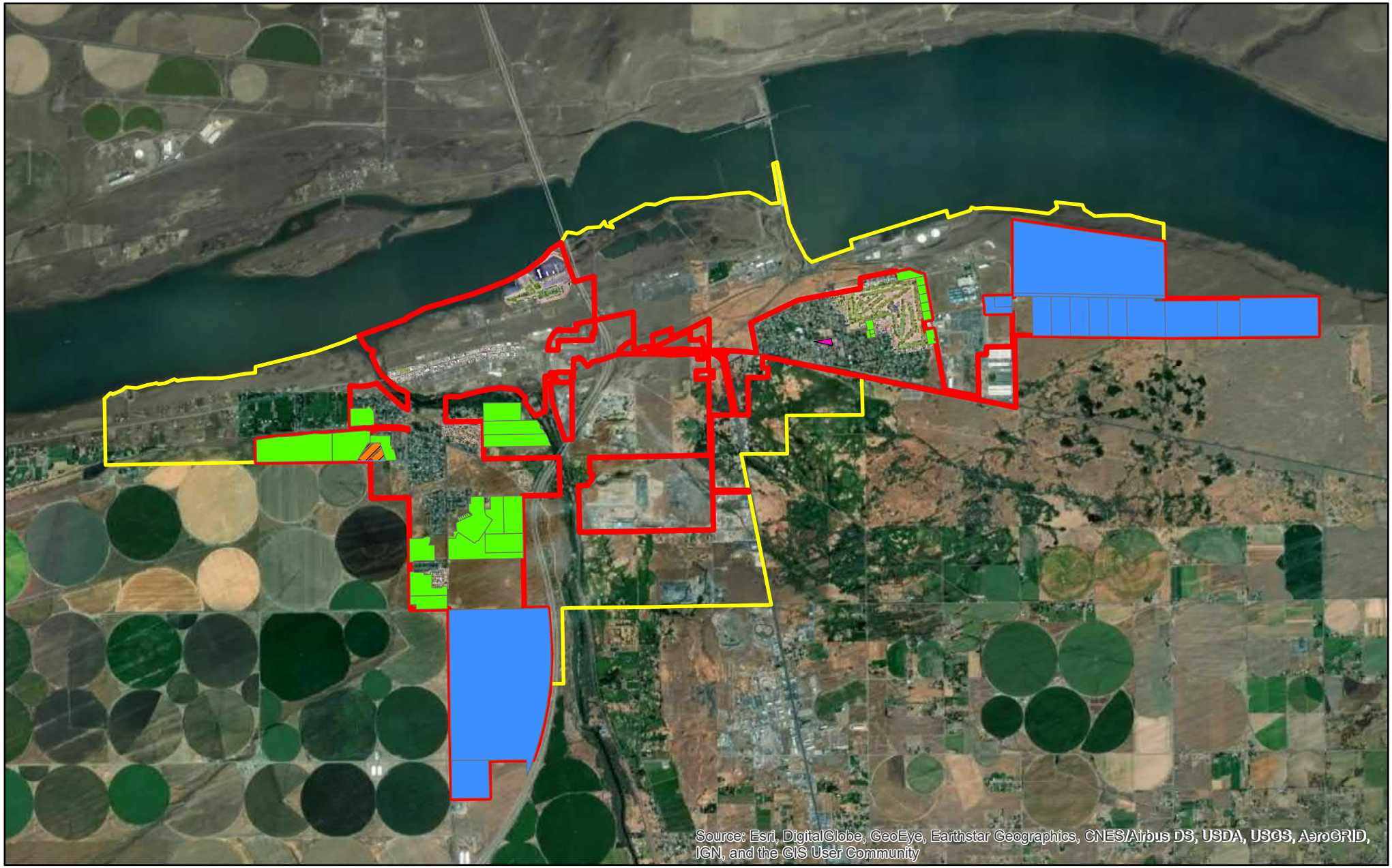
The City of Umatilla has established design standards for public works construction projects that guide the development and redevelopment of roads within the City.

4.3.1 Roadway Design Standards

City adopted design standards are currently being reviewed to remove optional features such as two-way left turn lanes, planter strips, bike lanes and sidewalks to have them apply to appropriate functionally classified roads. The design standards with typical sections for arterial, collector and local streets can be requested from the City Engineer. ODOT has its own design standards as well.

4.3.2 Access Management

Access management is an important tool for maintaining a transportation system. Too many access points along arterial streets lead to an increased number of potential conflict points between through vehicles and vehicles seeking ingress/egress at driveways on the arterial streets. This not only leads to increased vehicle delay and a deterioration in the level of service on the arterial, but also leads to a reduction in safety. Research has shown a direct correlation between the number of access points and collision rates. Experience throughout the United States has also shown that a well-managed access plan for a street system can minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roadways. Therefore, it is essential that all levels of government maintain the efficiency of existing arterial street through better access management. Recommended access spacing are shown in Table 4-1.



ANTICIPATED DEVELOPMENT WITHIN CITY OF UMATILLA

Feet
0 2,000 4,000 6,000 8,000

Legend

- Residential
- Industrial
- New School
- Commercial
- City Limits
- Urban Growth Boundary

N
W E
S

Umatilla
Est. 1862

MAP DISCLAIMER: No warranty is made as to the accuracy, reliability or completeness of this data. Map should be used for reference purposes only. Not survey grade or for legal use.
Created by Jacob Foutz, on 4/14/2022

Table 4-1 Recommended Access Management Standards

Functional Classification	Intersections			
	Public Road		Private Drive[2]	
	Type [1]	Spacing	Type [1]	Spacing
Arterials[3]	4,170	9,830	11,133	gpd/connection
Collector	148	349	583	gpcd
Residential Street	137	323	700	gpcd
Alley (Urban)	5,000	11,787	20,427	gpd/connection

1. For most roadways, at-grade crossings are appropriate.
2. Allowed moves and spacing requirements may be more restrictive than those shown to optimize capacity and safety. Any access to a state highway requires a permit from the ODOT District Office4. Access will generally not be granted where there is a reasonable alternative access.
3. ODOT has statewide standards for specific facilities and for freeway interchange spacing.

US 730 has established specific access spacing standards:

- From the Umatilla River Bridge to I-82 northbound ramp, minimum spacing of public streets is 500, for private driveways is 150, with signal spacing of one-quarter mile.
- From the I-82 northbound ramps to the east city limits is one-half mile spacing for public streets, 500 feet for private driveways and one-half mile for traffic signal spacing.

4.3.3 Traffic Impact Analysis

The City of Umatilla requires a Traffic Impact Analysis be performed for developments that will add more than 250 trips per day to the roadway network. The guidelines for preparation of TIA are included in Appendix F.

