

City of Winslow PARA North-South Transportation Plan

Task Assignment MPD 23-10

April 30, 2012



HDR



This page intentionally left blank.

Table of Contents

1.0	Introduction	1
1.1	Study Area Characteristics.....	1
1.2	Community Outreach.....	3
1.3	Key Issues.....	3
2.0	Previous and Current Studies	5
3.0	Existing Transportation System Conditions	7
3.1	Key Study Area Roads.....	7
3.2	Road Functional Classification.....	8
3.3	Existing Traffic Conditions	10
3.4	LOS Analysis.....	12
3.5	Bridges and Structures	14
3.6	Crash Data Analysis	16
3.7	Transit.....	25
3.8	Non-Motorized	26
4.0	Land Use and Socioeconomic Conditions.....	27
4.1	Land Use.....	27
4.2	Title VI and Environmental Justice	30
4.3	Traffic Analysis Zones	32
4.4	Population and Housing	32
4.5	Employment.....	35
4.6	Population and Employment Growth Projections.....	37
5.0	Future Transportation System Conditions.....	40
5.1	Planned Study Area Improvements	40



5.2	Traffic Assignments.....	43
5.3	Network Deficiencies.....	43
5.4	Circulation System Improvement Needs.....	43
5.5	Transit and Non-Motorized Transportation.....	45
6.0	North–South Railroad Crossing Evaluation	46
6.1	Railroad Crossing Evaluation Criteria	47
6.2	Coopertown Bypass - West Winslow Industrial Spur	47
6.3	Transcon Lane Alternatives	50
6.4	Williamson Avenue (SR 87) Underpass	56
6.5	Leupp Traffic Interchange (Junction I-40/SR99)	57
6.6	New West Winslow Traffic Interchange	59
6.7	Traffic Interchange Connection Alternatives.....	59
6.8	Railroad Crossing Evaluation.....	59
6.9	Recommended Railroad Crossing Priorities	63
7.0	Implementation Plan.....	65
7.1	Roads	65
7.2	Public Transit	71
7.3	Sidewalks, Trails, and Paths.....	73
8.0	Transportation Revenue Sources.....	76
9.0	Policies and Guidelines.....	81
9.1	Typical Road Cross Sections	81
9.2	Access Management.....	83
10.0	Conclusion	85



List of Appendices

Appendix A Environmental Scan

Appendix B Improvement Cost Estimates



List of Figures

Figure 1	Study Area and Influence Area Map.....	2
Figure 2	Road Functional Classification.....	9
Figure 3	Road Lanes	11
Figure 4	Current Traffic Conditions	13
Figure 5	Bridges and Structures	15
Figure 6	Number and Severity of Crashes by Year.....	17
Figure 7	Crash Types.....	19
Figure 8	High Crash Locations	24
Figure 9	Land Ownership	28
Figure 10	Future Land Use Map	29
Figure 11	2006 Estimated Population Density by TAZ.....	34
Figure 12	2006 Estimated Employment Density by TAZ.....	36
Figure 13	2030 Estimated Population Density by TAZ.....	38
Figure 14	2030 Projected Employment Density by TAZ	39
Figure 15	Planned Improvements - 2030 Traffic Conditions.....	44
Figure 16	North–South Railroad Crossing Alternatives	49
Figure 17	Transcon Lane Crossing Option 1	52
Figure 18	Transcon Lane Crossing Option 2	53
Figure 19	Transcon Lane Crossing Option 3	54
Figure 20	Transcon Lane Crossing Option 4	55
Figure 21	Leupp TI BNSF Crossing Options.....	58
Figure 22	Road Improvement Needs.....	69
Figure 23	Public Transit Improvements	72
Figure 24	City of Winslow Trails and Paths System	75
Figure 25	Road Cross Sections.....	82



List of Tables

Table 1	Crash Locations	16
Table 2	Fatal Crashes	18
Table 3	Crashes by Collision Type	19
Table 4	Crashes by Environmental Conditions	20
Table 5	Crash Types at High Crash Intersections	21
Table 6	High Crash Segments	22
Table 7	Title VI and Environmental Justice Population Percentages, Winslow, Navajo County, and Arizona	31
Table 8	Occupied Housing	33
Table 9	Civilian Employment by Industry	35
Table 10	Population and Employment Growth Projections	37
Table 11	Programmed and Planned Transportation Improvements	41
Table 12	Annual Transit Trip Rates for Select Demographic Groups	45
Table 13	Railroad Crossing Evaluation Summary	60
Table 14	Railroad Crossing Evaluation Summary Ranking	62
Table 15	Road Improvement Needs	66
Table 16	Non-Motorized Trails and Paths System Needs	74



Acronyms and Abbreviations

ADA	Americans with Disabilities Act
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADT	average daily traffic
APTNA	Arkansas Public Transportation Needs Assessment
ARRA	American Reinvestment and Recovery Act
ASLD	Arizona State Land Department
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
CIP	Capitol Improvement Program
CMAQ	Congestion Management and Air Quality
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FY	fiscal year
HCM	Highway Capacity Manual
HDR	HDR Engineering, Inc.
I	Interstate
ITE	Institute of Transportation Engineers
LOS	level of service
L RTP	Long Range Transportation Plan
NCCRTS	Navajo County Central Region Transportation Study
NACOG	Northern Arizona Council of Government
NEPA	National Environmental Policy Act
NHTSA	National Highway Transportation Safety Administration
NHPA	National Historic Preservation Act



Acronyms and Abbreviations

NRHP	National Register of Historic Places
PARA	Planning Assistance for Rural Arizona
SR	State Route
TAC	Technical Advisory Committee
TAZ	traffic analysis zone
TI	traffic interchange
TIP	Transportation Improvement Program
TRB	Transportation Research Board
USACE	U.S. Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
VMT	vehicle miles of travel
WCHD	Winslow Commercial Historic District
WRHD	Winslow Residential Historic District



1.0 Introduction

The City of Winslow (City) North–South Transportation Plan (Plan) is a multimodal plan, addressing improvements to the vehicular road network within and around the City of Winslow in addition to transit, bicycling, and pedestrian facilities. The need for new facilities is predicated on the growth that is occurring within the City of Winslow, Navajo County, Coconino County, and the region as a whole. While this growth has slowed considerably as a result of the economic downturn, the factors that led to this growth remain in place and long-term it is expected that population and employment in the City of Winslow will continue to grow.

This study is being funded by the Arizona Department of Transportation (ADOT) Multimodal Planning Division’s Planning Assistance for Rural Areas (PARA) program. The PARA program is funded through the Federal Highway Administration’s State Planning and Research program to non-metropolitan communities for the purpose of conducting transportation planning studies. PARA funds may be applied to address a broad range of planning issues related to road and non-motorized transportation modes.

1.1 Study Area Characteristics

Located on Interstate 40 (I-40) along historic Route 66, the iconic mother road, the City of Winslow has its roots in the Santa Fe Railway. An early railroad division point because of its reliable water from Clear Creek and the Little Colorado River, the City is said to be named after railroad company president Edward Winslow. The City has been immortalized in modern culture and continues to be an important tourism draw for the area. Several historic sites remain as a testament to Winslow’s role as both a trading post and an important stop on both the railroad and Route 66, including the Lorenzo Hubbell Trading Post and Warehouse, the La Posada Historic District, and the Winslow Commercial Historic District.

Winslow is located in northeast Arizona within Navajo County. Situated along I-40 and the boundary between Navajo and Coconino Counties, Winslow is approximately 55 miles east of Flagstaff and 30 miles west of Holbrook. To the south, State Route (SR) 87 connects Winslow to the Mogollon Rim, Payson, and the Phoenix-Mesa metropolitan area. The Hopi Tribe and the Navajo Nation lie to the north.

Winslow’s corporate limits encompass nearly 8,300 acres. It is surrounded by private and tribal lands and lands held by the Arizona State Land Department (ASLD). The City is a member of the Northern Arizona Council of Governments (NACOG).

Figure 1 shows the study area and the wider influence area for this long range transportation plan. The study area is the focus of transportation issue identification and alternative development. The influence area will be used to capture possible impacts that would affect the study area. Potential growth areas extend west from Winslow toward the Leupp traffic interchange (TI) and east toward the Aztec Land & Cattle Company area. The purpose of the influence area is to ensure that the impact of growth in the Winslow region is considered within the study area.



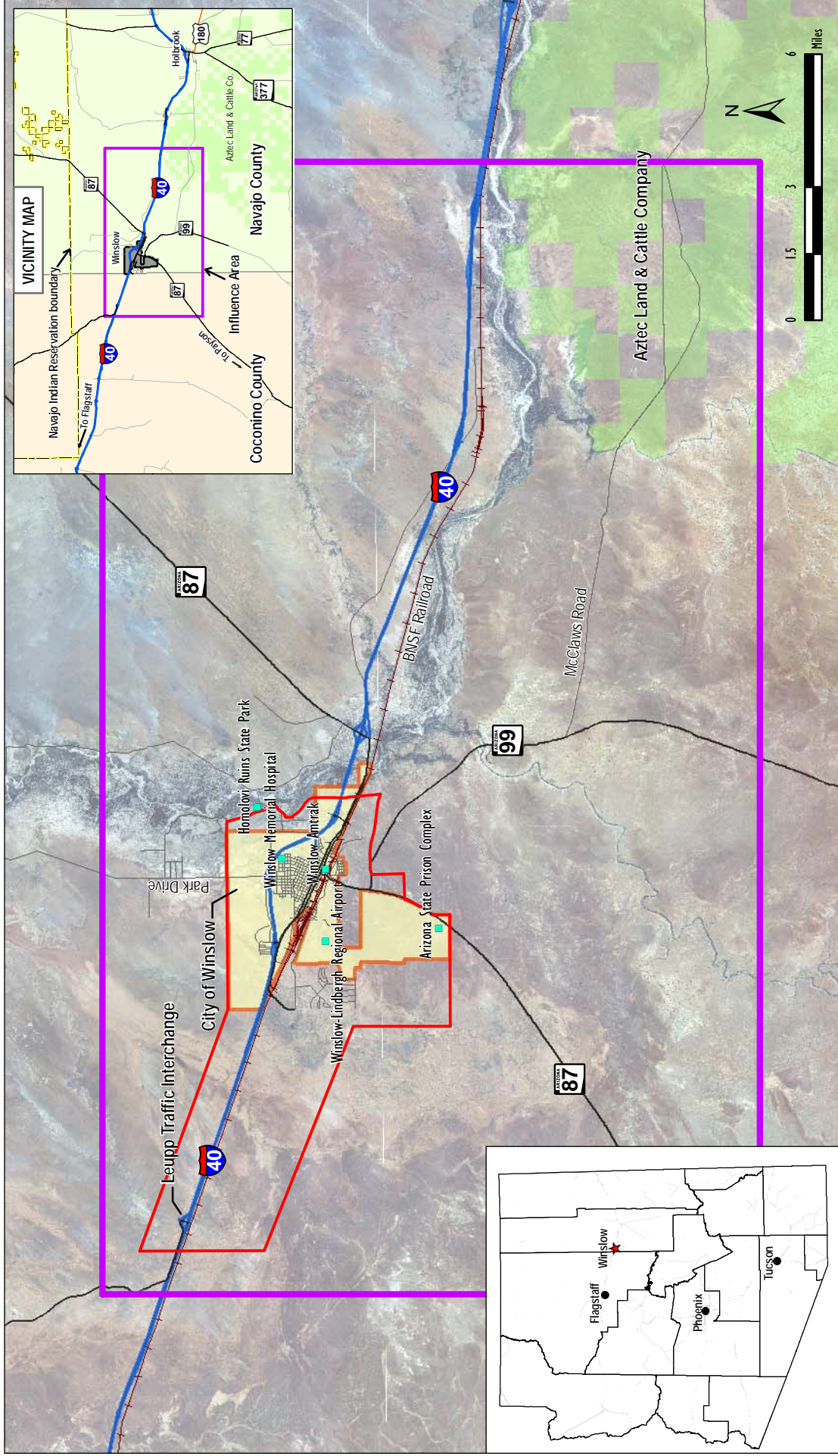


Figure 1 | Study Area and Influence Area
 Source: City of Winslow (2007), HDR (2011)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

1.2 Community Outreach

An important part of the study process involved public outreach with stakeholders and the community to establish factors to be considered as the Plan developed. A Technical Advisory Committee (TAC) was established and met regularly through the study to assist in the study process.

A stakeholder meeting was held on June 27, 2011, and included key representatives from the City of Winslow, business community, and Hopi and Navajo Communities. The format of the meeting was a presentation with question and answer session followed by small group discussions to identify issues and opportunities in the study area. A total of nine stakeholders participated in the meeting.

A public information meeting, followed by a City Council Work Session occurred on July 12, 2011, to present existing and future conditions and gather additional input on study issues. On November 8, 2011, a second public information meeting and City Council Work Session were held to discuss the proposed improvement projects. A *Public Involvement Summary Report* was prepared by the Public Involvement Consortium for this project.

1.3 Key Issues

This section identifies the key topics addressed in the Plan. Where appropriate, the sections addressing these topics are identified.

North-South Access

The Burlington Northern Santa Fe Railroad (BNSF) tracks are a barrier that limits interaction to the planned industrial development areas around the Winslow-Lindbergh Regional Airport south of the tracks, and the residential and commercial areas to the north of the tracks. Existing access across the BNSF tracks is limited to the SR 87 underpass and the West Winslow Industrial Spur overpass west of town. Improved access across the BNSF tracks is needed to support planned growth and development both around the airport and west of town.

Improved north-south access is also needed from the downtown to the commercial development area along I-40. Berry Avenue, a two-lane road that provides a connection between North Park Drive and Route 66 is the most frequently traveled north-south route. This route passes through an established residential neighborhood and by Washington Elementary School, causing safety concerns among the community.

Population and Employment Growth

Over the past ten years, Winslow has experienced population growth as increasing rents in the Flagstaff area have made Winslow a more attractive housing alternative for some. The 2010 U.S. Census counted the City of Winslow's population at 9,655, up from the Census 2000 count of 9,520. Of Winslow's total population, approximately 1,500 are institutionalized at the Arizona State Prison Complex on SR 87. In addition, the Arizona State Prison Complex plans to expand in size creating a need for additional housing for the employees.



The U.S. Census Bureau's ZIP Code Business Patterns database showed 2,900 paid employees within Winslow in March 2008. The 2006 to 2010 American Community Survey 5-Year estimates shows that education, health care, and social assistance is the largest industry in Winslow, employing almost 24 percent of the workforce. Retail trade and the arts, entertainment and recreation industries are the next largest employers.

Population and employment projections developed for the Plan are discussed in Section 4.0, *Land Use and Socioeconomic Conditions*.

Economic Development

Retention and expansion of existing businesses and the attraction of new businesses is a key priority for the City of Winslow. East of the downtown has limited economic development opportunities because of floodplain constraints. Because of this, the City has identified areas to the west of the City and south of I-40 as better suited for economic development. The City is seeking to diversify its economic base south of the railroad tracks and has targeted this area for future employment and housing growth.

Downtown continues to be a focus of redevelopment and revitalization efforts. Another focus of economic development is the area north of I-40 along Mike's Pike between Hipkoe Drive and North Park Drive. Transportation improvements are vital to support both priorities.

Multimodal

Public transportation in Winslow is provided for elderly and disabled under a Section 5310 program operated by the Winslow Council on Aging. Amtrak and Greyhound provide commercial passenger rail and bus services. Analyses of transit demand show that a significant portion of the Winslow population could benefit from basic transit services. The analyses are discussed further in Section 3.0, *Existing Transportation System Conditions* and Section 5.0, *Future Transportation System Conditions*. The community also expressed a desire to add basic transit service during the stakeholder and public outreach meetings.

Winslow is completing its Renaissance sidewalk and streetscape projects to make the historic downtown and Route 66 corridor more walkable. In addition the City has a trails and path plan to connect many of its activity centers. This planning effort brings these plans forward and recommends new connections to provide better north-south pedestrian connectivity.

Transit and non-motorized modes and plans for improvements are discussed in Section 3.0, *Existing Transportation System Conditions* and also in Section 7.0, *Implementation Plan*.



2.0 Previous and Current Studies

This section identifies previous and current transportation studies reviewed for the preparation of this document.

City of Winslow General Plan, 2002

The planning vision established by the General Plan emphasizes a safe, relaxed, wholesome quality of life that includes cultural diversity, preservation of the distinct regional heritage, and appreciation of the natural environment. For economic development, the City seeks broad-based employment with balanced housing opportunities. Key land use recommendations include revitalizing underutilized and high-visibility properties with urban in-fill and encouraging mixed use areas in the downtown area. The circulation element recommends evaluating residential streets for traffic calming, continuing airport restoration, expanding public transit for medical trips and elderly, and implementing a multi-purpose path system.

ADOT Navajo County Central Region Transportation Study, 2010

This multi-jurisdictional transportation plan outlines the region's transportation priority projects and provides a plan for ultimate implementation. It was a joint effort of Navajo County, the City of Holbrook, the City of Winslow, and ADOT. Regional recommendations include a Holbrook-Winslow-Flagstaff public transit connection. Within the Winslow area, the plan recommends: a study on 2nd Street and 3rd Street to improve mobility and traffic safety; a detailed evaluation of Flying J truck stop geometry; an examination of local circulator transit service; the restoration of the Amtrak Station; bicycle guide signing to use routes other than 2nd and 3rd Streets; an evaluation of an additional BNSF crossing; and a detailed examination of Hipkoe Drive traffic interchange.