4.4 Traffic Volume Forecasts

In order to assess the study intersections for future capacity needs, a 20-year forecast needed to be prepared. Initially, since many of the study intersections were the same as those studied for both the 1999 TSP as well as the 2011 Interchange Area Management Plan (IAMP), a comparison was made of those traffic volumes (both then existing and the forecasted future) to those collected for the preparation of this TSP. Some significant anomalies were noticed, mainly that on US 730, the westbound volumes during the PM peak hour were actually lower than volumes 25 years prior. The TAC discussed potential reasons for why this may have occurred, including changes at the ODOT weigh-station and delay at the northbound I-82 off-ramp and that traffic may be using other routes. Because of this anomaly, this makes using growth rates at each intersection inappropriate.

This forecasting methodology for the TSP study intersections involved the following steps:

1. The City has had multiple residential plats submitted for review on the South Hill that accesses Powerline Road. Also, the Urban Growth Boundary was expanded and rezoned to industrial. This proposed development represents nearly 1000 homes. The studies were done independently during the development approval process. These studies were reviewed to determine the cumulative effect and it was assumed that 25% of the industrial work trips might live in these new homes. These trips were then distributed through the network on US 730 assuming existing traffic patterns and percentages of traffic turning at the various intersections.

2. City staff also indicated that three additional data center type facilities are being pursued that would use Beach Access Road to US 730 at the east end of the City. Existing trips going into and out of Beach Access Road were used to estimate future trips and these trips were distributed to the network using existing traffic patterns and percentages of traffic turning at the various intersections to the west.
3. The ATR data referenced earlier that was used to determine seasonal adjustments was used to determine historical growth rates. Year 2021 data was exceptionally high and was not felt to be representative when looking at historical trends. Year 2020 data appeared to have Covid related travel restriction characteristics. When looking at the 20 years prior, from 1999 – 2019 the growth rate was approximately 1.5% annually. The entering and departing traffic on the state highways displayed that the entering traffic for the study area was increased by this percentage and then volumes between intersections were balanced through the network to reasonably match existing patterns of traffic entering and exiting the network internal to the US 730 corridor.

This methodology was discussed with the ODOT Transportation Planning Analysis Unit. The Oregon Statewide Integrated Model (SWIM) was used, and it was verified that the resulting traffic volumes forecast were similar to those in the SWIM. The resulting traffic volumes for the year 2043 are shown in Figure 4-2.

4.5 Traffic Operations Analysis

Capacity analysis was performed using the PM peak hour traffic volumes (shown in Figure 4-2) and the existing intersection lane configurations. Signal timing adjustments were made to the three existing traffic signals to minimize delay and efficiently use available capacity at the intersections. The results of the analysis are shown in Table 4-2 with Capacity Analysis worksheets included in Appendix G.

Examination of Table 4-2 shows that a number of intersections are anticipated to fall below acceptable standards by the year 2043 if the traffic forecast volumes are achieved. In addition to the I-82 northbound ramp terminal at US 730 and the River Road/US 730 intersection, it is anticipated that the Powerline Road, US 395, Willamette Road and Beach Access Road intersections with US 730 will need improvements in order to serve the forecast traffic volume. The Powerline Road/Madison Avenue intersection will also need improvements. Potential improvements and the timing for them are discussed in the Alternative Analysis chapter along with potential phasing.

Umatilla Transportation Plan

Figure 4-2
2043 Traffic Forecasts

Columbia River

WASHINGTON

OREGON

1 A
35 35
25 20
55 35
STOP

CLINE AVE
82
BROWNELL BLVD
FERRY RD
DEVORE RD
3RD ST
SCAPLEHORN RD
LAUNCHER
RIVERSIDE RD
ROXBURY RD
GRAIN GROWER LN
RIVERSIDE AVE
2ND ST
CHERRY ST
5TH ST
6TH ST
7TH ST
8TH ST
730
RIO SENDA DR
EL MONTE ST
JOHN DAY ST
COLUMBIA BLVD
POMONO DR
CHENOWITH AVE
WILLAMETTE AVE
KLICKITAT ST
YAKIMA ST
WALLA WALLA ST
WENATCHEE ST
LEWIS ST
COWLITZ AVE
PENDLETON AVE
BUD DRAPER DR
BEACH ACCESS RD
EISELE DR
JONES SCOTT RD
UMATILLA RIVER RD
POWER CITY RD
MARGARET ST
LINDRD
WILDWOOD LN
APRICOT LN
POWERLINE
DEAN AVE
CAROLINA RD
MARTIN DR
POWERLINE RD
STEPHENS AVE
TRUMAN AVE
WASHINGTON ST
ORCHARD
MONROE ST
MADISON ST
VAN BUREN DR
PINE TR
PHEASANT RIDGE ST
BLUE JAY ST
CANYON AVE
POWERLINE RD
MCNARY HWY
BONNEY LN
395

13 E
150 430
100 20
25 485
STOP

2 F
455 230
390 475
240 345
STOP

3 F
STOP
25 <5 25
30 770 15
35 825 40
15 5 25
STOP

4 F
665 210
750 145
185 125
STOP

5 C
25 5 165
35 830 5
70 990 15
15 5 55

6 C
465 5 425
900 150
610 90

7 F
415 910
645 660
40 <5 170
STOP

8 F
55 20 10
10 380 610
10 690 420
625 15 335

9 C
STOP
140 5
690
1010

10 F
STOP
200 40
425 270
170 840

11 E
STOP
55 15
15 295
10 950

12 F
STOP
750 135
70 240
15 180

B Level of Service
100 PM Peak Hour Volumes
Lane Configurations
Intersections
Umatilla City Limits
Urban Growth Boundary

0 500 1,000 1,500
Feet

N

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GATEWAY MAPPING INC.
JUB FAMILY OF COMPANIES

Table 4-2 Summary of 2043 PM Peak Hour Delay and Level of Service

Intersection	2043 PM Peak Hour					
	Overall Intersection			Worst Approach		
	Delay	LOS	V/C	Delay	LOS	V/C
1. Brownell/Third (1)	*			NB--9.7	A	0.13
2. Powerline/US 730	*			NB--4717	F	11.18
3. Switzler/US 730	*			SB-- 117.6	F	0.67
4. River Road/US 730	*			NB--1218	F	3.50
5. Brownell/US 730	24.1	C	0.53	SB--38.0	D	0.68
6. SB I-82 ramps/US 730	26.7	C	0.71	SB--37.0	D	0.90
7. NB I-82 ramps/US 730	*			NBL>999, (EBL--160)	F	> 1.0 EBL 1.25
8. US 395/US 730	121.8	F	0.89	NB--142.6	F	1.38
9. Columbia/US 730	*			SB--23.1	C	0.48
10. Willamette/US 730	*			SB--7673	F	17.08
11. Bud Draper/US 730	*			SB--36.8	E	0.44
12. Beach Access/US 730	*			SB--97.3	F	1.17
13. Powerline/Madison(1)	*			EB--40.0	E	0.58

LEGEND

60.8/E -- 0.05 Delay (seconds)/Level of Service and V/C ratio using existing lane configurations

* Uncontrolled Movements (major street through) not provided for overall intersection Analysis for Two-way Stop Controlled Intersections

NB = northbound, SB = southbound, WB = westbound, EB = eastbound

4.6 Future Roadway Network

As growth occurs and the City experiences new residential and industrial development, traffic volumes will increase, and mobility will be impeded. It will be necessary for new roads to be constructed to serve the additional demand and provide opportunities for traffic to move to desired destinations. While new roads are not necessarily prioritized in the Capital Improvement Program, new corridors should be preserved as development occurs. Additional access to the McNary area will be important as volumes on US 730 increase, making it more challenging for McNary residents to get into and out of the neighborhood. Additional access will reduce the impacts and delay at Willamette Street. Figure 4-3 shows the future network for the City with new roads being added to serve where development is anticipated.