Winslow-Lindbergh Regional Airport Master Plan, 2010

This study evaluated future aviation demand and infrastructure development needs and provided systematic guidelines for the airport's overall development, maintenance, and operation. The Master Plan estimated 21 Winslow-based aircraft with 12,480 total annual flight operations for the long-term planning horizon. The Master Plan focuses on meeting Federal Aviation Administration (FAA) design and safety standards, improving Runway 4-22 and Taxiway B to accommodate the Lockheed P-3 Orion fire fighting aircraft, and identifying locations for hangar and apron development. Full implementation of the planned improvements is estimated to cost \$65.2 million. More than \$60.2 million of the estimated cost is eligible for grant funding from FAA or the ADOT Aeronautics Group. Access to the airport is provided from Airport Road, a paved two-lane road connected to SR 87. The Master Plan identifies a Coopertown bypass corridor south of the Coopertown community northeast of the airport. This corridor is intended to help remove heavy semi-truck traffic from downtown Winslow with minimal impact on the airport.

ADOT Arizona Rural Transit Needs Study, 2008

The purpose of this study was to develop regionally based needs and solutions for rural transit service in Arizona. Transit demand in rural Arizona is projected to grow from 7.8 million passenger trips in 2007 to 10.5 million in 2016, an increase of 34 percent. Using the Arkansas Public Transportation



Needs Assessment (APTNA) method, Winslow's unmet need in 2005 was 47,500 annual trips. By 2016, the unmet need increases to 62,300 annual trips. The study identified the following steps to address the transit needs of rural Arizona: add rural public transit service within cities, towns, and tribal reservations to assure service needs of the elderly, persons with disabilities, and the general public are met; connect rural and urban communities, which represents a growing Arizona need; increase funding at all levels of government to support these services, with cooperation from private and non-profit sectors; and, establish clearly defined roles and responsibilities between the State, councils of governments, local governments, tribal governments and transit operators.

Regional Connector Service Analysis, 2008

This study analyzes potential regional connector transit services in two White Mountain corridors. One corridor connects Show Low and Holbrook via SR 77. The other corridor connects Show Low and Springerville and Eager. It includes transit demand analysis, analysis of service options, and an implementation plan.

O'Haco Ranch Master Plan, 2007

This Master Plan establishes a comprehensive plan for development of over 1,000 acres located north of I-40 and the historic downtown area of Winslow. The development will include a mix of low-, medium-density, multi-family residential, commercial, and parks and open space. The current zoning of this largely undeveloped land is mostly agricultural-residential with some commercial, multi-family residential, and mobile home/multi-family areas. The traffic circulation plan includes major arterials, designed to be placed at the median openings along Mike's Pike Road. The plan incorporates approximately 3 miles of trails and bikeways in and around the project boundary.

Best of the West Estates Traffic Impact Study, 2007

This study was conducted to evaluate the traffic impacts from the proposed 187-acre single-family detached housing development situated west of SR 87 and east of Ruby Wash. The proposed development includes 556 single-family units. The development is projected to generate 5,321 daily, 428 morning peak, and 567 afternoon peak trips. Access will be from Boles Boulevard and Metzger Road off of Airport Road. The study suggests that the SR 87 and Airport Road intersection may need to be signalized by 2017. The intersections of Airport Road with Boles Boulevard and Metzger Road may require traffic signals by 2027.

Winslow Residential/Commercial Historical District, 1989

The documents from the National Register of Historic Places (NRHP) by the United States Department of the Interior were reviewed for the residential and commercial historic districts within Winslow. These documents identified Winslow historic residences from 1892 to 1910 and the commercial historic structures from 1883 to 1935.



3.0 Existing Transportation System Conditions

This section describes the City of Winslow's existing multimodal transportation system. It provides details on road networks, bridges and structures, public transit system, and bicycle and pedestrian facility characteristics.

3.1 Key Study Area Roads

This section provides an overview of the key facilities in the Winslow road network.

North-South Routes

Hipkoe Drive

Hipkoe Drive is a two-lane road with a center two-way left turn lane that provides access to Winslow's western I-40 traffic interchange. It connects between Mike's Pike and the Frontage Road north of I-40 to the 2nd Street and 3rd Street couplet south of I-40. Average daily traffic on this road was 1,340 in 2010.

North Park Drive

North Park Drive provides access between central Winslow, I-40, and the Navajo Nation to the north. North Park Drive is connected to US 66 by Berry Avenue. North Park Drive provides access to the commercial centers located both north and south of I-40. North Park Drive also provides access to the Little Colorado Medical Center via Hillview Street. North Park Drive is four lanes between Henderson Street and Mike's Pike, narrows to two lanes north of Mike's Pike, and is two lanes south of Henderson Street. Average daily traffic on the segment between Hillview Street and Henderson Street was 9,880 in 2010.

Berry Avenue

Berry Avenue is a two-lane collector road that provides a connection between North Park Drive and Route 66.

SR 87 (Williamson Avenue)

SR 87 is a two-lane state highway that connects Winslow to Payson and the Phoenix-Mesa metropolitan area. It provides access to the Winslow-Lindbergh Regional Airport and the Arizona State Prison Complex. Currently, the SR 87 underpass is one of two options to cross the BNSF tracks that traverse the City. This historic structure is functionally deficient in terms of vertical clearance, width, and approaches to the underpass. These functional deficiencies in the railroad underpass crossing limit the road's ability to accommodate large commercial vehicles. Average daily traffic on the segment between 2nd Street and 3rd Street was 9,000 in 2010.

Transcon Lane

Transcon Lane is a two-lane road with a center two-way left turn lane that provides access to Winslow's eastern I-40 traffic interchange. It connects between the Frontage Road north of I-40 to the



2nd Street and 3rd Street couplet south of I-40. It serves the Flying J Travel Plaza. Average daily traffic on the segment between Route 66 and I-40 was 9,000 in 2010.

SR 99

SR 99 is a two-lane state highway that connects SR 87, Clear Creek Reservoir, and the Apache-Sitgreaves National Forest. It also provides access to McLaws Road.

East–West Routes

Mike’s Pike

Mike’s Pike connects Hipkoe Drive and North Park Drive. It provides access to the Walmart Supercenter and other businesses in the commercial center north of I-40 at Park Drive. It is four lanes between North Park Drive and the Walmart and two lanes to the west of the Walmart. It is the principal access route for the planned O’Haco Ranch development. Average daily traffic on the segment between Hipkoe Avenue and North Park Drive was 2,060 in 2010.

Interstate 40

Part of the Eisenhower Interstate Highway System, I-40 is the third longest east-west Interstate Highway in the United States. It spans from Barstow, California, in the west, to Wilmington, North Carolina, in the east. Much of the western portion from Oklahoma City to Barstow follows the route of historic Route 66. At Winslow, I-40 is two lanes in each direction. It carries 16,000 vehicles per day, of which 44 percent are commercial trucks. Winslow is served by traffic interchanges at Hipkoe Drive, North Park Drive, and Transcon Lane.

Historic Route 66

Historic Route 66 runs through the heart of historic downtown Winslow as a one-way couplet: 3rd Street runs in the westbound direction; 2nd Street runs in the eastbound direction. Each direction of the couplet has two lanes. The road connects Hipkoe Drive on the west to Transcon Lane on the east. This route also provides access to the BNSF overcrossing west of town. Average daily traffic on the couplet is as high as 8,300 on the segment between Simmons Avenue and the Transcon Lane.

3.2 Road Functional Classification

Winslow roads are classified using the FHWA¹ functional classification system. Functional classification is the grouping of highways, roads, and streets into classes based on mobility and land access. In general, arterials provide greater mobility with less direct access to land, while local roads and collectors provide more access to land with less mobility. Functional classification also serves as a basis for establishing speed limits, parking restrictions, design standards and access controls. Figure 2 shows the road functional classification for the Winslow area.

¹ Federal Highway Administration. (1989). *FHWA Functional Classification Guidelines*. Retrieved February 16, 2011, from FHWA Web site, <http://www.fhwa.dot.gov/planning/fctoc.htm>



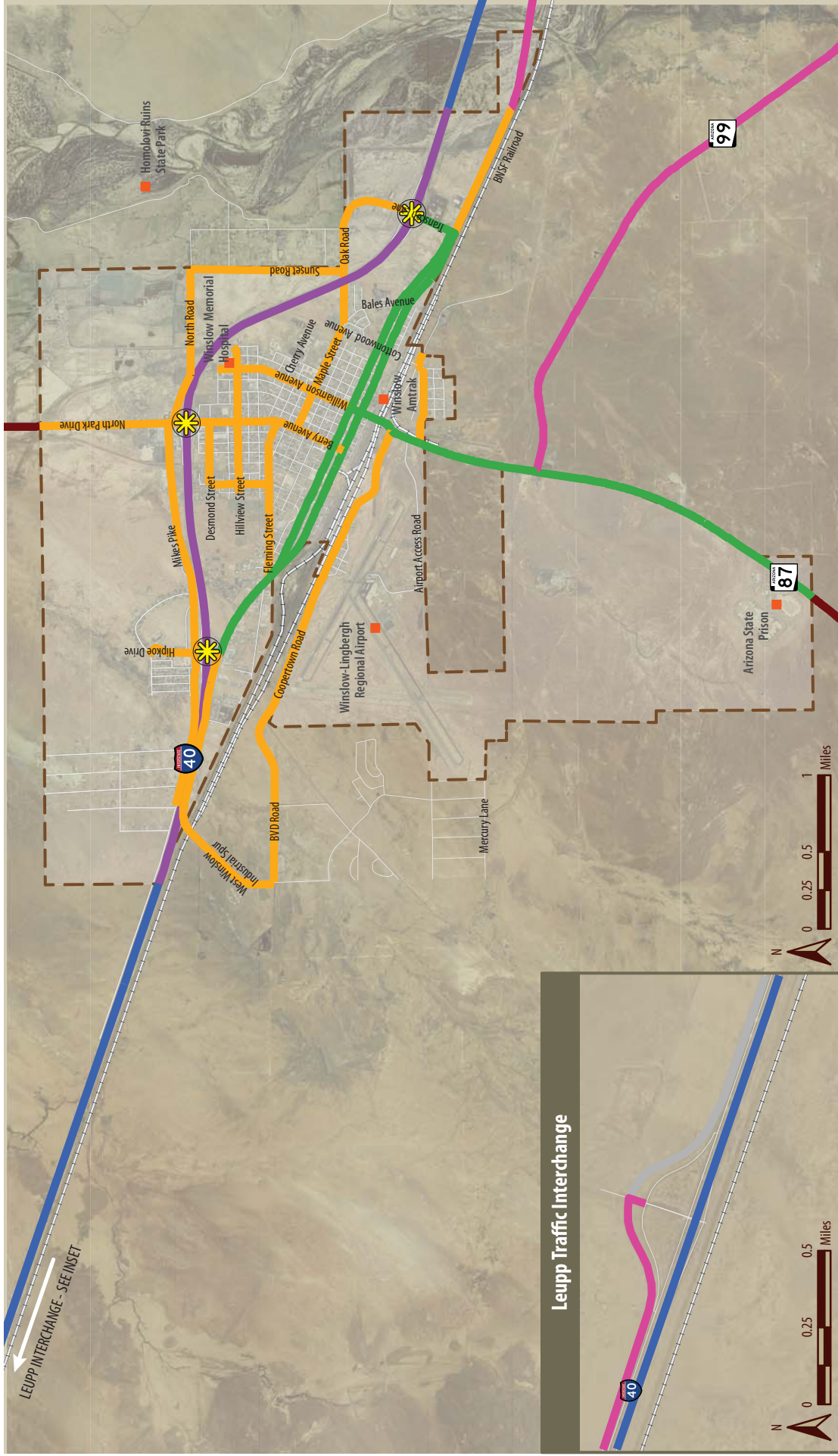


Figure 2 | Road Functional Classification
 Source: HPMS (2005), FHWA (1989), ALRIS (2009)

3.3 Existing Traffic Conditions

This section provides the key physical and operating characteristic of the major road network in the Winslow study area.

Road Lanes

Figure 3 shows total travel lanes for Winslow roads.

Level of Service

Level of Service (LOS) is a quantitative measurement of operational characteristics of traffic and the perception of the traffic conditions by both motorists and passengers. There are six levels of service defined by the Transportation Research Boards' *Highway Capacity Manual 2000* (HCM), published by the Transportation Research Board (TRB). Each level of service is given a letter designation from A to F, with A representing the optimal or best condition and F the worst. Road segment level of service is characterized by the HCM as follows:

LOS A: Best, free flow operations (on uninterrupted flow facilities) and very low delay (on interrupted flow facilities). Freedom to select desired speeds and to maneuver within traffic is extremely high.

LOS B: Flow is stable, but presence of other users is noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within traffic.

LOS C: Flow is stable, but the operation of users is becoming affected by the presence of other users. Maneuvering within traffic requires substantial vigilance on the part of the user.

LOS D: High density but stable flow. Speed and freedom to maneuver are severely restricted. The driver is experiencing a generally poor level of comfort and convenience.

LOS E: Flow is at or near capacity. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within traffic is extremely difficult. Comfort and convenience levels are extremely poor.

LOS F: Worst, facility has failed, or a breakdown has occurred.

LOS A, B, and C are generally considered to be satisfactory service levels, though driver expectations in rural areas may be a LOS B. The influence of congestion becomes more noticeable at LOS D. LOS E is undesirable and is considered by most agencies to be the limit of acceptable delay, and LOS F conditions are considered to be unacceptable to most drivers. Most jurisdictions strive to attain a LOS of at least D or better on all roads and signalized intersections in urban areas while LOS C is targeted for rural conditions. Table 103.2A of the ADOT Roadway Design Guidelines (February 2010) shows that the design LOS for urban/fringe urban highways is LOS C-D, noting that one-way couplets or alternative bypass routes should be considered as an alternative to LOS D.



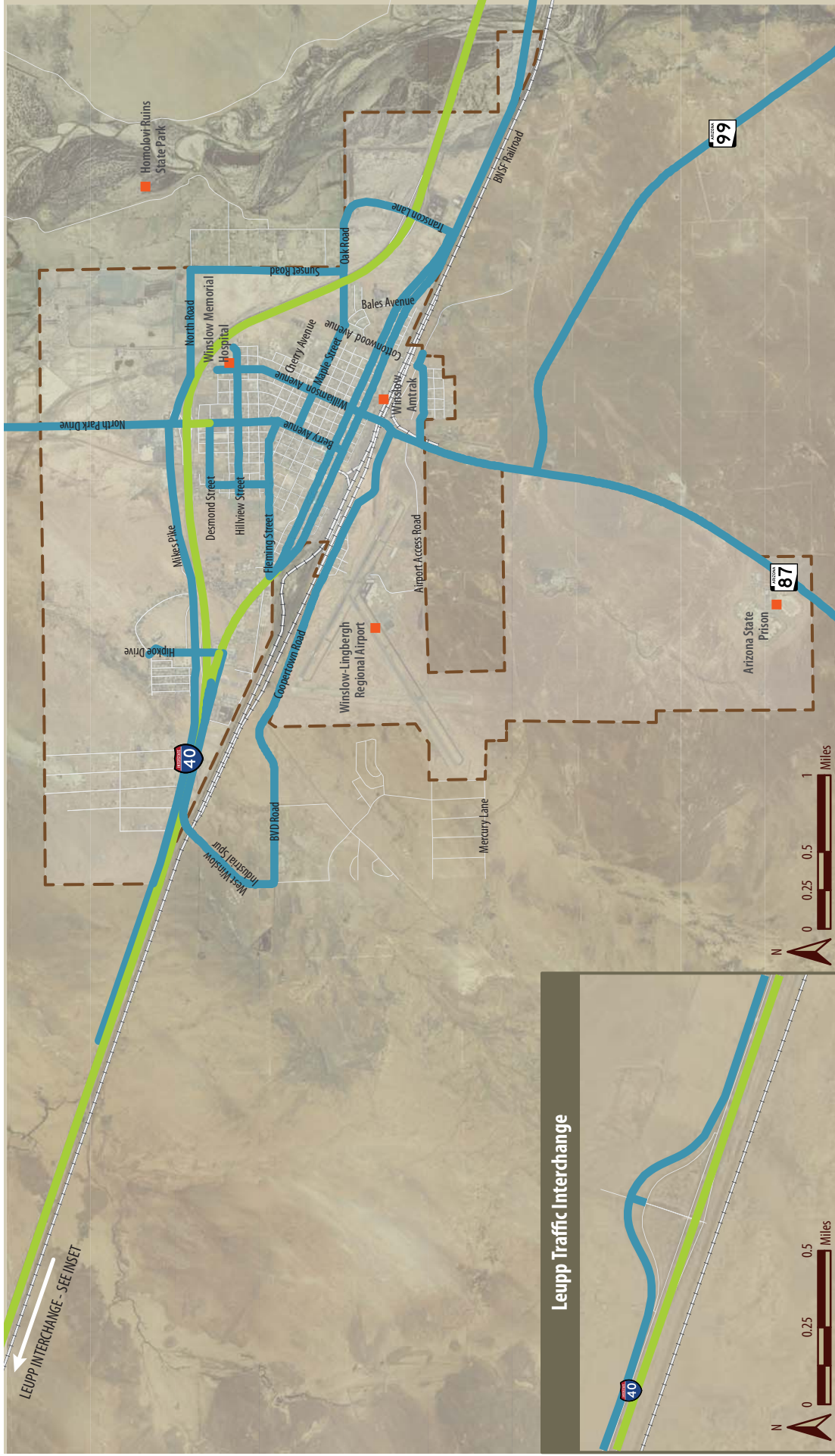


Figure 3 | Road Lanes
Source: HPMS (2005), ALRIS (2009)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

3.4 LOS Analysis

Two types of LOS analysis were used to evaluate current traffic operational conditions in the study area. First, a generalized segment level of service analysis was conducted using volume thresholds by functional classification and number of through travel lanes. The volume thresholds for urbanized areas from the Florida Department of Transportation *2009 Quality/Level of Service Handbook*, used for this analysis, are based on planning applications of the HCM.