With the significant development anticipated on South Hill and the importance of Powerline Road to service traffic into and out of that area, the City is pursuing partnerships with developers and is working on creating desirable cross-sections for Powerline Road. The City is working towards having a two-way left turn lane, sidewalks as well as a separated 10' pathway along the corridor. Phasing of this project is

being developed with current phasing south of Radar Road to improve access to industrial development in the southern portion of the City.

Many of the future neighborhood connections will be constructed by development as it occurs. Others will require a combined effort supported by the city, for instance to coordinate a new canal crossing west of Powerline Road to provide additional access to South Hill will be important to provide secondary access to South Hill. The need for a future canal crossing is recognized by the West Extension Irrigation District. The City should evaluate potential feasible locations and coordinate the preservation of a corridor for future.

The City of Umatilla also recognizes the need to make improvements to roads in the downtown area to serve as detour routes for traffic during local events as well as in times of emergencies or serious injury accidents that may close the road for an extended time. Routes that could be used for the purpose of detours include:

- 3rd Street north of US 730 – This route has the advantage of having a longer connection to the east of I-82. It has the disadvantage of needing to cross the railroad tracks, and it also ends just to the west of Switzler Avenue. The route could be reconstructed and extended further to the west to the Umatilla River in Old Town on the old alignment which has deteriorated to unusable status. If funding could be obtained this would be the ideal solution to serve the greatest need.
- 5th Street north of US 730 – This route is only usable from Switzler west to the Umatilla River. It could be extended a few blocks to the east, but would necessarily terminate due to the railroad tracks.
- 7th Street on the south of US 730 – This route is continuous from the Umatilla River on the west to the railroad tracks on the east. It has shortcomings however, in that it is a narrow road and passes in front of the middle school and high school.

Although not ideal, until funding is obtained to improve 3rd Street and extend it to the west, or if development were to occur, there is an interim alternative. It is possible to use Brownelle Blvd to go north to 3rd Street, west on 3rd Street to Switzler Avenue, north on Switzler to 5th Street and west of 5th Street to A Street to have traffic avoid all of downtown.

It is also important to acknowledge the need for a new Umatilla River Crossing (not shown in Figure 4-3). The City of Umatilla joined a partnership with Umatilla County and the City of Hermiston to study potential crossing locations. The preferred location, as described in the Preliminary Engineers Report, is Punkin Center Road which intersects with Powerline Road just south of the Exit 5 interchange and provides an east-west connection to US 395. This will provide relief to US 395, US 730, River Road and the I-82 Exit 1 interchange as well by providing options for traffic in the area to use less traveled routes to avoid congestion.

Umatilla Transportation Plan

Figure 4-3
Future Road Network

Columbia River

WASHINGTON

OREGON

Future Road Network
- Interstate
- Principal Arterial
- Proposed Principal Arterial
- Minor Arterial
- Major Collector
- Proposed Major Collector
- Minor Collector
- Proposed Minor Collector
- Local
- Umatilla City Limits
- Urban Growth Boundary

0 800 1,600 2,400
Feet

JUB ENGINEERS, INC. | THE LANGDON GROUP | GATEWAY MAPPING INC. | JUB FAMILY OF COMPANIES

Note: Proposed Roadway Alignments are conceptual. Further engineering is required to determine feasible alignment alternatives.

Chapter 5 - Public Involvement

Public involvement is an intentional process used in master planning to provide information to the public and key experts, and to gather and incorporate feedback. This process ultimately helps identify opportunities and challenges and produce a plan that is well thought-out and supported by the community.

As part of the development of the TSP, The Langdon Group (TLG) (a subsidiary of JUB Engineers specializing in public education, facilitation, and community outreach) was contracted to provide professional public involvement services for the transportation system master planning project. TLG's approach is to provide early and continuous public education, reinforce project transparency, build public trust, and support two-way communication between key stakeholders. To best inform the project planning team, TLG used a variety of public involvement methods to gather a comprehensive community perspective. In coordination with the project team and City Staff, the following methods were used:

1. Stakeholder Interviews
2. Technical Advisory Committee
3. Public Open Houses
4. Interactive Online Public Comment Map

An overview of each of these components is provided below. See Appendix H for a comprehensive report on the process and findings for each.

Stakeholder Interviews - Key community members were consulted with the goal of collecting direct feedback from local experts on the challenges and opportunities of Umatilla roadways. In total, 8 interviews were conducted. Main themes of discussion centered around: Expected Local Growth, 730 Corridor and Intersections, Freight Traffic, Support for Roadways and Infrastructure, Safety, Priority Improvements, and Opportunities and Long-Term Projects.

Technical Advisory Committee - A team of key members were identified as a technical advisory committee to guide the planning team in the selection of a preferred alternative. Committee members represented: The City of Umatilla, Oregon Department of Transportation (ODOT), Umatilla County, the Umatilla School District, and the Umatilla Police Department. Two technical advisory committee meetings were hosted.

Public Open Houses - An in-person public open house was hosted in July of 2022, and a virtual public open house was hosted in January of 2023. Updated project information was presented at both of these open houses, as well as the opportunity to provide direct feedback.

Interactive Online Public Comment Map - A web-based public information site was developed and hosted on the City of Umatilla's website. The project site provided information and included an interactive comment map for the general public to leave geo-specific feedback on the current transportation system. five categories of potential comments were provided, and 33+ comments were received for the first open house.

Chapter 6 - Alternatives Analysis

Chapter 4.5 discussed traffic operations with forecast traffic volumes with existing intersection geometries and traffic control and identified locations where Level of Service deficiencies are expected. This chapter discusses alternatives analysis to address the capacity deficiencies at study intersections. There are seven intersections identified in Chapter 4 as having future capacity needs. In the development of alternatives and recommendations for these intersections, consideration was given to the following factors:

- geometric changes such as new lanes to serve high volume traffic movements
- traffic control upgrades
- ability to address the capacity need
- physical impediments where applicable
- queueing where appropriate
- year of capacity failure and potential phasing

As these projects move to the design phase additional detail will need to be evaluated. The capacity analysis for existing and future conditions for this TSP focused on PM peak hour conditions because it is typically the worst case scenario. Prior to design, updated traffic counts should be collected for both the AM and PM peak hours and forecasts should be prepared to ensure that the selected improvement will accommodate both peaks.

It should be noted that the traffic forecasts discussed previously are based on a number of assumptions and the certainty of the forecasts, as always, is unsure. The best information available was used in preparing the forecast, but the economy will determine when and how much of the industrial development will occur, and available housing and housing preference will determine where new residents will live and whether they will choose to live in Umatilla, nearby Hermiston or other nearby communities. Intermediate year traffic forecasts were also prepared for year 2028, 2033 and 2038 using a straight-line interpolation between 2022 and 2043 to determine what year each intersection would need improvements if the forecast traffic volumes are realized. Additional information on intermediate year forecasts and level of Service Worksheets are included in Appendix I.

<u>Powerline Road/US 730</u>

Powerline Road was previously realigned to intersect with US 730 further west of the Umatilla River in order to add capacity and safety improvements to service the increased traffic using Powerline Road to the south. Sight distance was improved as well as incorporating a westbound left turn lane to reduce vehicle conflicts. It is anticipated that traffic volumes will continue to grow.

By year 2028 the intersection will fall below acceptable LOS. Forecast volumes will eventually require an upgrade to traffic control at the intersection. Three alternatives were evaluated:

1. Short term improvements - US 730 has very wide shoulders as well as a wide center median that is not specifically striped to receive a northbound left turn from Powerline Road. If the west leg were restriped to include an eastbound right turn lane and to accommodate northbound left turns into the center two-way left-turn lane (allowing for a two-stage left turn movement), along with an exclusive northbound left turn lane, acceptable LOS and V/C ratio could be provided until at

least year 2028. This upgrade could help improve traffic operations until funding can secure, and design of a more permanent solution can be completed.

2. The City of Umatilla has had discussions with ODOT regarding this intersection and the need for additional capacity. Both entities have agreed that this intersection could be served well by a roundabout. A roundabout was evaluated, and it was determined that a single lane roundabout would serve forecast volumes until at least year 2038 based on the assumptions used in the forecasting process. If the volumes forecast for year 2043 are achieved a second approach lane for the eastbound approach to accommodate right turning vehicles will be needed.
3. A traffic signal was also evaluated at this location. In order for a traffic signal to provide acceptable LOS for the intersection two approach lanes for each of the three legs will be needed to serve each movement, namely: northbound left and right turns, eastbound through and right turns and westbound through and left turns. LOS "C" for the overall intersection would be achieved in year 2043 with V/C of 0.75. This intersection is not likely to meet traffic signal warrants for any condition identified in the Manual on Uniform Traffic Control Devices (MUTCD) except for the Peak hour warrant.

The recommendation for this intersection is to implement short-range striping improvements while funding and design of a single lane roundabout is completed. Design could consider positioning the roundabout such that an eastbound right turn could be added in the longer term future.

Umatilla River Road/US 730

The intersection of Umatilla River Road at US 730 has a westbound left turn lane as well as an eastbound right turn lane. The intersection currently experiences unacceptable delay during the PM peak hour and it is anticipated that traffic volumes will continue to grow. Forecast volumes will eventually require an upgrade to traffic control at the intersection.

Three alternatives were evaluated:

1. Short term improvements – similar to the Powerline Road intersection at US 730, Umatilla River Road also has a wide center median that is not specifically striped to receive a northbound left turn from Umatilla River Road. Elsewhere in the corridor the center lane is striped to function as a two-way left-turn lane. If the west leg were restriped to accommodate northbound left turns into the center two-way left-turn lane, acceptable LOS and V/C ratio could be provided until at least year 2028. By year 2033 separate lanes for the northbound left and right turn movements will be needed as well to provide acceptable LOS and V/C ratios. This improvement could help improve traffic operations until funding can be secured and design of a more permanent solution can be completed.

2. A roundabout was evaluated and it was determined that a single lane roundabout would serve forecast volumes until beyond year 2043 with average vehicle delay being 25.7 seconds for LOS "C". There are challenges with a roundabout at this location because of the limited sight distance caused by the proximity to the railroad overpass to the east. This may be mitigated to some extent by the reduction of speeds as is typical for roundabouts.

3. A traffic signal was also evaluated at this location. A traffic signal added to the existing intersection geometry with a single northbound lane could be expected to provide acceptable LOS for the forecast 2043 traffic volumes with overall LOS "C" and V/C of 0.72. An additional corridor benefit of a traffic signal is that it would create gaps in the mainline flow of traffic that would benefit side street traffic to enter the flow. It would also provide a safe place for pedestrians to cross US 730.

The recommendation for this intersection is to implement short-range striping improvements, without adding a northbound right turn lane while funding and design of a traffic signal can be completed. The traffic signal would be needed prior to year 2033.

<u>I-82/Northbound ramps/US 730</u>

The northbound I-82 off ramp currently experiences unacceptable delay, with over 200 seconds of average vehicle delay and V/C ratio greater than 2.0 during the PM peak hour. At some point in the future the delay for the eastbound left turn will also rise to unacceptable levels as noted in Table 4-2. The intersection needs a higher level of traffic control such as a traffic signal or roundabout. Of extreme

importance at this location is the proximity of the nearby traffic signals to the west at the I-82 southbound ramps and the intersection of Brownell Blvd which are so close together at 160' that they function as a single traffic signal. The distance between the I-82 northbound and southbound ramps is 400'. The current lane configuration east of Brownell Blvd is two through lanes in each direction with a center two-way left-turn lane (TWLTL). Between the ramps the TWLTL functions as back-to-back left turn lanes, meaning that the queues in each direction use the same space. Left turning traffic in the eastbound direction often backs up using most of the storage space which causes westbound left turning traffic to be stopped in the westbound through lanes. Another of the traffic operations challenges by users is that with the weigh station in close proximity to the west there is significant truck traffic using the interchange that can quickly use up storage space for stacking vehicles waiting their turn. The second westbound through lane also is reduced to one lane about 400' west of Brownell Blvd.

The proximity of the traffic signals to the west do not lend themselves particularly well to installing a roundabout at the northbound ramps. The following traffic signal alternatives were considered:

1. Install a traffic signal with no additional lanes. A new traffic signal has been recommended by other studies, including the 1999 TSP and the 2011 IAMP, but would still require ODOT approval. The addition of a traffic signal will accomplish at least two things from a traffic operations perspective: 1) it will create or force gaps in traffic on US 730 in order to reduce delay for the northbound entering traffic, particularly the northbound left turn, and 2) it will better manage queue lengths between the northbound and southbound ramps. It will also improve safety for pedestrians and bicyclists using the interchange as well as for both the northbound left turns and the eastbound left turns that must currently cross two lanes of westbound traffic without the aid of a traffic signal. The addition of a traffic signal is anticipated to provide acceptable LOS and V/C until at least year 2033 without having queue storage issues between the ramps. It is anticipated that as the traffic volumes rise that combined eastbound and westbound left turn queues will exceed 400' by year 2038. Signal timing adjustments may shorten queues for a longer period of time, but the signals can work together to help manage stacking.
2. To better accommodate traffic volumes in 2038 and beyond additional lanes were considered along with the traffic signal. The high westbound right turn volume of 470 vehicles exceeds that of the through volume of 440. By year 2043 these volumes are forecast to grow to 660 through

vehicles and 645 right turn vehicles. The need for a westbound right turn lane is clear. The provision of a right turn lane will improve traffic operations at the intersection to acceptable LOS and V/C, however combined eastbound and westbound queue lengths between the ramps are forecast to use the entire 400' available. There is a graphic in Appendix I that shows the lane configurations for this alternative.