Second, a LOS analysis for signalized intersections was conducted for 16 key intersection locations using SYNCHRO, a micro-simulation software that evaluates traffic operations on road systems using methods described in the HCM. Peak hour traffic volumes and peak hour factors, intersection lane configurations, and traffic control parameters were coded into the SYNCHRO model to determine intersection LOS for weekday AM and PM peak hours.

Figure 4 shows current traffic conditions including traffic counts collected in 2010 by the City and from ADOT's 2009 traffic count database and LOS. With the lone exception of Berry Avenue north of Hillview Street, all road segments within the study area operate at Level of Service B or better and all key intersections operate at LOS B or better.



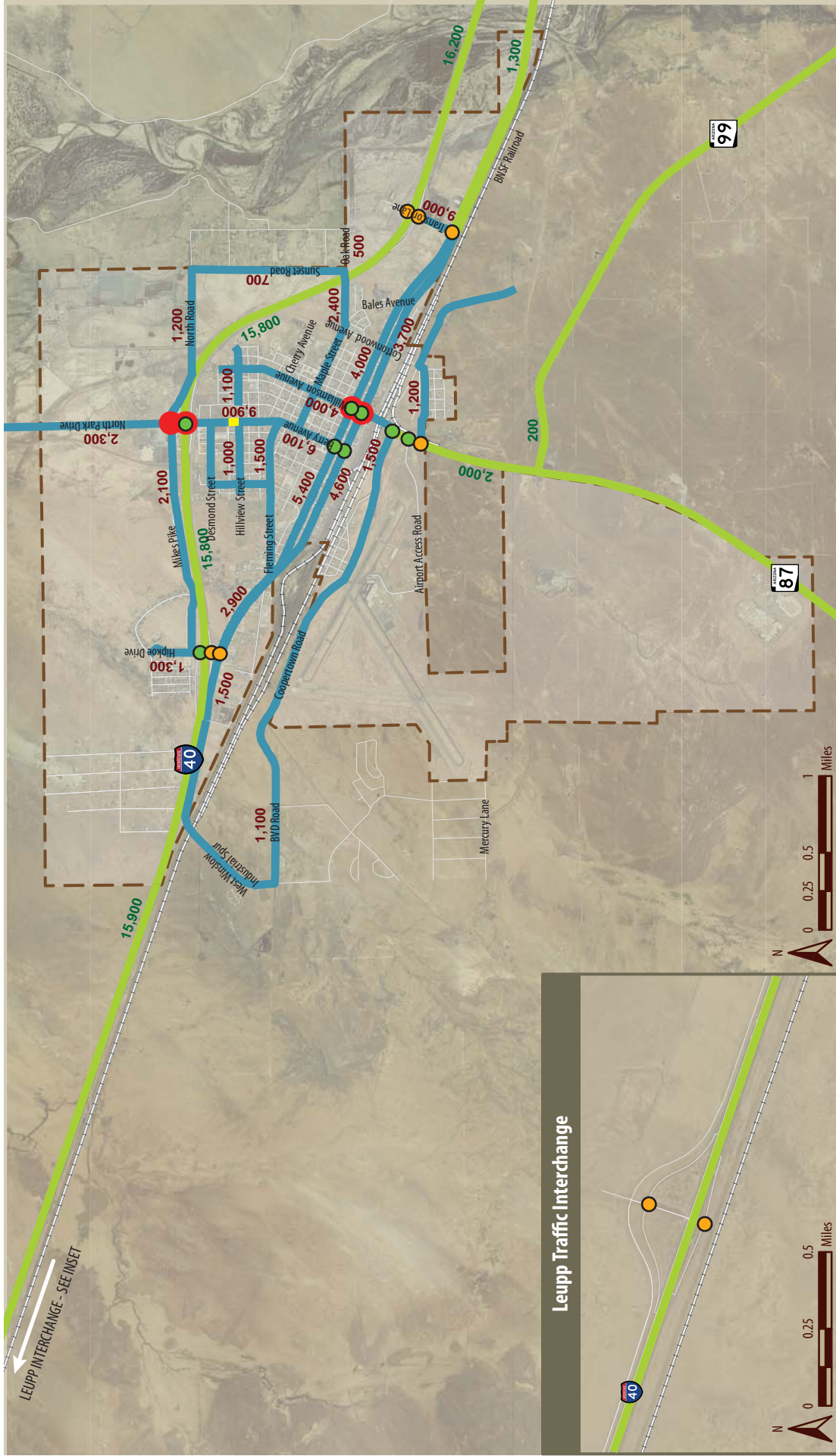


Figure 4 | Current Traffic Conditions
 Source: City of Winslow Daily Traffic Counts (2010), ADOT Traffic Division (2009), HDR (2011)

- Notes:
1. LOS is only shown for segments and intersections where counts are available.
 2. AADT - Annual Average Daily Traffic

- XXX 2010 Daily traffic (City of Winslow)
- XXX 2009 AADT (ADOT)
- - - City boundary
- ++++ Railroad

- Level of Service (LOS)**
- Segment (daily)**
- LOS A (Green line)
- LOS B (Blue line)
- LOS C (Yellow line)
- Intersection (PM Peak)**
- LOS A (Yellow circle)
- LOS B (Green circle)
- LOS C (Red circle)
- Signalized intersection (Red circle)

CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

3.5 Bridges and Structures

Figure 5 shows the bridges and structures within the study area that have been identified in ADOT Bridge Management Section inspection records. This figure shows the current bridge sufficiency rating and identifies which structures are eligible for rehabilitation. Structures with a sufficiency rating of 80 or greater are in good condition. Structures with a rating less than 80 are eligible for rehabilitation while structures with a rating less than 50 are eligible for replacement. Of the 33 ADOT structures identified, 24 are in good condition, eight are eligible for rehabilitation, and one, the SR 87 railroad underpass, was not available. Ten City of Winslow structures were also identified. Eight are in good condition and two are eligible for reconstruction. None of the structures are eligible for replacement.



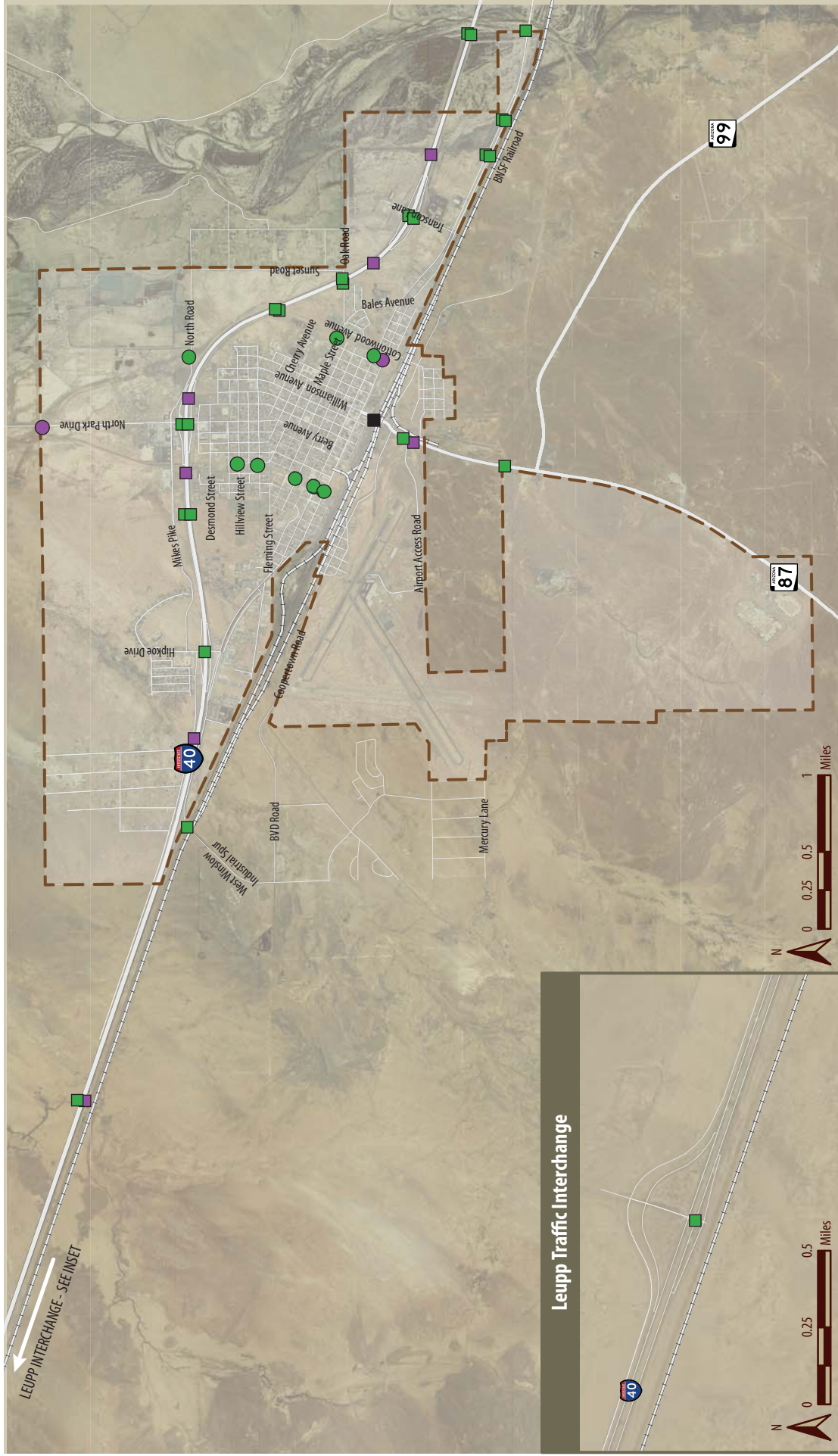


Figure 5 | Bridges and Structures
 Source: ADOT, Winslow (2010)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

3.6 Crash Data Analysis

A crash analysis was conducted for this study to identify crash patterns, trends, and classifications during the five year period from January 1, 2005 to December 31, 2009 using crash data provided by ADOT. The data provided by ADOT contains information regarding incident date and time, crash location, crash severity, crash type, collision manner, environmental conditions, and crash causes. The analysis was done to identify crash patterns and trends that may indicate locations where additional study and possible mitigation is needed to improve road safety for motor vehicles and pedestrians.

Crash Summary Data

A total of 862 crashes involving 1,344 vehicles were reported within the study area during the five years of analysis period. During this period, 36 percent of the reported crashes occurred at intersections, 59 percent at mid-block locations and driveway access points, and 1 percent at railroad grade crossing. Crash locations were unknown or unreported for 4 percent of the crashes. Crashes that occurred within a 250-foot radius of an intersection were analyzed as intersection crashes. Crashes at mid-block locations occurred along road sections, at driveway access, or at alleys. Table 1 shows the crashes by location and percentage.

Table 1 Crash Locations

Location	Number of Crashes						Percent of Crashes
	2005	2006	2007	2008	2009	5-Yr Total	
Mid-Block	114	107	129	83	82	515	60
Intersection	72	76	66	60	33	307	36
Unknown	7	5	16	6	6	40	4
Total	193	188	211	149	121	862	100

Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009

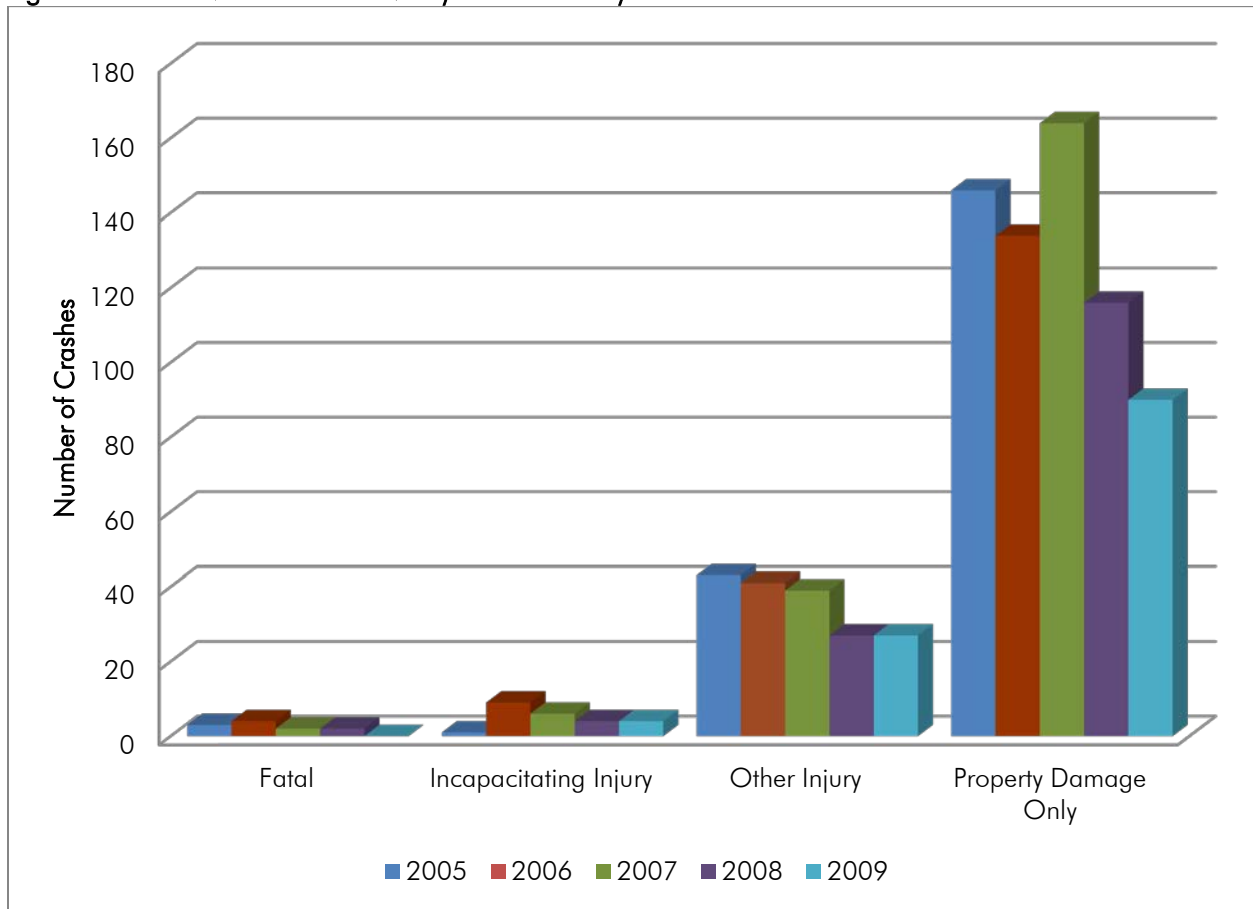
Crash Trend and Crash Severity

Figure 6 presents the yearly crash trend and severity for the analysis period. There were a total of 193 crashes in 2005, 188 in 2006, 211 in 2007, 149 in 2008, and 121 in 2009, respectively. Out of 862 total crashes during the five-year period, 11 crashes (1 percent) resulted in fatalities, and 201 (23 percent) resulted in injuries (both incapacitating and possible injury). The remaining 650 crashes (76 percent) were non-injury, property damage only, or unreported.

The number of annual crashes decreased through the analysis period. This is likely the result of several factors. The I-40 urban interchange completed in 2007 at North Park Drive traffic improved safety at what was historically a high crash location. Also, traffic has decreased with the slowdown in the economy.



Figure 6 Number and Severity of Crashes by Year



Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009

Fatal Crash Locations

A total of 11 fatal crashes occurred in the study area during the analysis period. The data shows there were five fatal crashes involving pedestrians, three due to overturning, two due to collision with fixed object, and one due to a collision with a parked vehicle. Six crashes were the result of the influence of alcohol, either by driver or the pedestrian. Table 2 shows the detailed information about all of the fatal crashes during the five-year analysis period.

There were two additional fatal crashes in 2010 which occurred outside the five-year data analysis period. Both crashes involved a single vehicle where the driver was under the influence of alcohol and the vehicle overturned. Table 2 does not include these fatal crashes.