3. Other lane configurations were also tested to determine if lanes could be used more efficiently to reduce queue lengths, and to also provide future options that could be considered when AM traffic volumes are evaluated at the design stage as well. Given the constraints between the ramps that are caused by the bridge structure it was felt best to not add lanes unless absolutely necessary. Given the high eastbound left turn volume conflicting with the westbound through movement a second eastbound left turn was added to reduce the amount of green time in the signal cycle needed by that movement. For this alternative one eastbound through lane would be converted to serve as a second eastbound left turn lane, this eastbound would require a second receiving lane for the northbound on-ramp. This would be in addition to constructing an exclusive westbound right turn lane at the northbound ramps, similar to Alternative 2. It was found that with this lane configuration although delay can be acceptable the V/C ratio for this intersection is high at 1.08. A single eastbound through lane would cause eastbound queues to spill back through the southbound ramps.
4. With nearly equal volumes of traffic westbound that turn right and going straight, the idea of constructing a new lane for right turns and using the existing five lanes across US 730 as only one lane for westbound, two eastbound left turns and two eastbound through lanes. Delay for this alternative is acceptable as well as V/C ratios, so this alternative serves better than Alternative 2 in accommodating the traffic volumes forecast for year 2043. The westbound queue at the southbound ramp is longer than the available storage length and thus some vehicles would necessarily have to wait through two signal cycles at the northbound ramps. One geometric feature that is worth noting in this area is that the westbound lanes narrow to a single lane to the west under existing conditions. There is a graphic in the Appendix I that shows the lane configurations at for this alternative as well.

The recommendation for the intersection of the I-82 northbound ramps at US 730 it to install a traffic signal with the addition of an exclusive westbound right turn lane. It is possible to phase this project to add the westbound right turn lane at a later time since it appears that traffic volumes through year 2038 can be adequately served until that time.

US 395/US 730

The intersection of US 730/US 395 currently experiences overall vehicle average delay of 53 seconds with LOS "D". The worst movement being the westbound left turn is over 95 seconds of delay and uses all of the available storage space (220') during the PM peak hour. ODOT has a project underway that is evaluating new signal timing for the signal to improve traffic operations as is the standard practice. It is anticipated that adjustments to signal timing may continue to provide acceptable LOS for the intersection to year 2028. However, beyond year 2028 it is anticipated that physical improvements to the intersection will be required.

The alternatives evaluated at this intersection to accommodate heavy westbound left turns, westbound through and northbound left turn movements include:

1. A minimal improvement option was tested that would convert one of the westbound through lanes to a be a second westbound left turn lane, and add northbound right turn lane that could avoid relocation of the existing signal pole in that quadrant and allowed the existing two northbound lanes to serve have a dual left turns. Although this intersection configuration does reduce the overall delay and V/C and shortens the westbound left turn queue, it does not achieve acceptable traffic operations.
2. In order to achieve acceptable LOS and V/C at this intersection a second exclusive westbound left turn lane and a second northbound left turn lane will be required after year 2028. In order to accomplish this a second southbound receiving lane south of the intersection will need to be constructed that as well will need to be at least 350' in length and will also need to accommodate an acceptable merge for the eastbound right turn which currently has its own receiving lane as well. This will likely impact other improvements being considered by the City that may include a fountain feature on the island in the southwest quadrant. Storage length for the two new left turn lanes should be at least 400'.

The recommendation at the intersection of US 730/US 395 is to add a second northbound left turn lane, a second westbound left turn lane and a second southbound departure lane to receive the two westbound left turn lanes. The eastbound right turn lane should be modified at its connection to accommodate a safe merge area for southbound vehicles. This improvement will be needed in the 2028 – 2033 timeframe.

Willamette Street/US 730

Willamette Street currently has a single approach lane to US 730. It has high delay but some available capacity during the PM peak hour at V/C ratio of 0.76. By year 2028 the V/C will reach 0.97 and need improvements. With a single access from US 730 into the McNary neighborhood and the increase in traffic volumes in both directions on US 730 it is anticipated that the eastbound left turn will also experience poor delay and V/C ratio.

Several alternatives have been evaluated and are described briefly below that include improvements at the intersection as well as new access to provide opportunities to shift traffic patterns to reduce delay without the need for a traffic signal.

1. Initially improvements to the southbound approach of Willamette Street to provide an exclusive southbound left turn lane. This will help conditions until between 2028 and 2033.
2. The intersection of Columbia Boulevard is currently outbound lanes only from the neighborhood. There has been some reservation to allow inbound traffic due to the lack of an exclusive eastbound left turn lane for traffic to wait for gaps in westbound traffic. This improvement alone could significantly reduce delay for the eastbound left turn traffic at Willamette Street by relocating up to half of the left turning vehicles. This will be a challenging improvement, due to physical constrains with existing development on the south side of US 730. This improvement would be best approached through coordination with improvements to the westbound US 730 improvements needed at US 395 described above.
3. Another access that can reduce delay, especially for southbound left turns is to provide new access by extending Walla Walla Avenue east of the current terminus to connect to Bud Draper Road. This approximately 400' connection would provide new opportunities to connect to the industrial development to the east. This improvement needs to be coordinated with other City improvements to Hash Park on the northwest corner of US 730 and Bud Draper Road.
4. An additional access opportunity for the McNary neighborhood is to connect Riverside Avenue north of the golf course to Roxbury Road or Bud Draper Road. The new length of road may be between 500 - 1000' due to some topographical challenges to bring Bud Draper Road, Roxbury Road and Riverside Avenue together while creating a safe intersection. This in turn would give access to Bud Draper Road as well as Beach Access Road.

The recommendation to improve traffic operations at the intersection of Willamette Street/US 730, rather than install a traffic signal, is to construct intersection improvements that would provide two lanes for the southbound approach, one for right turns and one for left turn movements. Secondly, at the time of

improvements to the US 395 intersection to the west that are discussed above and recommended to occur between 2028 and 2033, improvements to the intersection of Columbia Boulevard should be made to safely accommodate eastbound left turns into the McNary neighborhood. The City should also pursue the extension of Walla Walla Avenue, a relatively short connection to the east. The Extension of Riverside Avenue to connect to either Bud Draper Road or Roxbury Road should also be investigated as it could provide a significant alternate route for the McNary neighborhood to access the anticipated industrial development to the east.