Table 2 Fatal Crashes

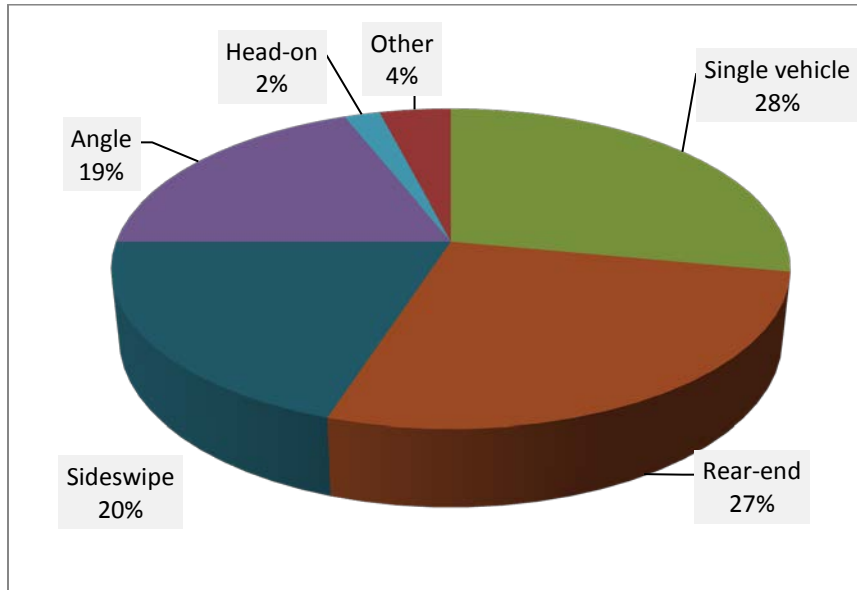
Date	Location	Crash Type	Harmful Action	Physical Condition*
5-Mar-05	I-40 at North Park Drive	Single vehicle	Pedestrian involved	Under influence of alcohol
21-Feb-05	I-40 at Leupp TI	Single vehicle	Overturn	No apparent influence
1-Jul-05	On Route 66 at Indiana Avenue	Other	Pedestrian involved	Under influence of alcohol
25-Jan-06	I-40 at Transcon Lane	Rear-end	Parked vehicle	No apparent influence
2-Mar-06	Coopertown Road at Gorman Avenue	Single vehicle	Collision with utility pole	Alcohol/drug involved
14-Jun-06	I-40 at Leupp TI	Single vehicle	Overturn	Inattention
11-Aug-06	On westbound I-40 between Park Drive and Maple Street	Other	Collision with guardrail	No apparent influence
16-Mar-07	I-40 at SR-87	Single vehicle	Pedestrian involved	Under influence of alcohol
7-Jun-07	I-40 at Hipkoe Drive	Single vehicle	Pedestrian involved	Under influence of alcohol
15-Mar-08	I-40 at SR-87	Single vehicle	Pedestrian involved	Under influence of alcohol
12-Jun-08	On eastbound I-40 between Park Drive and Maple Street	Single vehicle	Overturn	No apparent influence

Crash Type

Figure 7 shows the various crash types that occurred during the analysis period. Single vehicle and rear-end crashes were the predominant crash types that occurred in the study area with 244 (28 percent) and 231 (27 percent) crashes respectively. Sideswipe crashes accounted for 171 (20 percent) of the total crashes followed by angle (161 or 19 percent), head-on (13 or 2 percent) and other crash types (42 or 4 percent).



Figure 7 Crash Types



Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009.

Harmful Collision Event

The majority of the crashes were due to a collision with other motor vehicles (52 percent). Other collision types included parked vehicle (20 percent), fixed object (13 percent), collision with bike or pedestrian (6 percent), overturn (3 percent), collision with non-fixed object (2 percent) and unknown collision type (4 percent). Table 3 summarizes the number of crashes by collision type.

Table 3 Crashes by Collision Type

Harmful Event	Number of Crashes	Percent Total Crashes
Collision with other motor vehicle	448	52
Collision with parked vehicle	170	20
Collision with fixed object	111	13
Collision with bike/pedestrian	49	6
Overturn	30	3
Collision with non-fixed object	16	2
Unknown	38	4
Total	862	100

Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009.



Environmental Conditions

Table 4 shows the lighting and weather conditions existing when the crashes occurred. As shown in the table, the majority of the crashes occurred under day light conditions (67 percent) followed by the number of crashes that occurred during dark or unknown lighting conditions (27 percent), crashes at dawn (5 percent), or unreported conditions (1 percent).

Weather Conditions

Statistics for the crash data indicated that 85 percent of crashes occurred during clear weather conditions, whereas 7 percent, 3 percent, 3 percent and 2 percent of the crashes occurred during cloudy, snowy, rainy and other weather conditions, respectively.

Table 4 Crashes by Environmental Conditions

Light Conditions	Number of Crashes	Percent Total Crashes
Daylight	580	67
Dark/Unknown Lighting	228	27
Dawn	46	5
Not Reported	8	1
Total	862	100
Weather Conditions	Number of Crashes	Percent Total Crashes
Clear	729	85
Cloudy	63	7
Snow	27	3
Rain	22	3
Other	21	2
Total	862	100

Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009.



High Crash Intersections and Segments

Table 5 shows the intersections with two or more crashes reported during the analysis period. Intersection crash rates were not calculated because they require traffic count data that was not available for all locations. Intersection improvements were made recently at Williamson Avenue and 2nd Street and Williamson Avenue and 3rd Street which are anticipated to improve the operational safety at these locations.

Table 5 Crash Types at High Crash Intersections

Intersection	Crashes	Single Vehicle	Rear-end	Sideswipe	Angle	Other
Williamson Avenue and 2nd Street	22	5 (23%)	8 (36%)	4 (18%)	5 (23%)	0 (0%)
Williamson Avenue and 3rd Street	13	2 (15%)	3 (23%)	4 (31%)	4 (31%)	0 (0%)
North Park Drive and I-40	12	1 (8%)	9 (75%)	0 (0%)	2 (17%)	0 (0%)
North Park Drive and Mike's Pike	11	0 (0%)	3 (27%)	1 (9%)	7 (64%)	0 (0%)
Berry Avenue and 3rd Street	10	1 (10%)	5 (50%)	0 (0%)	4 (40%)	0 (0%)
Kinsley Avenue and 2nd Street	9	1 (11%)	1 (11%)	3 (33%)	4 (45%)	0 (0%)
I-40 and SR 87 TI	8	2 (25%)	1 (13%)	3 (37%)	2 (25%)	0 (0%)
Cherry Street and Berry Avenue	7	0 (0%)	5 (71%)	0 (0%)	2 (29%)	0 (0%)
Kinsley Avenue and Maple Street	7	1 (14%)	1 (14%)	1 (14%)	4 (58%)	0 (0%)
Williamson Avenue and Cherry Street	7	0 (0%)	2 (29%)	1 (14%)	4 (57%)	0 (0%)
Colorado Avenue and 2nd Street	6	0 (0%)	1 (17%)	4 (66%)	1 (17%)	0 (0%)
Park Drive and Desmond Road	6	0 (0%)	1 (17%)	0 (0%)	4 (66%)	1 (17%)
Park Drive and Hillview Street	5	1 (20%)	2 (40%)	0 (0%)	2 (40%)	0 (0%)
SR 87 and SR 99	2	1 (50%)	0 (0%)	1 (50%)	0 (0%)	0 (0%)
I-40 and Leupp TI	2	1 (50%)	1 (50%)	0 (0%)	0 (0%)	0 (0%)

Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009.



High Crash Segments

To understand the different crash characteristics at these high crash locations, crash type was analyzed at each location. Segment crashes occurred along the road segment, mid-block, at driveways or alleys, but not at the intersection. Roads with five or more crashes were identified as high crash segments. Table 6 presents the segments ranked in descending order by the crash rate or number of crashes per million vehicle miles traveled over the five-year analysis period.

The average crash rate for all statewide roads between 2005 and 2009 was 2.12. The crash rate for Williamson Avenue between Maple Street and Elm Street was over ten times the statewide average. The crash rate for Maple Street between Snider Avenue and Colorado Avenue was almost eight times the state average. In total, the analysis identified twelve road segments in Winslow with crash rates higher than the state average.

Table 6 High Crash Segments

Location	Crashes	Single vehicle	Rear-end	Side-swipe	Angle	Other	ADT ^a	Length (miles)	Rate ^b
Williamson Avenue: Maple Street to Elm Street	6	1 (17%)	1 (17%)	4 (66%)	0 (0%)	0 (0%)	2,147	0.07	21.9
Maple Street: Snider Avenue to Colorado Avenue	5	0 (0%)	3 (60%)	1 (20%)	1 (20%)	0 (0%)	2,398	0.07	16.3
2nd Street: Winslow Avenue to Warren Avenue	8	2 (25%)	1 (13%)	4 (50%)	1 (12%)	0 (0%)	6,581	0.07	9.5
3rd Street: Williamson Avenue to Apache Avenue	6	0 (0%)	4 (67%)	2 (33%)	0 (0%)	0 (0%)	5,388	0.07	8.7
3rd Street: Douglas Avenue to Prairie Avenue	6	2 (33%)	0 (0%)	3 (50%)	1 (17%)	0 (0%)	5,388	0.07	8.7
3rd Street: Winslow Avenue to Warren Avenue	5	3 (60%)	0 (0%)	1 (20%)	1 (20%)	0 (0%)	5,388	0.07	7.3
2nd Street: Warren Avenue to Kinsley Avenue	6	0 (0%)	3 (50%)	3 (50%)	0 (0%)	0 (0%)	6,581	0.07	7.1
North Park Drive: Henderson Street to Hillview Street	6	1 (17%)	1 (17%)	1 (17%)	2 (32%)	1 (17%)	9,881	0.07	4.8



Table 6 High Crash Segments (continued)

Location	Crashes	Single vehicle	Rear-end	Side-swipe	Angle	Other	ADT ^a	Length (miles)	Rate ^b
Winslow Industrial Spur: Bvd Road to Route 66	5	5 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1,464	0.53	3.5
North Park Drive: I-40 to Willmae Street	5	0 (0%)	2 (40%)	1 (20%)	1 (20%)	1 (20%)	9,881	0.08	3.5
Transcon Lane: I-40 to Route 66	11	2 (18%)	4 (36%)	0 (0%)	5 (46%)	0 (0%)	9,011	0.3	2.2
Mike's Pike Boulevard: Papago Boulevard to North Park Drive	10	3 (30%)	0 (0%)	3 (30%)	4 (40%)	0 (0%)	2,056	1.5	1.8
North Park Drive: I-40 to North City Limit	5	0 (0%)	3 (60%)	0 (0%)	1 (20%)	1 (20%)	2,323	0.95	1.2
Route 66: Fleming Street to ADOT Lane	5	2 (40%)	1 (20%)	1 (20%)	0 (0%)	1 (20%)	2,638	1	1
I-40: Transcon Lane to North Park Drive	47	26 (56%)	9 (19%)	9 (19%)	0 (0%)	3 (6%)	15,800	2.15	0.8
I-40: North Park Drive to Hipkoe Avenue	30	15 (50%)	7 (23%)	8 (27%)	0 (0%)	0 (0%)	15,800	1.5	0.7
I-40: SR 87 to Transcon Lane	38	19 (50%)	7 (18%)	8 (21%)	0 (0%)	4 (11%)	16,200	2	0.6
I-40: Hipkoe Avenue to West City Limit	15	9 (60%)	4 (27%)	0 (0%)	0 (0%)	2 (13%)	15,900	1.5	0.3

Source: ADOT Traffic Safety Division, data from January 1, 2005 to December 31, 2009

Notes: a) average daily traffic; b) Crashes per million vehicle miles traveled. Segment crash rates are a function of length and ADT. A higher number of crashes does not always result in a higher crash rate.

Figure 8 summarizes the high crash intersection locations identified including the traffic interchanges and identifies the fatal crash locations during the analysis period. Two high crash areas are illustrated on the graphic. These areas have segment crash rates above the state average and numerous intersection collisions. One high crash area is at the I-40/North Park Drive traffic interchange. The other is in downtown Winslow in the historic commercial district.



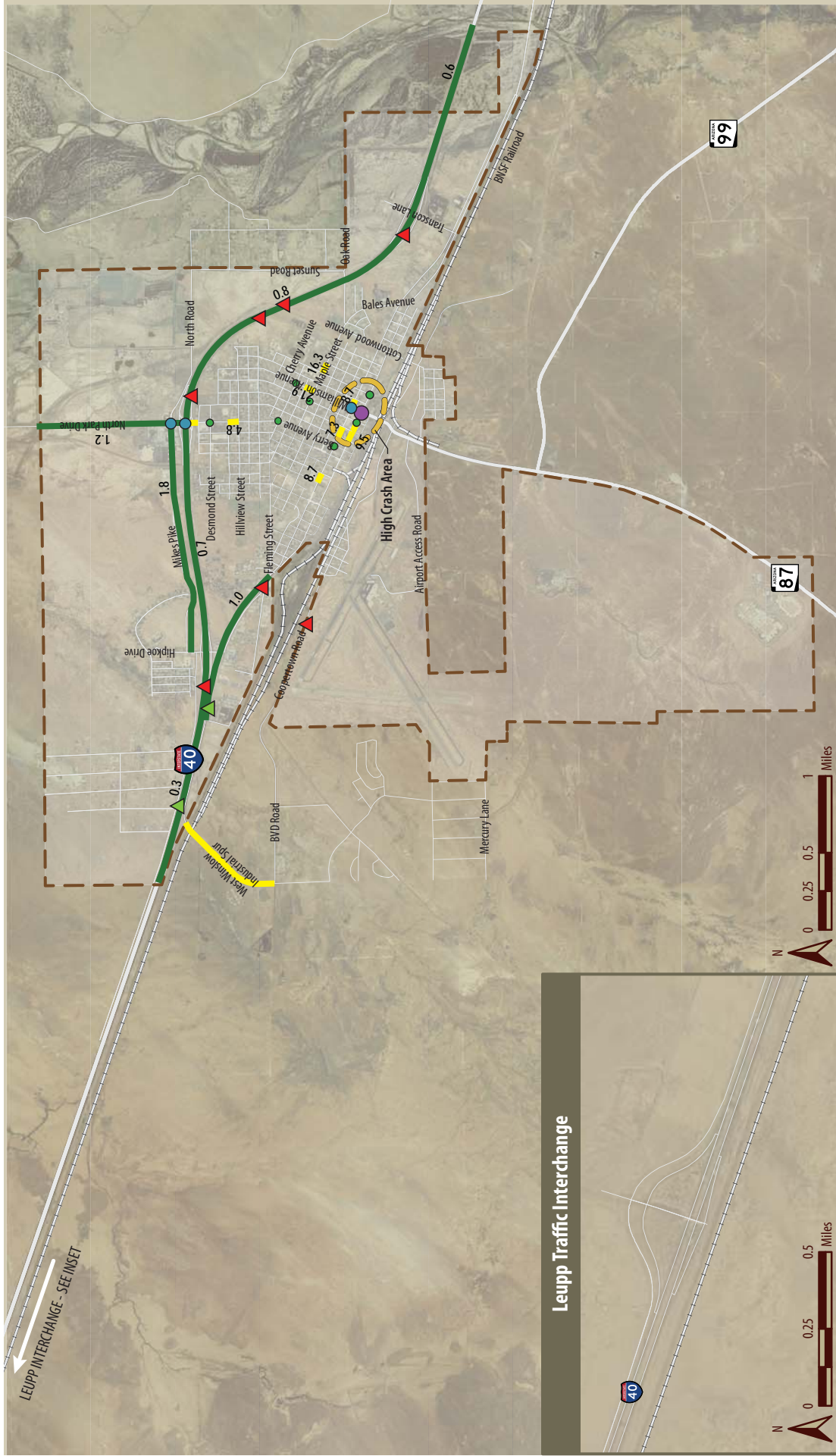


Figure 8 | High Crash Locations
 Source: ADOT (2009), Winslow (2010)

- Notes:**
1. Locations with crashes 5 or more during the 5-year study period (2005-2009) are shown.
 2. Crash rates are only calculated for segments. Crash rates were not calculated for intersections due to insufficient traffic volume data.
 3. Crash rate is defined as number of crashes per million vehicle miles traveled.
 4. Average statewide crash rate for all facilities for the 5-year study period is 2.12.

Intersection Crashes	Segment Crash Rate
● > 15	■ 2.12 and higher
● 11 - 15	■ Less than 2.12
● 6 - 10	(x.x = crash rate)
▲ Fatal crash location (study period)	
▲ Fatal crash location (year 2010)	

- - - City boundary
 - - - Railroad



December 30, 2011 | HDR

CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

3.7 Transit

Public transportation in Winslow is provided for elderly and disabled under a Section 5310 program operated by the Winslow Council on Aging. Amtrak and Greyhound provide commercial passenger rail and bus services.

Elderly and Persons with Disabilities Section 5310 Program

The Winslow Council on Aging operates an Elderly and Persons with Disabilities Program using Federal Transit Administration Section 5310 funds. Administered in partnership with the NACOG and ADOT, this program provides transportation services for the elderly and disabled. Transportation is provided for:

- Medical appointments
- Nutrition appointments
- Adult day care facilities
- Education and training
- Service appointments such as banking and social services
- Shopping trips
- Employment

Amtrak

The Southwest Chief Amtrak provides daily east-west passenger rail service to the City of Winslow, stopping at the historic train station located next to La Posada Hotel. This service provides connection to Los Angeles, Albuquerque, and Chicago. Winslow is the only passenger stop between Flagstaff and Gallup, New Mexico.

Greyhound

The Greyhound bus line provides regional service with daily connections to Flagstaff, Holbrook, the Phoenix area as well as access to Greyhound's nationwide system. The bus station is located at the McDonalds at North Park Drive and I-40.