Beach Access Road/US 730

Beach Access Road currently functions with acceptable LOS. Without improvements, by year 2043 with the forecast traffic volumes it is anticipated that there will be nearly 2 minutes of average vehicle delay for the southbound right turn, even with the existing exclusive right turn lane. Between year 2033 and 2038 it is anticipated that improvements will be needed. Alternatives considered include:

1. Converting the westbound right turn lane to a westbound shared through and right turn lane by adding a departure lane that could be used by southbound right turns. This would improve the delay for a number of years. Extension of the southbound right turn storage would be needed as well.
2. Similar to Alternative 1, add a westbound departure lane that would not be used for westbound through vehicles, but would only be used for the southbound right turns, essentially making this movement a free-flow right turn. The southbound right turn storage would need to be increased as well. The length of the departure lane should be at least 1000' to allow vehicles to accelerate to highway speed and merge with the through traffic. There is a driveway 1000' to the west and improved safety would be to extend the acceleration lane further to the west. 2000' west is where the right turn lane at Bud Draper Road begins.
3. With the high peaking demand associated with the industrial development it may be possible for alternate work schedule departure times to be adjusted to spread out the traffic demand which would contribute to the solution for this intersection.
4. Other improvements discussed above for access to the McNary neighborhood could alleviate the demand for the southbound right turn by giving other travel route opportunities for westbound destined trips.

It should be noted that if these improvements do not completely solve the traffic operations issues, there is another meaningful opportunity to lengthen the additional westbound lane further west to connect to the existing section of US 730 that has four lanes, essentially extending the four lane section east to begin at Beach Access Road. The length of this project would be approximately 4300'.

The recommended improvement for the intersection of Beach Access Road is to increase the storage length for the southbound right turn to at least 400' between 2033 and 2038, and monitor the traffic growth as the industrial development occurs to determine the need for additional westbound capacity on US 730 west of Beach Access Road.

Powerline Road/Madison Road

At the Powerline Road/Madison Avenue intersection it is anticipated that traffic operations will function acceptably to beyond year 2038 with the current stop controlled condition and single lane approaches. As discussed earlier, the City is planning to add a center two-way left-turn lane on Powerline Road for safety and capacity. In addition to these improvements separate lanes for both the eastbound left and

right turns as well as a southbound right turn lane will improve the capacity sufficient to allow eastbound vehicles to recognize gaps in the traffic flow such that acceptable Levels of Service will be provided at LOS "C".

A roundabout or a traffic signal were briefly considered to serve the intersection, but given the cost of such improvements it is recommended that in the long term the eastbound left and right turn lanes and be incorporated with other improvements on Powerline Road when that road is improved. A southbound right turn lane should be considered as well if updated traffic forecasts indicate the need.

Chapter 7 - Pavement Management

7.1 Current Pavement Management Practice

The City of Umatilla maintains all roads within the City limits with the exception of I-82, US 730 and US 395. There are approximately 48.5 miles of paved roadways. The City has not developed a formal Pavement Management Plan (PMP) but does perform pavement maintenance and management on an annual basis through visual assessments, conducting surface treatments, and capital improvements. The City's current maintenance and tasks include:

- Regularly cleaning out roadside borrow pits.
- Identifying roadways in need of maintenance through visual observations.
- Crack sealing in early spring in preparation for early fall chip sealing.
- Replacing pavement as a part of planned capital improvement projects.
- Collaborating with other jurisdictions to reduce costs.

Currently, the schedule and available budget accommodates around X miles of chip seal treatment each year, resulting in each section of paved roadway being treated once every 20 years.

7.2 Pavement Management Principles

Those responsible for determining appropriate allocation of public funds to various programs and projects have a difficult job indeed. With limited funding they must determine the amount of funds to distribute to numerous worthwhile endeavors such as schools, law enforcement, human services, transportation and other public works activities, and other public functions that ensure the health and general welfare of the populace. Likewise, Public Works departments have similar challenges on a more focused agenda to balance budgets with needs.

Many different activities compete for the same funding sources. Knowledgeable professionals make the best decisions they can with available information. Sometimes emergencies arise created by natural events that require adjustments to previously planned programs for addressing public works needs and projects.

In order to make the best decisions possible for the maintenance and preservation of a roadway network, a Pavement Management System (PMS) can be extremely valuable. A PMS may be very complex with sophisticated computer models, or may be done primarily by hand. Pavement and roadway condition data are essential to make the best use of available funds. A PMS empowers the governing agency with a systematic approach to performing budget analysis and deciding what repair strategies are most appropriate for which roadways in order to efficiently use available funds.

A PMS typically entails 5 steps that are repeated as necessary every two to three years:

- Mapping (GIS) Road Network
- Pavement Condition Inventory
- Identify Maintenance & Repair Needs
- Analyze repair strategies and establish annual funding levels
- Implement annual program.

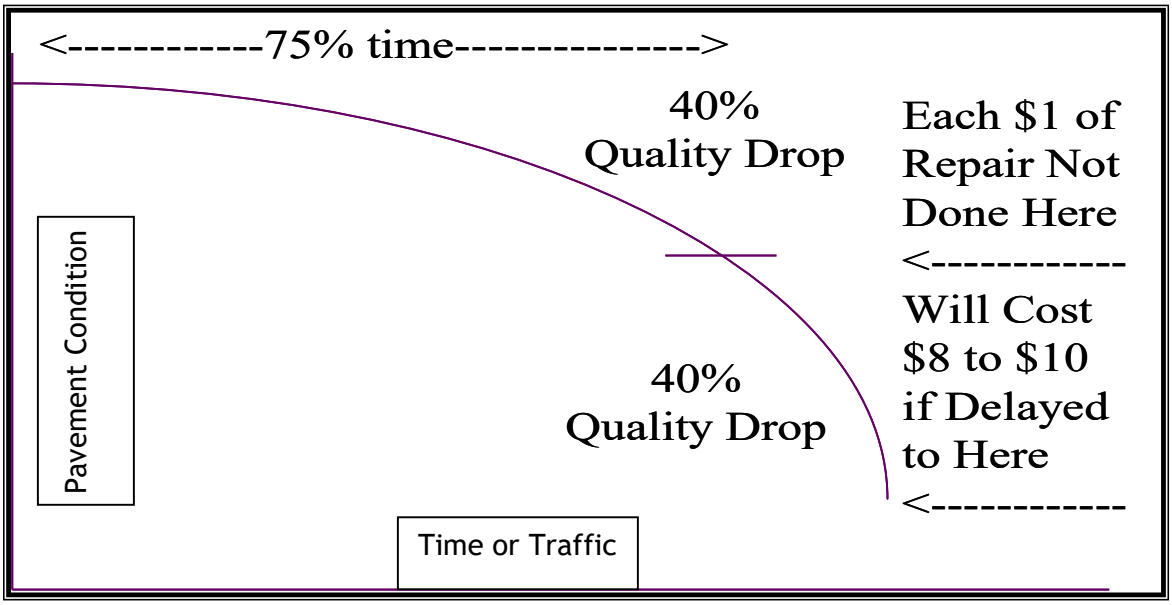
A systematic procedure should be used each cycle to collect pavement condition inventory information. This provides an up-to-date inventory for better decision making and allows pavement performance to be tracked over time. Several different types of pavement distress can occur, each with different types of potential repair strategies. Often a computer program is used to determine the Remaining Service Life (RSL) for each roadway segment based on the governing distress (the distress that results in the lowest RSL). The RSL represents the years remaining until complete failure of the roadway surfacing. Complete failure occurs when a road segment has an RSL value of 0 and reconstruction of the road section (pavement, base, etc.) is required since the road segment has deteriorated to a point that other repair strategies would not be beneficial. The road is passable, but the surface is possibly turning to gravel, extreme fatigue is visible, sections of pavement may be detached or appear to be islands on the base material.

By evaluating the RSL distribution for the road network, allocation of funds to the appropriate repair strategies can begin. It is important that the repair strategy is focused on the goal of maintaining an average system RSL of 10-12 years which represents a level that can be reasonably sustained.

The goal of the analysis is to determine the best distribution of funds, among the available repair strategies, that should be completed each year to produce an average system RSL of 10 to 12 years at the least cost. Failure to maintain pavement at the necessary levels results in a decrease in the RSL and a correspondingly greater future cost to increase the average RSL to the desired level. Figure 7-1 emphasizes the importance of routine roadway maintenance activities prior to severe deterioration of pavement condition.

Repair strategies are chosen based on the condition of the road segment. Road surfaces RSL will dictate the repair strategy that should be used. Each repair strategy has multiple repair methods. The repair method used to implement a repair strategy should be based on the standard practices of the City/County. A new strategy is prepared for a two year period and updated to re-evaluate the pavement condition every two years thereafter. There are five generally accepted repair strategies explained below.

Figure 7-1 Typical Pavement Deterioration Curve



Deferred Action is always a viable option when developing a repair strategy. Most road networks will include a wide spectrum of RSLs for individual road segments. For the first few years after original construction, roadways should require very little maintenance. Likewise, when road segment RSLs becomes less than 3, routine and preventative maintenance will no longer improve the RSL. Reconstruction becomes the only alternative that will improve the RSL for road segments that have deteriorated to this stage. Reconstruction costs are very high and often not available in the maintenance funds, therefore maintenance for certain roadways will be deferred until adequate funds are available to produce beneficial results that improve the road network system as a whole.

Routine Maintenance is usually driven by existing defects in the road surface. This maintenance can be used to prevent further deterioration of the roadway. Road segments that have RSLs greater than 7 to 10 years can benefit from routine maintenance. Examples of possible routine maintenance treatment alternatives include: crack sealing, cold patches, dig-out and cold patch, and fog coating.

Preventative maintenance is used to stop the deterioration on roadways before the surface distresses become a serious problem. This strategy provides the most benefit to a roadway if implemented before the RSL is below 7. Examples of possible preventative maintenance treatment alternatives include: sand seal, scrub seal, single chip seal, slurry seal, micro-surfacing.

Rehabilitation includes repair alternatives such as overlays and recycling. This strategy should be reserved for road surfaces that have a RSL between 1 to 7 years. The implementation of this strategy can require intense scheduling and will require allocation of a significant portion of the budget. his strategy should be reserved for road segments that fit into a major planning scheme. A possible candidate for such a strategy would be a road segment that is bordered by a newly constructed portion of that road and improving the segment would increase the overall performance of the road. Examples of possible

rehabilitation strategy treatment alternatives include: plant mix seal, thin hot mix overlay <2in., hot surface recycling, rotomill and overlay.

R**econstruction** includes repair alternatives such as complete removal and replacement of a failed pavement section. Improving the road horizontal and vertical alignment, guard rail and drainage are all elements of a reconstruction strategy. This strategy will require considerable funding and lead time to allow for proper design. Reconstruction of a road segment is going to increase the RSL to nearly 20 years. Therefore, this strategy is reserved for roads that are at the end of their design life. Examples of possible reconstruction strategy treatment alternatives include: Thick Overlay (3 inch depth), Rotomill & Thick Overlay, Base Repair with Pavement Replacement, Cold Recycling & Thick Overlay, or Base and Pavement Replacement.

Table 7-1 displays the benefit different treatment strategies provide in increased RSL over the existing roadway segment RSL along with a comparison of the order of magnitude for typical material costs for such treatments. For each treatment type, the treatment improves the RSL of a segment based on the segments current condition. As an example, crack sealing adds no additional life to a pavement that has a RSL of 9 or less. Above 9, crack sealing adds from 1 to 4 years, depending on the current pavement condition. Another example is chip sealing. Chip sealing is one of the most widely used preventative maintenance treatments. Chip sealing roads with RSL of 7 or greater increases the roadway RSL by 5 years. However, applying a chip seal to a road with a 4 to 6 RSL only adds 3 years, and applied to a road with a 1 to 3 RSL only adds 1 year. It can be seen that applying chip seals to roads with RSLs of 6 or less is not a cost effective approach.

Table 7-1 Typical Pavement Treatment Costs and Increased Remaining Service Life

Maintenance Type	Treatment Type	Comparative Cost to Crack Seal	Benefit of Treatment (in yrs.) Based on Existing RSL							
			0	1-3	4-6	7-9	10-12	13-15	16-18	19-20
Routine	Crack Seal	1	0	0	0	0	1	2	3	4
Preventative	Single Chip Seal	4	0	1	3	5	5	5	5	5
Rehabilitation	Thin Hot Mix Overlay (<2”)	15	0	4	6	7	7	7	7	7
Reconstruction	Thick Overlay (3”)	20	12	12	12	12	12	12	12	12
Total Reconstruction	Base & Pavement Replacement	50	20	20	20	20	20	20	20	20

Chapter 8 - Capital Improvement Plan

The Capital Improvement Plan (CIP) is comprised of projects identified in both Chapter 4 that discusses the future Roadway Network, as well as recommended projects from Chapter 6 Alternatives Analysis. These capital Improvement Projects would be in addition to regular pavement maintenance activities. Projects identified in the Trails Master Plan should be considered as well and incorporated into the overall CIP for the City. Table 8-1 summarizes the CIP projects that are shown in Figure 8-1. These projects have not been prioritized however, the year of need for projects was discussed in the Alternatives Analysis. Funding will need to be secured in order to proceed with design and right-of-way acquisition.