Transit Demand

The 2008 ADOT Arizona Rural Transit Needs Study shows that Winslow has a significant population that could benefit from public transit service:

- 11.7 percent of Winslow's households have no automobile
- 2.5 percent of the City's population is age 60 or older
- More than 18 percent of the population under age 60 lives in poverty

Using the APTNA method, the unmet need in 2005 was 47,500 annual trips. By 2016, the ADOT study shows this unmet need increasing to 62,300 annual trips.



3.8 Non-Motorized

The City of Winslow continues to invest in upgrades to its sidewalk system. The City Neighborhood Walkways and Streets program in Winslow's five year capital improvement plan identifies an investment in sidewalks, curb, gutter, and Americans with Disabilities Act (ADA) compliant ramps in four different neighborhoods of \$1.7 million. Recent investments have been made to downtown sidewalks improving drainage and adding ADA ramps. Walkways with streetscaping and lighting are planned along a portion of Mike's Pike.

The Winslow Renaissance projects on Route 66 have focused on streetscape enhancements to the historic downtown core to make the community more walkable. Phase I included a multiuse pathway and pedestrian improvements along First Street in downtown Winslow. These improvements provide a pedestrian connection between La Posada Hotel, downtown, and the Hubbell Trading Post. Later phases of the project will improve sidewalks and streetscape on 2nd Street and 3rd Street.



4.0 Land Use and Socioeconomic Conditions

This section provides an overview of land use together with estimates of population and employment within the City of Winslow influence area. It also contains a discussion of protected populations (Title VI and Environmental Justice). The demographic information used in this analysis is from the 2006-2010 American Community Survey (ACS) 5-year estimates and the Navajo County Regional Travel Demand Model.

Demographic information is important in developing a profile of the City's residents and households. A comparative analysis with data from the state and county is included to illustrate how Winslow relates to the state.

4.1 Land Use

Land Ownership

Parcel-level data was compiled from Navajo County and Coconino County to identify public and private land ownership in the study area and influence area. Figure 9 identifies lands owned by the City of Winslow, the Navajo and Hopi Tribes, the Bureau of Land Management (BLM), ASLD, and the BNSF. The figure also shows a portion of Red Gap Ranch, which is owned by the City of Flagstaff and the Aztec Land & Cattle Company lands, located in the southeast corner of the study influence area.

Future Land Use

The City of Winslow General Plan Future Land Use map identified ten land uses that include residential, commercial, mixed use, industrial, commerce park, public facilities, and open space categories. Figure 10 shows the Winslow General Plan Land Use Map.



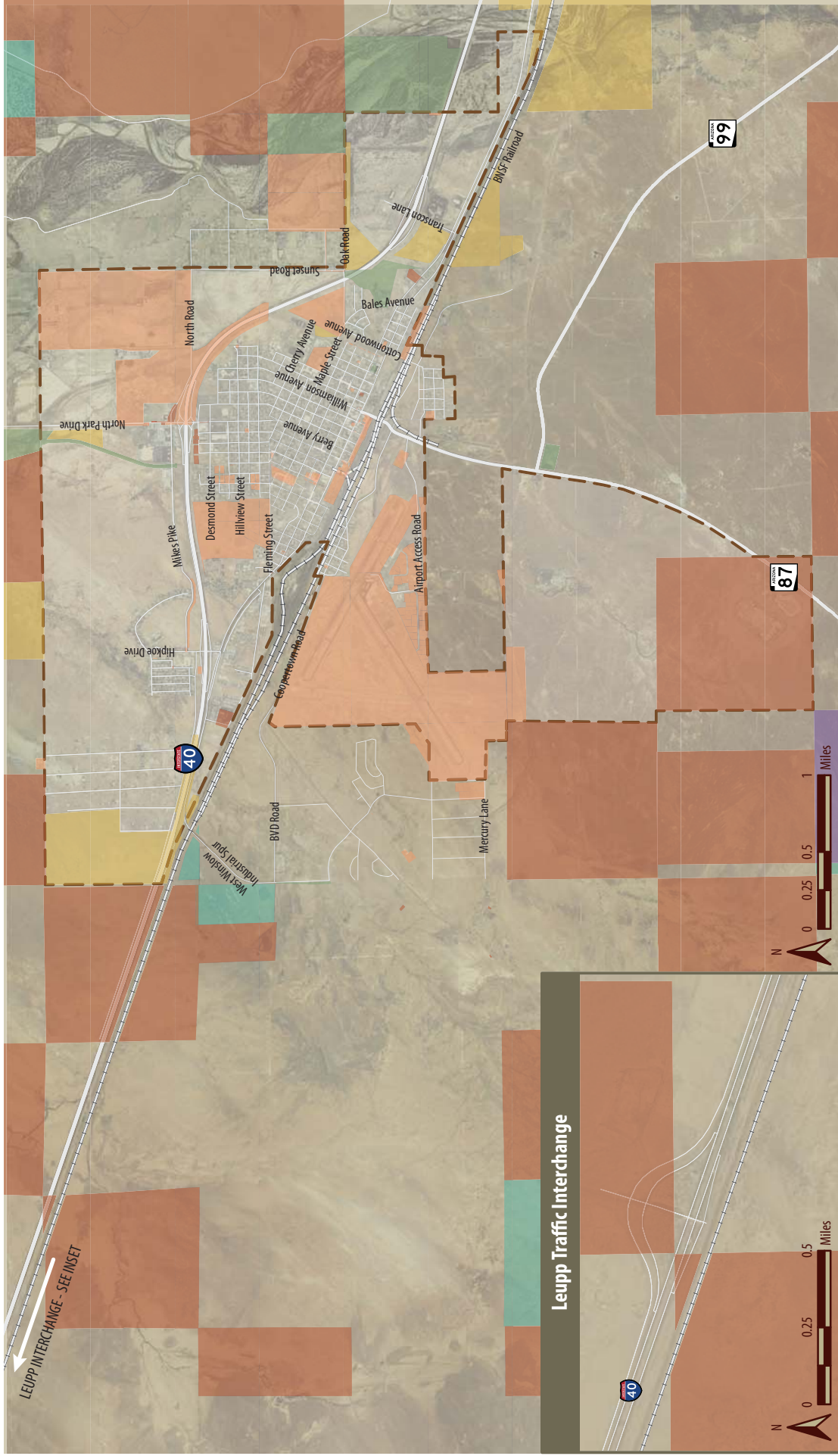
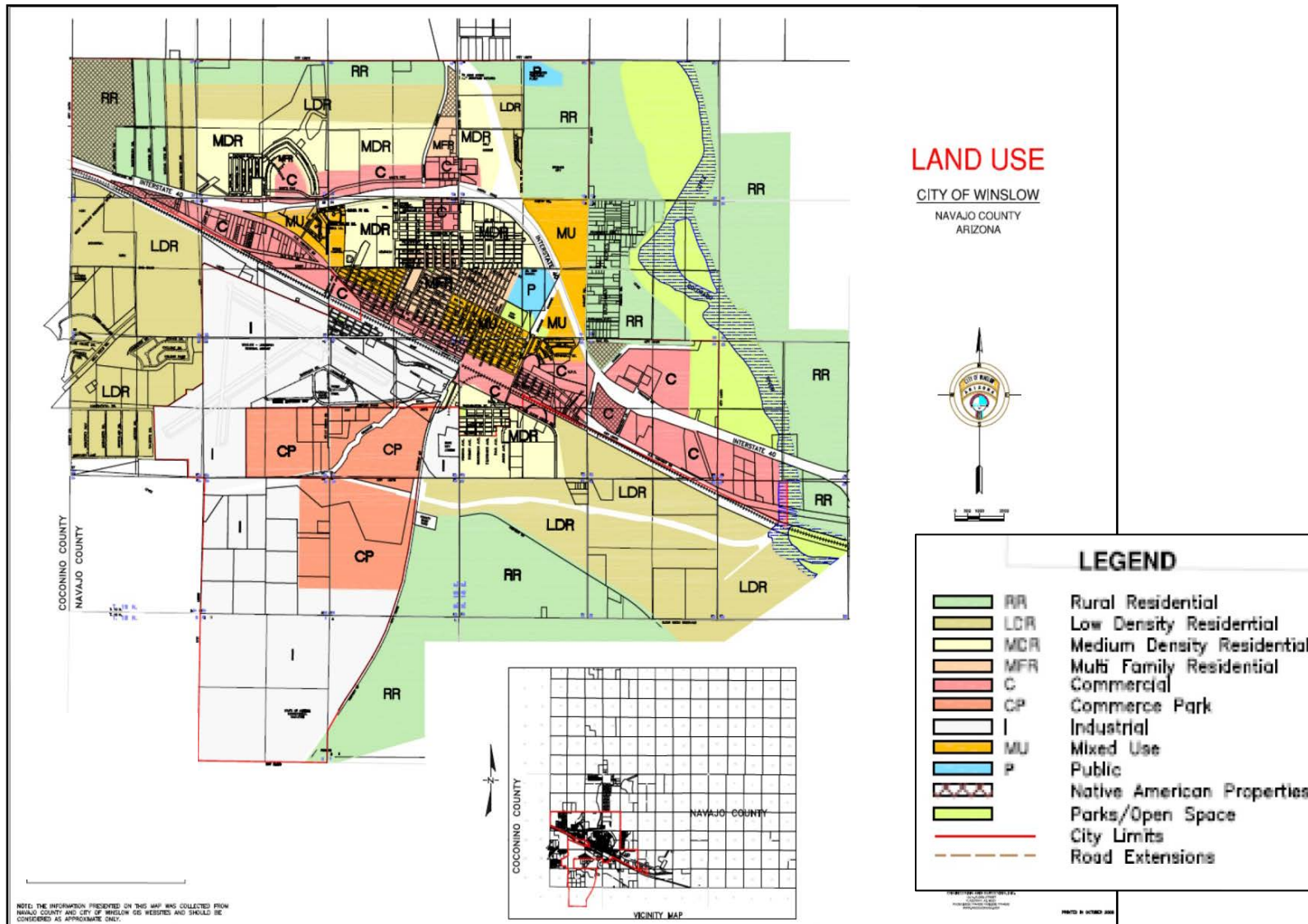


Figure 9 | Land Ownership
 Source: HDR (2011), City of Winslow (2011), Coconino County (2011)

Figure 10 Future Land Use Map



4.2 Title VI and Environmental Justice

The Environmental Protection Agency (EPA) and FHWA define environmental justice as the “fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies.” Environmental justice principles and procedures are followed to improve all levels of transportation decision making. Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin. The 1994 Executive Order 12898 on environmental justice addresses minority and low-income populations. The rights of women, the elderly, and the disabled are protected under related statutes. These Presidential Executive Orders and other related statutes fall under the umbrella of Title VI.

There are three fundamental environmental justice principles applicable to the transportation project development process:

- to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
- to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- to prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

Effective transportation decision making depends on understanding and properly addressing the unique needs of different socioeconomic groups. Properly implemented, environmental justice principles and procedures improve all levels of transportation decision making.

The five minority groups addressed by Title VI and Executive Order 12898, Environmental Justice, are:

- Black (a person having origins in any of the black racial groups of Africa)
- Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)
- Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands)
- American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition)
- Some other race, or persons of more than one race

A member of the low-income population is defined as “a person whose household income is at or below the Department of Health and Human Services poverty guidelines.” The Department of Health and Human Services poverty guidelines state that the poverty level for a family of four in 2009 is \$22,050 (note, however, that this income level cannot be compared directly with current income levels because the value of money changes year to year).

Other protected populations include concentrations of elderly, the disabled, and female heads of households. These populations for the City of Winslow, Navajo County, and Arizona are shown in Table 7.



Table 7 Title VI and Environmental Justice Population Percentages, Winslow, Navajo County, and Arizona

Population Group	Arizona	Navajo County	Winslow
Hispanic or Latino	29.6%	10.8%	29.9%
Black or African American	4.1%	0.9%	5.7%
American Indian or Alaskan Native	4.6%	43.4%	25.7%
Asian	2.8%	0.5%	1.0%
Native Hawaiian or other Pacific Islander	0.2%	0.1%	0.1%
Some other race	11.9%	3.4%	9.0%
More than one race	3.4%	2.5%	5.2%
Persons living below the poverty level	15.3%	24.4%	16.2%
Go-outside-home disability	5.6%	7.3%	6.5%
Age 65 and older	13.8%	13.3%	10.2%
Female heads of household	12.4%	17.1%	21.4%

Sources: U.S. Census Bureau, 2006-2010 American Community Survey; U.S. Census Bureau, 2010 Census; Census 2000 Summary File 3 (SF 3) – Sample Data.

The protected populations considered in this analysis are described below:

- Minority populations include people who identify themselves as Hispanic or Latino, Black or African American, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, persons of some other race, or persons of more than one race.
- Low-income populations include people living in households with an income at or below the U.S. Department of Health and Human Services poverty guidelines. Low-income populations may have greater difficulty locating replacement housing in the area. They may rely on public services and facilities, such as public transit and public recreational amenities, to a greater extent than the general population.
- Elderly populations consist of people who are age 65 and older. While elderly citizens often drive, the National Highway Traffic Safety Administration (NHTSA) reports that both high-speed and high-traffic routes may present a problem for some (NHTSA, 2007). In addition, the elderly may have a need for transit service or may opt to use transit if it is offered.
- Disabled populations are civilian, non-institutionalized persons aged 5 and over with disabilities (such as sensory, physical, mental, self-care, and going outside of home disabilities).
- Female head-of-household populations consist of households headed by a female with no husband present and with her own children under the age of 18. These households tend to



have lower incomes than households headed by married couples or a single man and oftentimes have a greater need for affordable housing.

The City of Winslow Hispanic population (29.9%) is almost equal to that of Arizona (29.6%), though it is significantly higher than Navajo County (10.8%). A large percentage of the Navajo County population is American Indian (43%). Navajo County and Winslow (25.7%) both have considerably higher American Indian population than Arizona (4.6%).

Winslow has a higher female head of household population (21.4%) than both Navajo County (17.1%) and Arizona (12.4%). The percentage of persons living in poverty in Winslow (16.2%) is higher than the Arizona percentage (15.3%) but lower than Navajo County (24.4%). Overall Winslow has a large percentage of Title VI and Environmental Justice Populations living in the city limits or adjacent in Navajo County compared to the State. The transportation improvements proposed as part of this Plan would help to serve these communities by providing greater access throughout the City. Each of these populations could benefit from transit services or non-motorized transportation options.

4.3 Traffic Analysis Zones

Traffic analysis zones (TAZ) are geographic areas generally bounded by roads, railroads, major watercourses or other easily identifiable physical features. These TAZs were established by the Navajo County Central Region Transportation Study (NCCRTS). City of Winslow socioeconomic data is tabulated by TAZ geography. Using the Navajo County Travel Demand Model, traffic is generated by each land use within the TAZ, distributed, and then assigned to the road network. Subsequently, using projected land use data, future traffic forecasts can be derived. The model was developed before the release of the 2010 Census numbers; therefore, 2006 Census numbers were used in the model as they were the most up-to-date numbers at the time.

4.4 Population and Housing

The U.S. Census Bureau, 2010 Census counted the City of Winslow's population at 9,655, up from the Census 2000 count of 9,520. The median age of the City of Winslow population is 33.4, compared with 35.9 for Arizona. Over 26 percent of Winslow's population is under 18 years of age; 10.2 percent of the population is 65 years or older. Figure 11 shows the 2006 estimated population density by TAZ for the study area and influence area.

The 2010 Census shows 3,362 total housing units in Winslow; an estimated 2,914 were occupied. The Census showed the total population living in households at 8,121. The average household size in Winslow is 2.79 persons per household, slightly lower than that of Navajo County (average household size is 2.95; slightly higher than Arizona as a whole, which is 2.76). Table 8 shows a comparison of key housing statistics for Winslow, Navajo County, and Arizona.



Table 8 Occupied Housing

Description	Arizona	Navajo County	Winslow
Occupied housing units	83.7%	62.6%	86.7%
Owner-occupied housing units	66.0%	71.9%	56.9%
Renter-occupied housing units	34.0%	28.1%	43.1%
Average household size of owner-occupied units	2.63	2.91	2.74
Average household size of renter-occupied units	2.62	3.05	2.84

Source: U.S. Census Bureau, 2010 Census.