Table 8-1 Summary of Capital Improvement Projects

Project Location	Description	Timeframe
Powerline/US 730	1. Use striping to create additional westbound departure lane 2. Install single lane roundabout	2023 2028
River Road/US 730	1. Use striping to create additional westbound departure lane 2. Install traffic signal	2023 2028- 2033
I-82 Northbound ramps/US 730	Install traffic signal, with exclusive westbound right turn lane	2023-2028
US 395/6th (US 730)	Add 2nd northbound left turn lane and 2nd westbound left turn lane with southbound receiving lane	2028-2033
Columbia/6th (US 730)	Add eastbound left turn lane and widen north leg to allow one inbound lane and a southbound right turn lane and left turn lane (make full access)	2028-2033
Willamette/6th (US 730)	Add southbound left turn lane	2028-2033
Beach Access/6th (US 730)	Extend Storage for southbound right turn lane.	2038-2043
Powerline/Madison	Add eastbound left turn lane and southbound right turn lane.	2038-2043
Powerline Widening - Phase 1	Widen Powerline Road south of Radar Road 1.07 miles to include two-way left-turn lane and 10' bike path	2023 - 2028
Powerline Widening - Phase 2	Widen Powerline Road south US 730 to include two-way left-turn lane and sidewalks on both sides	2023 - 2028
Walla Walla Road Extension	Construct Walla Walla Road eastward to connect to Bud Draper Road	2028 - 2033
Riverside Road Extension	Construct Walla Walla Road eastward to Connect to Roxbury Drive or Bud Draper Road	2028 - 2033

Umatilla Transportation Plan

Figure 8-1
Capital Improvement Projects

Capital Improvement Projects
- Intersections
- Existing Roads
- Proposed Roads
- Umatilla City Limits
- Urban Growth Boundary

0 1,300 2,600
Feet

JUB ENGINEERS, INC. | THE LANGDON GROUP | GATEWAY MAPPING INC.
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Chapter 9 - Implementation Plan

9.1 Implementation Overview

In order to successfully implement projects identified in this Transportation System Plan, available funding opportunities should be monitored on an annual, bi-annual, or quarterly basis. During the annual budgeting process, the City should update the overall CIP and determine which projects will be implemented in the budget cycle and include details such as potential funding sources, match requirements, etc.

9.2 Grants and Funding

Transportation funding programs are enabled through the passage of the Fixing America's Surface Transportation (FAST) Act. For purposes of providing baseline information about potential grants and funding programs, a brief description of funding sources available through the current transportation bill is provided below.

- **Local Highway Safety Improvement Program (LHSIP) —** Local jurisdictions can receive funding through Highway Safety Improvement Program and LHSIP to assist in phasing out Type A crashes from roadway systems; Local Highway Jurisdiction's with at least one Type A crash in the last five years are eligible. Notification of qualification occurs each fall to begin application process. The application requires a local match not to exceed 7.34 percent.
- **Federal-Aid (STP Urban)** — Surface Transportation Program (STP) Urban funds are allocated for projects in urban areas with populations greater than 5,000 and less than 50,000 as determined by the US Census Bureau. Current urban areas are based on the 2020 census. Funds may be used for a new or updated Transportation Plan encompassing the entire urban area. The local match requirement is 7.34 percent.
- **Bridge Federal-Aid** — This program provides funding for rehabilitation or replacement of bridges and limits one project application per year per jurisdiction. The bridge must be longer than 20 feet and carry a public road, have a sufficiency rating of less than 50 percent for replacement and less than 75% for rehabilitation, and be classified as structurally deficient. Funds are administered by ODOT and requires a 7.34 percent match.
- **Transportation Alternatives Program (TAP)** — A maximum of $500,000 is available and these funds are eligible for projects including pedestrian and bicycle facilities, community improvements, recreational trails, etc. These set aside funds are administered every year.
- **US DOT Rebuilding American Infrastructure with Sustainability and Equity (RAISE)** — The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Transportation Discretionary Grant program, provides a unique opportunity for the DOT to invest in communities across the country that are in need of transportation projects that create jobs, improve safety, protect the environment, and generate equitable economic opportunities for all Americans. Previously known as Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grants, Congress has dedicated nearly $7.9 billion for eleven rounds of National Infrastructure Investments to fund projects that have a significant local or regional impact. For rural areas, there is typically a minimum

grant amount of $1 million for construction projects and no minimum match requirement. In order to be competitive, a minimum match of 20 percent is recommended. The Notice of Funding Availability (NOFA) typically comes out in February each year with an application due date in late-April.

- **Safe Routes to School** - refers to efforts that improve, educate, or encourage children safely walking (by foot or mobility device) or biking to school. ODOT has two main types of Safe Routes to School programs: infrastructure and non-infrastructure. Infrastructure programs focus on making sure safe walking and biking routes exist through investments in crossings, sidewalks and bike lanes, flashing beacons, and the like. Non-infrastructure programs focus on education and outreach to assure awareness and safe use of walking and biking routes. ODOT manages funding competitions for both infrastructure and non-infrastructure programs at the annual levels of $10 million (increasing to $15 million in 2023) and $300,000 respectively.

9.3 Implementation Strategies

Attend annual ODOT grant and funding workshops and federal funding webinars. Funding workshops are typically held annually or periodically to educate eligible applicants on upcoming funding opportunities, scoring criteria, and program changes. This will help the City establish and maintain a solid knowledge base on the availability and status of various state and federal grant and funding programs.

The City should update relevant/pertinent sections of this overall plan every five years, or as projects are completed or priorities change. This will keep information up-to-date and help the City qualify for grant funding (by having an up-to-date plan versus an out-of-date plan), and provide guidance as development is proposed.

Contact Funding Agencies Early and Often, Well Before the Deadline

It is good practice to inform funding agencies of a potential upcoming project well in advance of a grant application deadline. If an agency desires to submit a grant application that is due in the fall or winter, it is recommended that City staff contact funding agencies as early as the beginning of the year. Grant agency staff can offer invaluable advice on how to put a successful application together as well as specific ideas about a project.

Project Development / Neighboring Agency Coordination

For projects the City wants to implement in the near future, it is recommended to identify next steps. A typical next step toward implementation would involve taking a project from the planning phase to the project development phase. Depending on the type and location of the project, project development may involve site investigation, survey, environmental evaluation or a specific study, etc. For projects that abut neighboring jurisdictions, the City should work closely with the affected agency to determine the next step to move the project forward.

Project Follow-Up

Stakeholders provided significant input into this Plan. It is important to maintain ongoing communication with one another, as well as with the public as the Plan is implemented. Demonstrating projects that were completed is important for continued and future support of the Plan and its objectives. Forms of communicating with the public may include press releases, newsletters, social media, web links, etc.

Appendix A Summary of Related Plans

Appendix B Pavement Data

Appendix C Traffic Count Information

Appendix D Existing Conditions Capacity Analysis Worksheets

Appendix E Details on Trails Plan Projects

Appendix F Traffic Impact Analysis Guidelines

Appendix G 2043 No-Build Capacity Analysis Worksheets

Appendix H Public Involvement Information

Appendix I Interim Traffic Forecasts and 2043 Build Scenario Capacity Analysis Worksheets