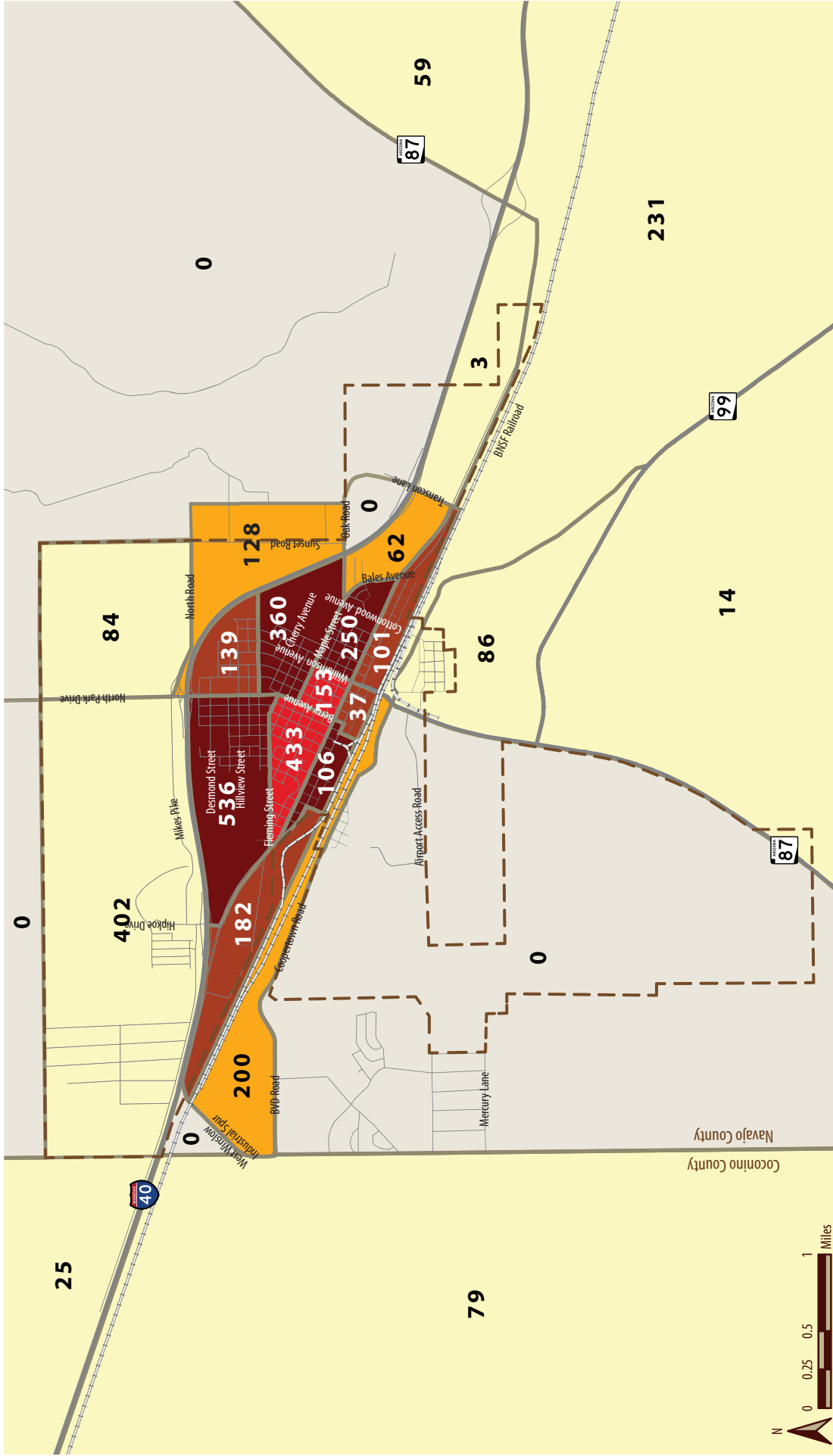


Figure 11 | 2006 Estimated Household Density by Traffic Analysis Zone
 Source: Navajo County Travel Demand Model, HDR (2011), bqAZ Study (2009)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

4.5 Employment

For 2008, the Census Bureau's ZIP Code Business Patterns database reported 2,922 paid employees working in 209 establishments within Winslow's 86047 ZIP Code. Table 9 shows the portion of the civilian employed population 16 years and over by industry for Winslow. Figure 12 shows the 2006 estimated employment density by TAZ.

Table 9 **Civilian Employment by Industry**

Industry	Percent of civilian workforce
Agriculture, forestry, fishing and hunting, and mining	1.6
Construction	8.9
Manufacturing	0.8
Wholesale trade	1.2
Retail trade	15.9
Transportation, warehousing, and utilities	10.1
Information	0.3
Finance and insurance, and real estate and rental and leasing	3.8
Professional, scientific, management, administrative, waste management services	5.0
Educational services, and health care and social assistance	24.8
Arts, entertainment, recreation, and accommodation and food services	17.8
Other services, except public administration	3.3
Public administration	6.5

Source: U.S. Census Bureau, 2006-2010 American Community Survey 5-Year Estimates.



4.6 Population and Employment Growth Projections

Three population and employment growth scenarios were developed for the 2030 planning horizon. City staff and the Technical Advisory Committee directed the study team to use a medium growth scenario to prepare the forecasts of future traffic conditions using the Navajo County Travel Demand Model. This medium growth scenario reflects population and employment growth expected by the City to occur by 2030. It anticipates the addition of new prisons, industrial and commercial growth, and residential growth.

Table 10 shows the 2006 population and employment estimates from the Navajo County Travel Demand Model together with the City of Winslow 2030 medium growth scenario.

Table 10 Population and Employment Growth Projections

Category	2006 ¹	2030 ²
Population		
Population in households	8,300	15,400
In group quarters	1,900	12,200
Total	10,200	27,600
Employment		
Industrial	439	3,143
Service	3,814	8,801
Retail	1,095	2,593
Total	5,348	14,537

Notes: 1) Navajo County Travel Demand Model; 2) City of Winslow Medium Growth Projections.

Figure 13 shows the estimated 2030 population density by TAZ for the City of Winslow. Figure 14 shows the estimated 2030 employment density by TAZ.



5.0 Future Transportation System Conditions

To prepare forecasts of future traffic conditions for the City of Winslow, the study team utilized the 2030 Navajo County Travel Demand Model. The study team updated the county model with the City of Winslow population and employment projections discussed in Section 4.6 to estimate travel demand for the study area. This update included reviewing the forecasts for traffic entering and leaving the model area to ensure that they reflected the projected growth in the Winslow area. Figure 15 shows 2030 traffic volume estimates and level of service for the study roads.

5.1 Planned Study Area Improvements

This section identifies planned and programmed study area transportation improvements identified from City of Winslow, Navajo County, and ADOT sources. Programmed improvements include sidewalks, curb and gutter, ADA ramps, drainage improvements, lighting, and streetscapes. Planned transportation improvements include access management plans, new north-south road access, and improvements at the Winslow-Lindbergh Regional Airport. Table 11 shows the programmed and planned transportation improvements for Winslow.



Table 11 Programmed and Planned Transportation Improvements

Item	Description	Cost (1,000s)	Timeline	Source
City neighborhood walkways and streets	Sidewalk, curb, gutter, and ADA ramps improvement in 4 specific neighborhoods	\$1,700	FY-2015	City of Winslow CIP, FY 2011-15
Citywide walkways and streets	Sidewalk, curb, gutter, and ADA ramps improvement throughout the City	\$340	FY-2013	City of Winslow CIP, FY 2011-15
Mike's Pike East – North Park to Ice House Wash	Storm drainage, walkways, streetscaping, and lighting improvements	\$450	FY-2012	City of Winslow CIP, FY 2011-15
First Street - Hubbell to City Hall	Completion of sidewalk, lighting, and streetscaping between Renaissance 1 and 2.	\$300	FY-2013	City of Winslow CIP, FY 2011-15
Corridor Study/Access Plan	Access management on Route 66 within the City limits			Navajo County Central Region Transportation Study, 2010
Monitor for future traffic control needs	Need for traffic control at the intersections of Fleming Street and Route 66, Hipkoe Avenue and Route 66, Maple Street and Taylor Avenue, Transcon Lane TI at I-40			Navajo County Central Region Transportation Study, 2010
Potential BNSF undercrossing	Potential north-south BNSF railroad track underpass connecting to Williamson Avenue		2030	Navajo County Central Region Transportation Study, 2010
Potential Maple Street corridor	Potential new road corridor connecting Route 66 with Maple Street			Navajo County Central Region Transportation Study, 2010
Potential Oak Road corridor	Potential new road corridor connecting Route 66 with Oak Road via Transcon TI at I-40			Navajo County Central Region Transportation Study, 2010
Winslow-Lindbergh Regional Airport improvements	Improve airport operations with new runways	\$65,200		Navajo County Central Region Transportation Study, 2010 and Winslow-Lindbergh Regional Airport Master Plan, 2010
SR 87 corridor improvements	Add passing lanes, additional BNSF crossing, and shoulder improvements on SR 87 between Payson and Winslow		2030	Navajo County Central Region Transportation Study, 2010



Table 11 Programmed and Planned Transportation Improvements (continued)

Item	Description	Cost (1,000s)	Timeline	Source
Conduct 2nd and 3rd Streets corridor assessment	Mobility and safety improvement along 2nd and 3rd Streets through access management		2030	Navajo County Central Region Transportation Study, 2010
Transcon Lane and Flying J Truck Stop	Widen Transcon Lane, realign the driveway accessing Flying J facility, and modify the intersection of SR 87/US 66/Transcon Lane.	\$1.5 million	FY 2013	NACOG TIP, City of Winslow CIP, 2012
Bicycle guide-signing	Provide bicycle guide-signing to encourage cyclists to use parallel roads to 2nd and 3rd Streets to include 1st, 4th and Aspinwall Streets			Navajo County Central Region Transportation Study, 2010
Hipkoe Drive interchange	A detailed examination of the Hipkoe Drive interchange, the Hipkoe Drive and 2nd Street intersection, and the 2nd Street corridor assessment			Navajo County Central Region Transportation Study, 2010
Coopertown Road improvements	Potential two-lane overpass over the BNSF at Coopertown Road		2020	Navajo County Central Region Transportation Study, 2010
Transit service feasibility study between Winslow and Holbrook; and between Winslow and Flagstaff	Examine transit service feasibility through White Mountain Connection and Mountain Lion transit service providers, respectively			Navajo County Central Region Transportation Study, 2010
Traffic signal control at the intersection of Airport Road and SR 87	Monitor need for new signalized intersection		2017	Best of the West Estates Traffic Impact Study, 2007
Widen Airport Road to 4 lanes	Evaluate need for widened road		2012	Best of the West Estates Traffic Impact Study, 2007
New bikeways and trails	New 3-mile bikeway and trail around the O'Haco Ranch project boundary			O'Haco Ranch Master Plan, 2007



5.2 Traffic Assignments

The study team used the 2030 Navajo County Travel Demand Model with the updated socioeconomic projections and the planned network improvements to prepare a base future traffic forecast for the City of Winslow. Figure 15 shows selected 2030 traffic volume estimates and segment LOS.

5.3 Network Deficiencies

The generalized LOS analysis shows that City of Winslow roads are expected to operate at LOS C or better under 2030 daily traffic conditions.

5.4 Circulation System Improvement Needs

The 2030 traffic forecasts show no capacity deficiencies on the City of Winslow road system. The existing transportation system is adequate to accommodate the projected 2030 population and employment growth. While no new road capacity appears warranted, the City of Winslow and ADOT should continue to monitor traffic conditions as growth occurs.



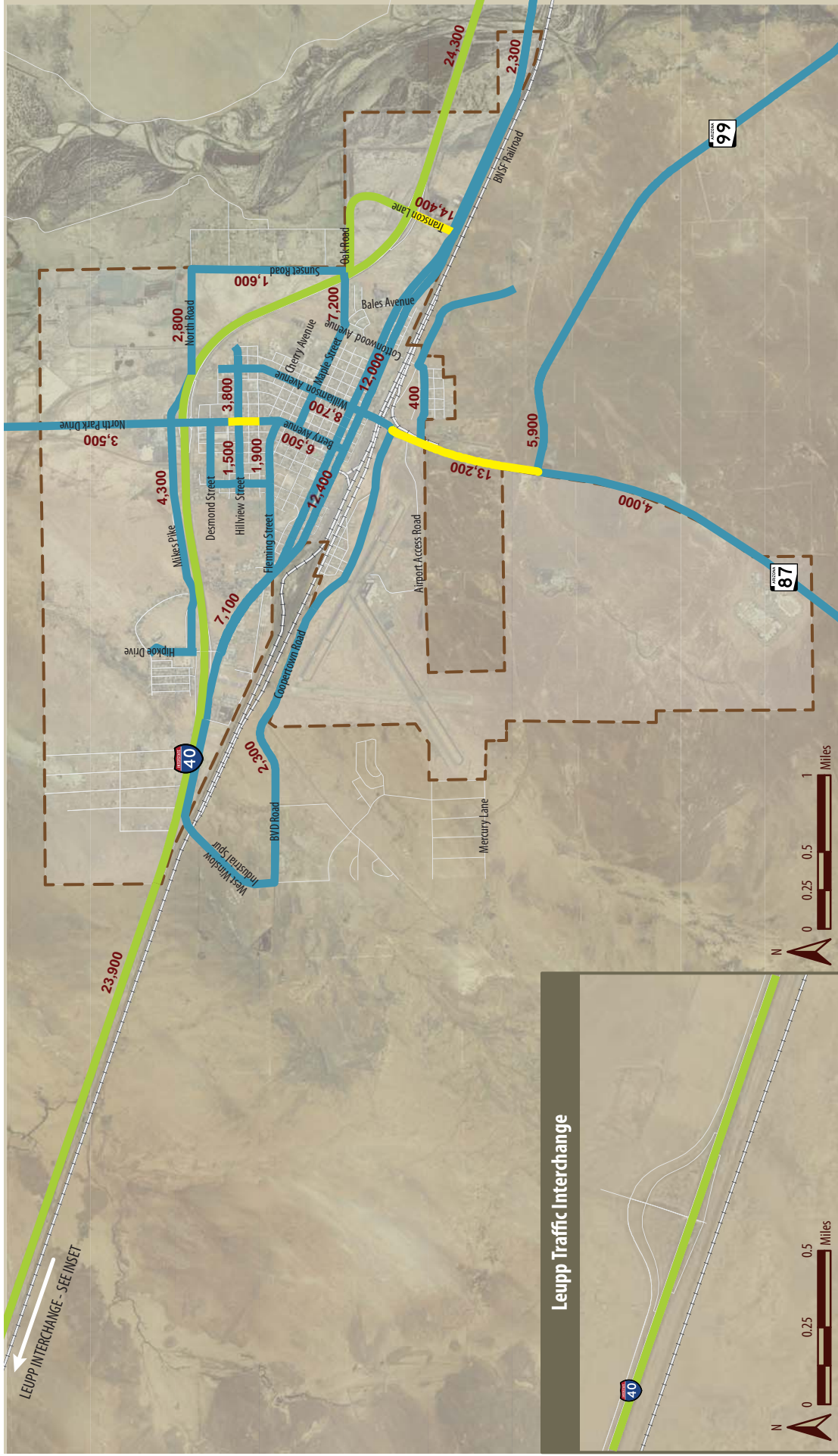


Figure 15 | 2030 Traffic Conditions - Programmed Improvements
 Source: HDR (2011)

5.5 Transit and Non-Motorized Transportation

Walking and bicycling is an important part of the Winslow transportation system. Demand for transit and non-motorized transportation is expected to increase with population growth.

Transit Demand

An evaluation using the APTNA method² estimated a demand of more than 63,000 annual one-way transit trips for the City of Winslow in 2010. To determine the potential demand for transit services, the APTNA assessed trip rates based on census information, which was reported as an annual trip rate for each group. The APTNA trip rates are reported in Table 12.

Table 12 Annual Transit Trip Rates for Select Demographic Groups

Demographic Group	Trip Rates: Annual One-Way Passenger Trips
Elderly persons Age 60 and Over	6.79
Persons with Disability Under Age 60	4.49
Persons living in Poverty Under Age 60	20.5

Source: Northwest Arkansas Transit Assessment Study, University of Arkansas, 2000.

Using the APTNA method, populations of elderly persons age 60 and over, persons with a disability under the age of 60, and persons living in poverty under age 60 are considered transit dependent populations. Census 2000 population characteristics suggested that 40 percent of the Winslow population could be defined as transit dependent using these APTNA measures. Based on the population growth anticipated by the City, this annual demand would grow up to 96,700 annual one-way transit trips in 2030.

While the community expressed an interest in transit service, the greatest challenge to meeting this estimated demand is funding for transit operations. While federal grant money is available for the capital and operations costs for starter transit service, local matching funds are required. As the City has other more pressing funding priorities, it may be some time before the City could consider a grant application.

Non-Motorized Transportation

The City of Winslow is committed to improving its sidewalk system. In addition to completing the Renaissance projects on 2nd Street and 3rd Streets, it has committed funding to improve sidewalks in several neighborhoods. The City of Winslow General Plan identifies a system of existing and proposed multiuse trails that connect its activity centers. This trail system should be expanded as growth occurs.

² The Arkansas Public Transportation Needs Assessment (APTNA) method represents the demand for transit service by applying trip rates to three population groups: elderly persons ages 60 and over, persons with disabilities under age 60, and persons living in poverty under age 60.



6.0 North–South Railroad Crossing Evaluation

The BNSF railroad is a transportation corridor that creates a physical barrier for other transportation facilities and thus restricts access – including emergency access – to portions of the study area. A railroad grade separation provides a crossing of the railroad where the roadway crosses over or under the railroad so that there is no conflict between the train and vehicles. A grade-separated crossing provides a safety benefit and reduces delay compared to an at-grade crossing. The BNSF Railroad also requires that any new crossing of the tracks be a grade-separated crossing.

The City currently has only two grade-separated crossings of the railroad tracks, one downtown along SR 87/Williamson Avenue and the other to the west of the City limits along West Winslow Industrial Spur/BVD Road. Limited north-south crossings have hobbled economic development south of the tracks and created bottleneck issues during emergencies.

The study team identified five concepts, shown in Figure 16, to add new grade separated crossings and improve existing access:

- Coopertown Bypass – West Winslow Industrial Spur
- Old Clear Creek Road – Transcon Lane Connection
- Williamson Avenue Underpass
- New West Winslow I-40 Traffic Interchange
- Leupp Traffic Interchange Improvements

Other possible rail crossings were initially reviewed during the plan development in addition to those presented as part of the more detailed evaluation process, however, it was determined that crossings with significant negative impacts were not feasible for further study . For example, a vehicular bridge crossing at Berry Avenue was identified early on in the study process and vetted through the TAC. However, an additional crossing anywhere near the current Williamson Avenue undercrossing would result in significant impacts. The impacts include the acquisition of right-of-way north and south of the tracks to meet the vertical clearance and grade requirements for a railroad underpass or overpass; wider and longer structures to clear existing obstructions; and, impacting traffic circulation both north and south of the tracks through the realignment and closure of streets and limiting access in other areas.

An underpass or overpass at Berry Avenue would need mitigation of the BNSF rail switching yard involving the crossing of up to 10 rail tracks resulting in significant costs. The Berry Avenue crossing would also directly impact the First Street Pathway and park that links the historic sites of La Posada Hotel and the Hubbell Trading Post. Subsequently, based on discussions with the TAC and City staff, rail crossings, other than those detailed in the report, were not carried through for further consideration.



6.1 Railroad Crossing Evaluation Criteria

The study team conducted a planning level evaluation of each concept using six general evaluation criteria. The purpose of this planning level evaluation was to identify potential benefits, impacts, and constraints. More detailed analysis of the criteria would be required during the scoping, concept development, and design phase of a project. The criteria are described below:

Cost: Detailed project costs are not listed for the improvement alternatives due to the conceptual nature of this planning effort. However, the study did consider the general impact of costs by potential alternatives and if the proposed project would have a large benefit compared with its cost. Given that most transportation projects that involve the railway are very costly, the cost criteria evaluated the railroad projects based on which may be the most cost effective.

Emergency and Truck Access: Emergency vehicles have limited choice for north-south access across the railroad tracks, causing concerns about emergency response times. Also, increasing overhead clearances along with narrow lanes and lack of shoulders make it so the downtown underpass is not always functional for truck traffic. The alternatives were evaluated on whether they provided an additional truck or emergency access point.

Economic Development: The economic benefit of potential improvements was evaluated. Economic benefits include decreased travel time and cost savings to residents and businesses, increased value of land, and improved access to the downtown and future industrial area near the airport.

System Performance: Alternative improvements were evaluated if they might improve traffic flow or might be located to better serve anticipated land development plans. The connectivity of a proposed route to an existing route along with connectivity to targeted growth areas was also evaluated.

Environmental Considerations: An environmental scan was completed and potential impacts of improvements on environmental and cultural resources were considered in the evaluation of alternatives. Consideration was also taken if the proposal was located in the 100-year Flood Emergency Management Agency (FEMA) flood zone. Appendix A includes the results of the environmental scan.

Community Support: The proposed alternative was evaluated if it was supported by existing plans and policies, such as the Winslow General Plan and the Navajo County Central Regional Transportation Study, and if it was supported during public outreach.

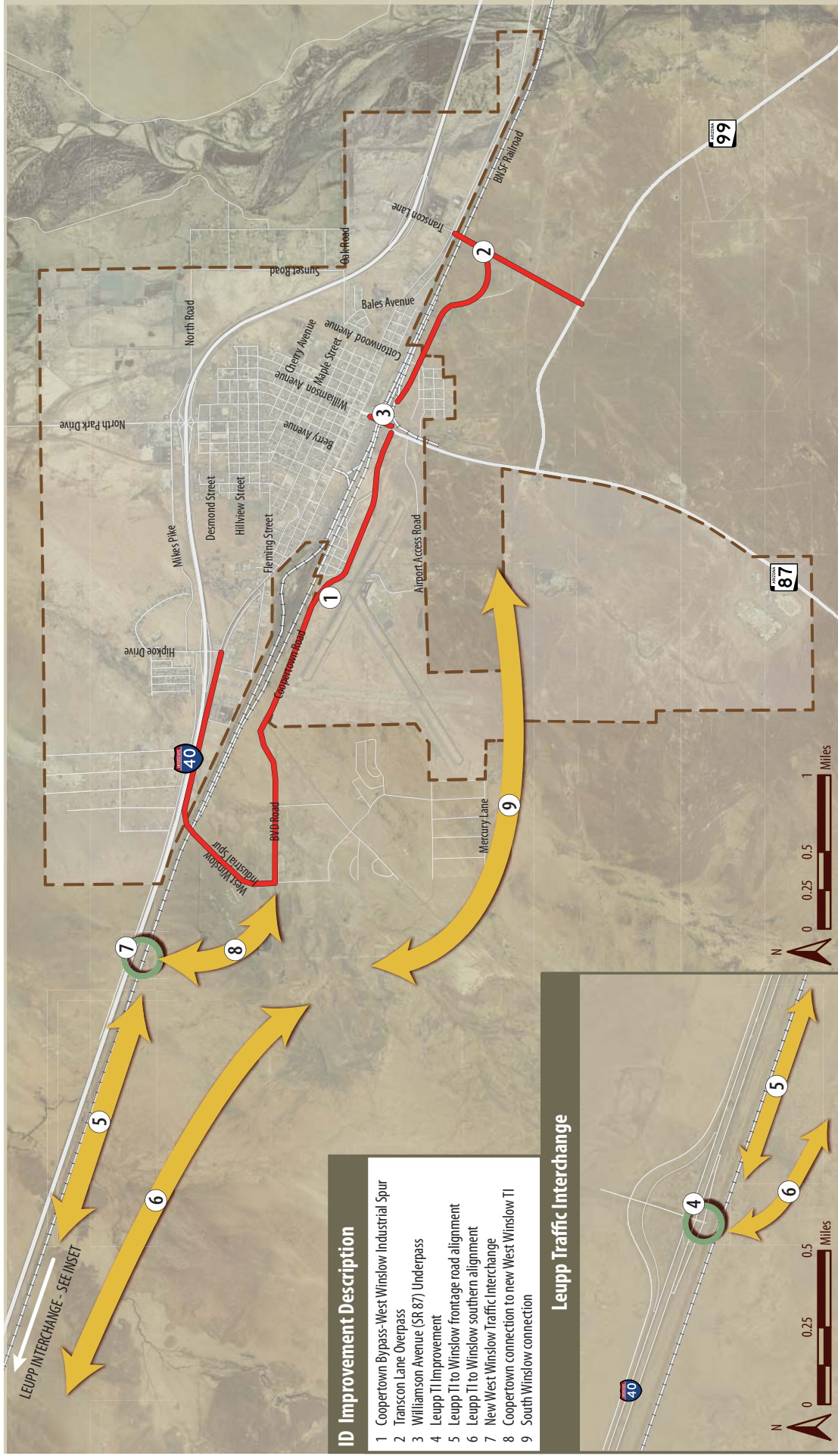
6.2 Coopertown Bypass - West Winslow Industrial Spur

Figure 16 shows the conceptual Coopertown bypass alignment, labeled as ID 1. The purpose of this bypass is to provide an alternate route for trucks and other vehicles traveling across the tracks through downtown Winslow. Trucks and other heavy vehicles using SR 87 and SR 99 currently avoid the existing narrow underpass and instead travel through Coopertown to cross the tracks and access I-40



at the West Winslow Industrial Spur. The bypass will remove this heavy truck traffic from the Coopertown residential area and route traffic on a new alignment between the airport and Coopertown. This improvement would also provide access to a proposed intermodal yard located between Coopertown and the West Winslow Industrial Spur on the south side of the tracks. This bypass is also shown in the *Lindbergh Regional Airport Master Plan* (Coffman Associates, Inc., 2010.)

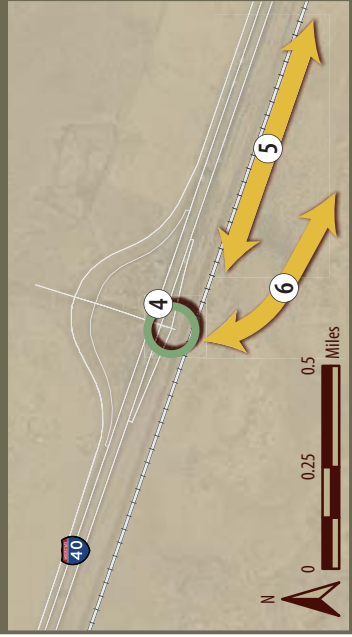




ID Improvement Description

- 1 Coopertown Bypass- West Winslow Industrial Spur
- 2 Transcon Lane Overpass
- 3 Williamson Avenue (SR 87) Underpass
- 4 Leupp TI Improvement
- 5 Leupp TI to Winslow frontage road alignment
- 6 Leupp TI to Winslow southern alignment
- 7 New West Winslow Traffic Interchange
- 8 Coopertown connection to new West Winslow TI
- 9 South Winslow connection

Leupp Traffic Interchange



- New corridor
- Planned roadway improvements
- Traffic interchange with railroad crossing
- City boundary
- Railroad

Figure 16 | North-South Railroad Crossing Alternatives
 Source: City of Winslow (2007), HDR (2011)

6.3 Transcon Lane Alternatives

Figure 16 shows the conceptual Old Clear Creek Road-Transcon Lane bypass alignment, labeled as ID 2. This roadway improvement alternative provides a north-south connection across the railroad tracks, south of the existing Transcon Lane interchange. The study team considered both underpass and overpass options. The underpass option would be more costly because of the shoofly railroad track detour needed during construction and drainage considerations. The study team identified four preliminary crossing options that could either be connected to Old Clear Creek Road or further extend south to connect to SR 99. These options are identified in Figures 17 to 20.

Option 1: Extend Transcon Lane under BNSF

This is a high-cost option where an underpass would be constructed by lowering the existing Transcon Lane vertical profile and passing under the tracks and Route 66. The access between Transcon Lane and Route 66 would be maintained by constructing a new connection. The Transcon Lane alignment would pass under existing Route 66 and BNSF tracks and tie into Old Clear Creek Road or extend south to connect to SR 99. Figure 17 shows a conceptual layout of this underpass option.

Option 2: New alignment under BNSF

This high-cost option would provide an underpass connection on a new alignment connecting to Transcon Lane near the existing Flying J Travel Plaza. This option would preserve the existing connection between Transcon Lane and Route 66. A new roadway link would start approximately at the existing northern driveway of the Flying J Travel Plaza traversing through the Navajo Nation's property in the northwest corner of the Transcon Lane and Route 66 intersection. The alignment would pass under existing Route 66 and BNSF tracks and tie into Old Clear Creek Road or extend south to connect to SR 99. Managing drainage for the underpass would add to the cost of this option. Figure 18 shows a conceptual layout of this underpass option.

Option 3: New alignment over BNSF

Similar to Option 2, but instead of going under the tracks, this option would bridge Route 66 and BNSF tracks. The existing connection between Transcon Lane and Route 66 would be preserved. A new roadway link would start approximately at the existing northern driveway of the Flying J Travel Plaza traversing through the Navajo Nation's property in the northwest corner of the Transcon Lane and Route 66 intersection. The alignment would pass over existing Route 66 and BNSF tracks and tie into Old Clear Creek Road or extend south to connect to SR 99. Figure 19 shows a conceptual layout of this overpass option.

Option 4: Extend Transcon Lane over BNSF

Similar to Option 1, this crossing would bridge Route 66 and BNSF tracks. The Transcon Lane alignment would pass over existing Route 66 and BNSF tracks and tie into Old Clear Creek Road or extend south to connect to SR 99. Figure 20 shows a conceptual layout of this overpass option.



Transcon Lane Alternatives Summary/Conclusion

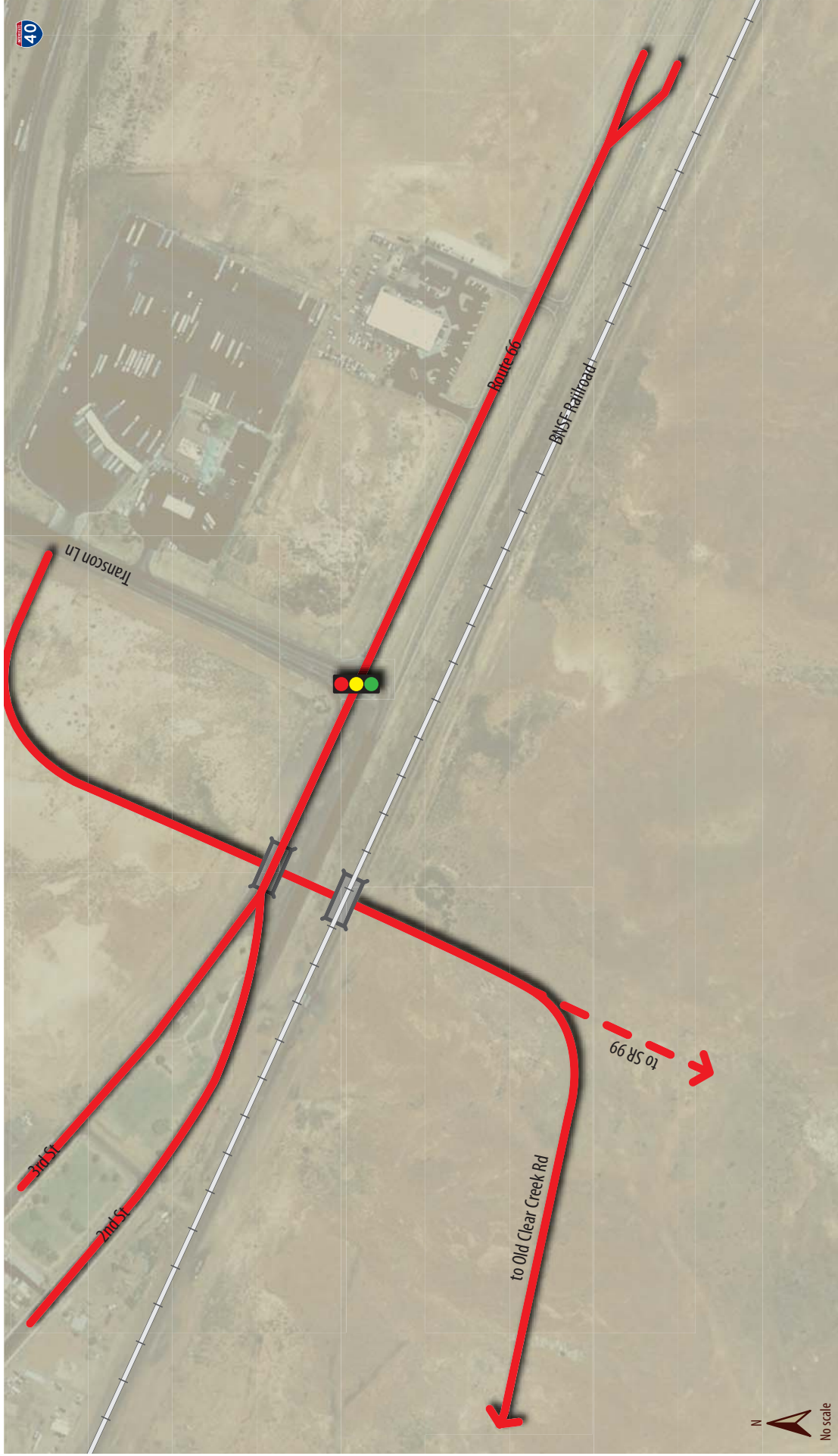
While all of these railroad crossing options appear feasible, more detailed engineering study is needed to select a preferred solution. Option 3 and 4, the overpass options, are recommended for further study because the underpass options would be more costly because of the track work required for construction.





— Extend Transcon Lane south with an underpass under Route 66 and BNSF tracks

Figure 17 | Transcon Lane Crossing Option 1
Source: HDR (2011)

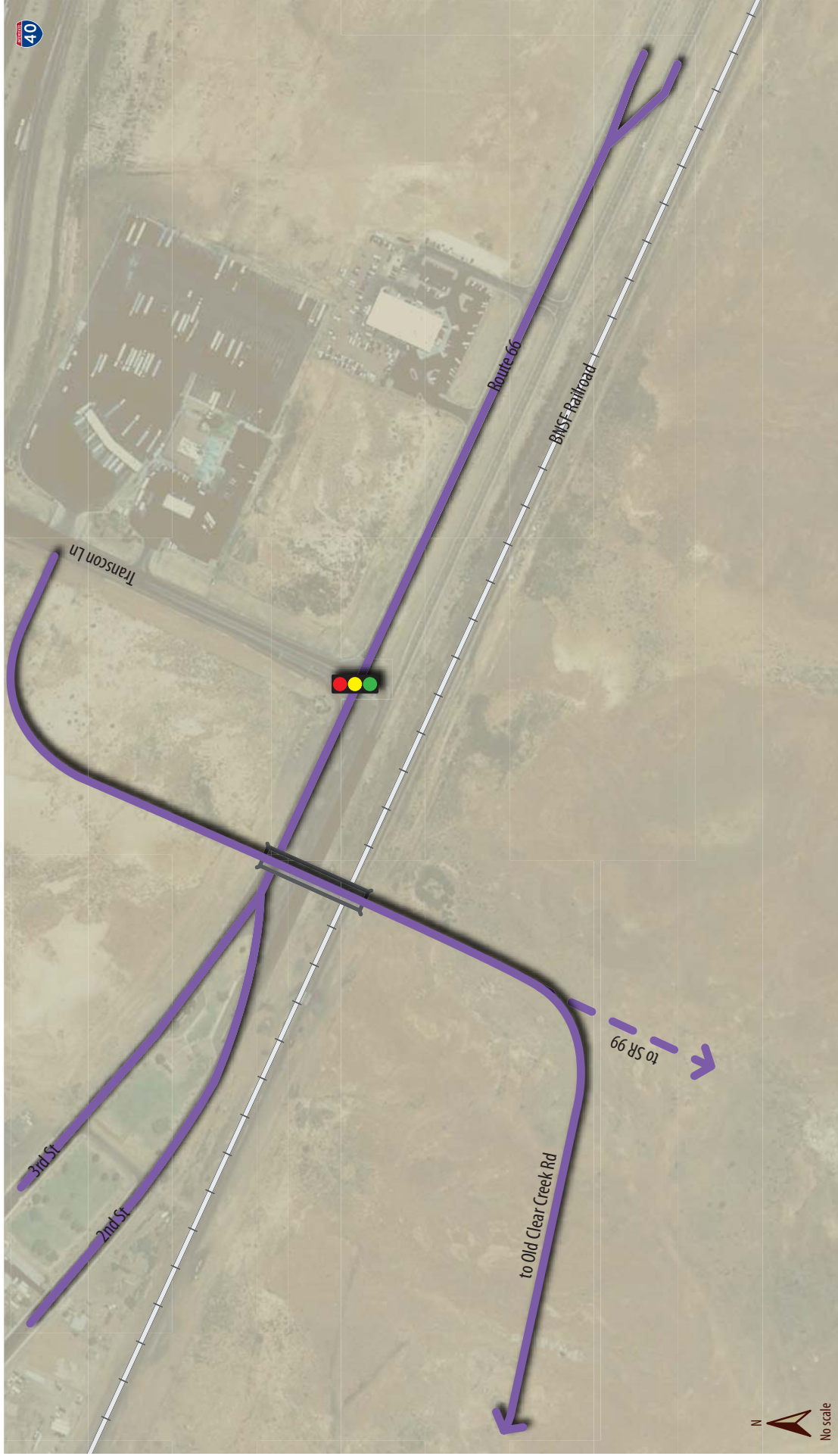


— New roadway link with an underpass under Route 66 and BNSF tracks

Figure 18 | Transcon Lane Crossing Option 2
Source: HDR (2011)

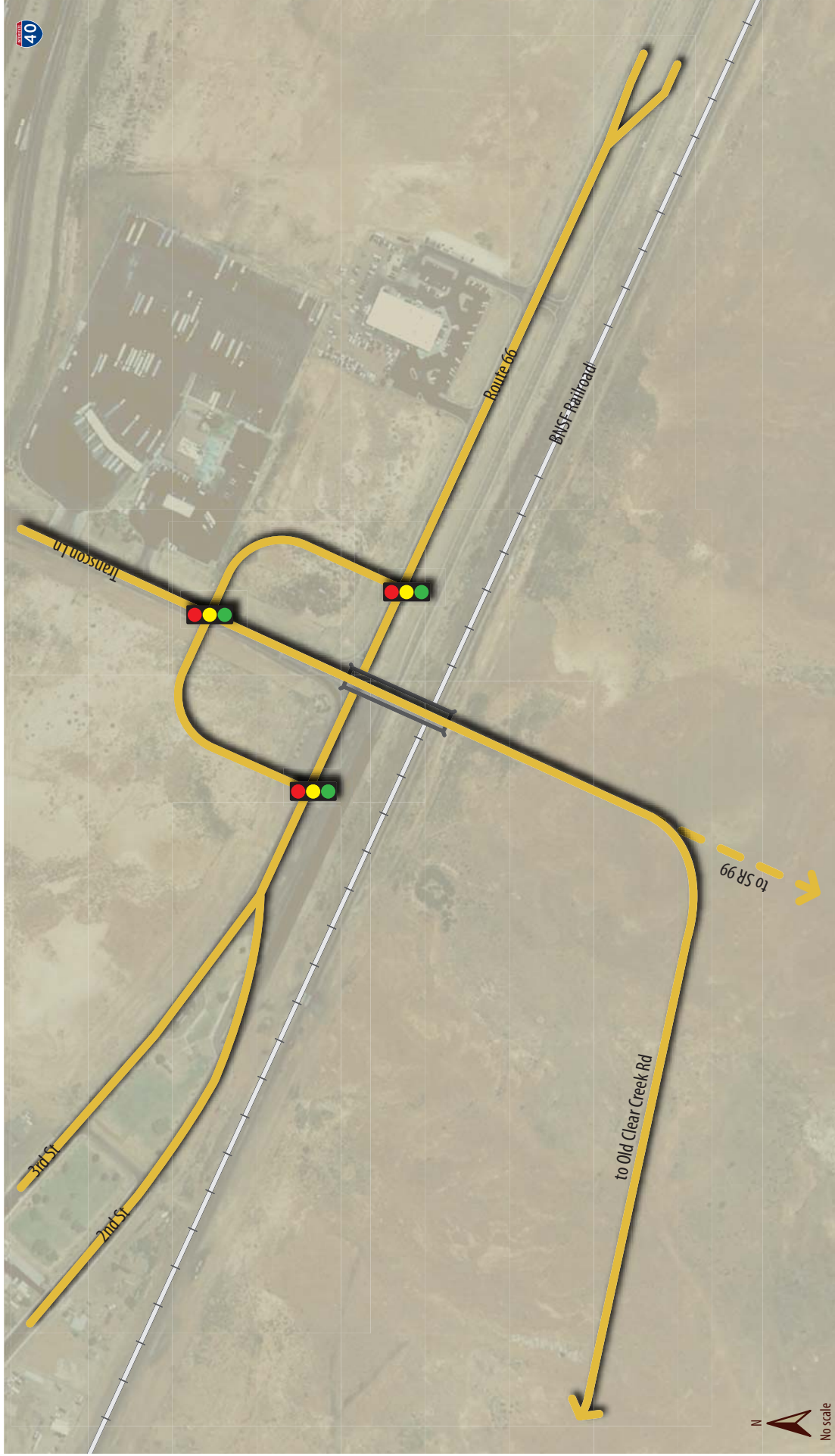
December 30, 2011 | HDR





— New roadway link with an overpass over Route 66 and BNSF tracks

Figure 19 | Transcon Lane Crossing Option 3
Source: HDR (2011)



— Extend Transcon Lane south with an overpass over Route 66 and BNSF tracks

Figure 20 | Transcon Lane Crossing Option 4
 Source: HDR (2011)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

6.4 Williamson Avenue (SR 87) Underpass

Figure 16 shows the Williamson Avenue (SR 87) Underpass labeled as ID 3. This BNSF crossing alternative would reconstruct the existing underpass at Williamson Avenue to four lanes improving it to meet current design standards.

A widened underpass would support economic development around and within the airport industrial area while bringing more traffic into downtown. While this alternative has the advantage of using the existing road network, improvements at Central Street/SR 87 may be required. Improvements in 2011 to Williamson Avenue at 2nd Street and 3rd Street were designed to accommodate eventual widening of the underpass.

This underpass reconstruction would require a temporary 'shoofly' track to detour train traffic away from the underpass construction. *BNSF Railway-Union Pacific Railroad Guidelines for Railroad Grade Separation Projects* (January 24, 2007) state that shoofly tracks must be designed for maximum authorized timetable speed.³ This means that any detour track would require a horizontal and vertical profile similar to the existing mainline.

While BNSF is willing to work with Winslow to improve north-south access, the shoofly construction at the Williamson Avenue Underpass would be very costly, and it might be difficult to meet BNSF operating standards at this location.⁴ The BNSF has been discussing the need for additional capacity and the addition of a third track. Adding a third track would impact the Williamson Avenue Underpass and could provide an opportunity to improve this structure.

³ Retrieved from http://www.uprr.com/aboutup/operations/specs/attachments/grade_separation.pdf.

⁴ Melvin Thomas (BNSF), interview, September 28, 2011.



6.5 Leupp Traffic Interchange (Junction I-40/SR99)

Figure 16 shows the conceptual Leupp TI reconstruction labeled as ID 4. Extending Leupp Road (SR 99) over the BNSF tracks would provide a direct connection to lands available for development and a truck route to the airport industrial area to help spur economic development. Furthermore, a railroad grade separation at Leupp Road would take advantage of an existing I-40 traffic interchange, so no federal interstate change of access approval would be needed. Unfortunately, the railroad closely parallels I-40 at this location (both horizontally and vertically) and the existing interchange was never built to accommodate a future crossing over the railroad. The profile of Leupp Road over I-40 has been set to only provide the required minimum vertical clearance (16.5 feet) over I-40. Roadways crossing over railroads must have a minimum of 23.5 feet of vertical clearance. Because the distance between the existing I-40 bridge and the proposed BNSF bridge would be fairly short, insufficient length exists to raise the Leupp Road profile over the railroad while retaining the existing I-40 bridge. As a result, an interchange reconstruction is necessary that elevates Leupp Road high enough to pass over the railroad, which will result in reconstructing the eastbound ramps to match. Because the westbound ramps swing wide to the north, it is assumed that they would not be impacted.

Figure 21 shows two potential interchange reconstruction options available for accommodating a new BNSF crossing at Leupp Road.

Option 1: Raise the Leupp Road TI

Under this option, the horizontal alignment of the Leupp Road TI would be maintained, but elevated sufficiently to provide the required clearance over the railroad. This option may require the interchange be closed during construction because the existing I-40 bridge would have to be removed and replaced in the same location, but at a higher elevation – not something that is conducive to safely maintaining traffic during construction.

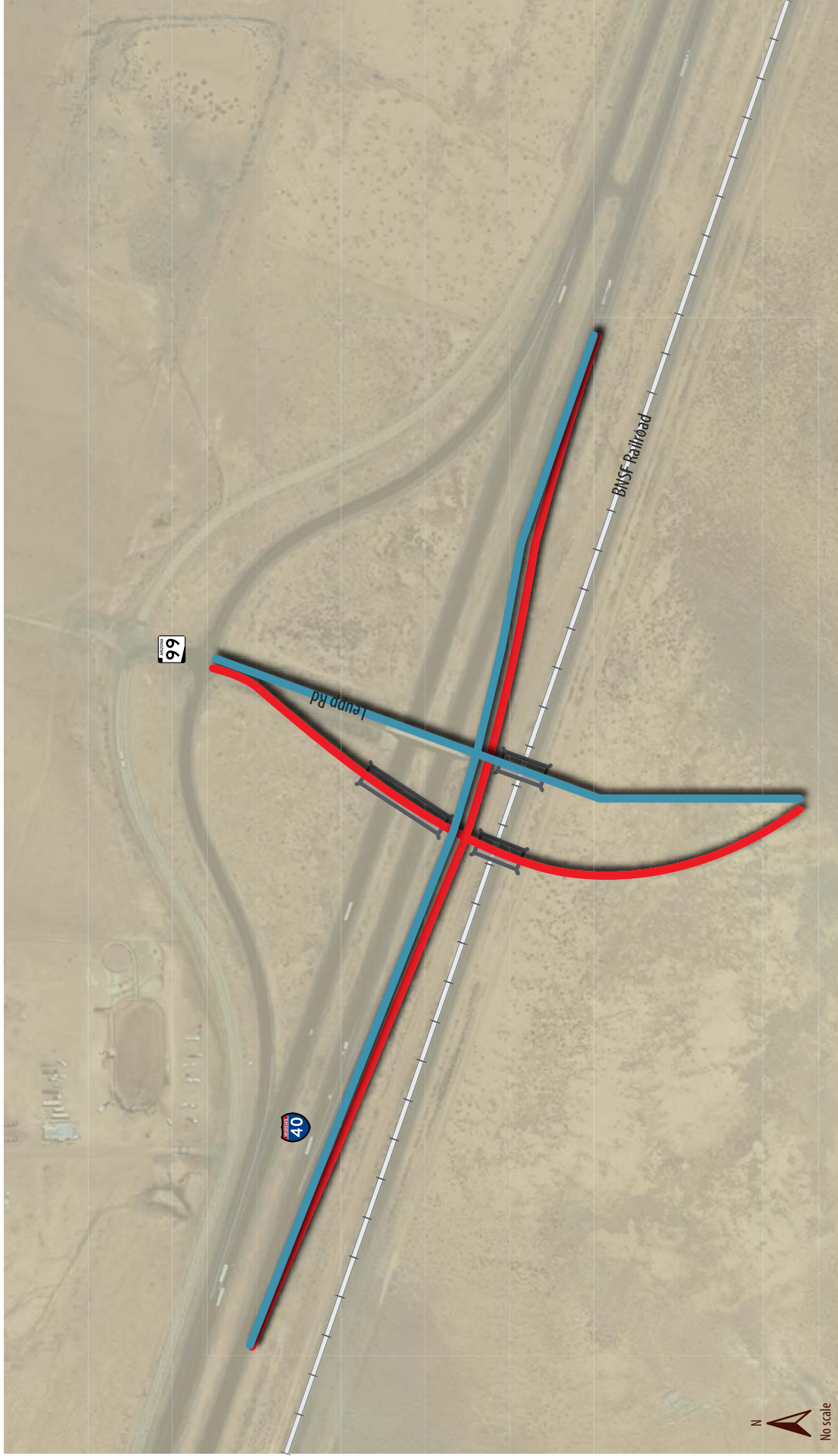
Option 2: Reconstruct the Leupp Road TI

Under this option, the horizontal alignment of Leupp Road and the eastbound ramps would be realigned and reprofiled to achieve the required height to pass over the BNSF. Much of this option could be built while keeping the existing interchange operational, though some short term closures of the eastbound ramps would eventually be required to make the final connections.

Further study of this option could also result in consideration of realigning SR 99 along with the relocation of the traffic interchange to address the safety issues of a 90 degree turn on SR 99 west of the existing TI. There may also be opportunity then to take advantage of existing grade differences between the interstate and railroad when reconstructing the TI

Option 2 would be slightly more expensive than Option 1 because more embankments would be required and because maintenance of traffic cost would be incurred, but otherwise, no major cost differential would exist since both options essentially include the same amount of new pavement and new bridge area.





Option 1: Raise the Leupp Road traffic interchange

Option 2: Reconstruct the Leupp Road traffic interchange

Figure 21 | Leupp TI BNSF Crossing Options
 Source: HDR (2011)

6.6 New West Winslow Traffic Interchange

Figure 16 shows the conceptual new West Winslow TI labeled as ID 7. Compared to the cost of total reconstruction of the existing Leupp TI likely needed to cross the BNSF tracks, a new West Winslow TI located two miles west of the existing Hipkoe Interchange may be a more cost effective solution to provide north-south access. A West Winslow TI would be closer to the airport industrial area meaning that the required new connections from I-40 would be shorter and less costly than the connections to the Leupp TI. A road new connection between the West Winslow Industrial Spur, labeled as ID 8 in Figure 16, would be needed.

6.7 Traffic Interchange Connection Alternatives

Whether the Leupp TI is improved to cross the BNSF or a new, closer, TI is proposed to provide access to the airport industrial area south of the BNSF tracks, new road connections will be needed from I-40. The study team considered two potential alignments shown in Figure 16.

Option 1: Frontage road alignment

Shown in Figure 16 as ID 5 the new corridor would be constructed parallel to and south of the BNSF tracks as a frontage road to I-40 and connect to Bvd Road (West Winslow Industrial Spur) with either the Leupp TI or a new West Winslow TI.

Option 2: Southern alignment

Shown in Figure 16 as ID 6, the new corridor would cut diagonally from I-40 to connect to Mercury Lane southwest of Winslow and continue east along the north of the existing levee south of the airport. The alignment would ultimately connect to SR 87.

6.8 Railroad Crossing Evaluation

The study team prepared an evaluation of each railroad crossing alternative using the criteria described in Section 6.1 and the results of the environmental scan shown in Appendix A. Table 13 presents a summary of the evaluation factors for each of the BNSF railroad crossing alternatives. Table 14 provides a summary ranking of the railroad crossing evaluation criteria.



Table 13 Railroad Crossing Evaluation Summary

Evaluation Criteria	Coopertown Bypass – West Winslow Industrial Spur (ID 1)	Transcon Lane Overpass (ID 2)	Williamson Avenue (SR 87) Underpass (ID 3)	New West Winslow TI (ID 7)	Leupp TI (ID 4)
Cost	<ul style="list-style-type: none"> • Low cost • Uses existing overpass • Floodplain 	<ul style="list-style-type: none"> • Medium cost • Potential impacts to Flying J Travel Plaza • Floodplain 	<ul style="list-style-type: none"> • Highest cost, if feasible • Impacts to BNSF, historic downtown, existing street system 	<ul style="list-style-type: none"> • Medium cost 	<ul style="list-style-type: none"> • High cost • Maintenance of traffic
Emergency and Truck Access	<ul style="list-style-type: none"> • Improves existing truck bypass route • Removes trucks from Coopertown residential area 	<ul style="list-style-type: none"> • Creates truck bypass route away from downtown • Creates another north-south access point for emergency vehicles 	<ul style="list-style-type: none"> • Truck traffic and hazardous materials would continue to go through downtown • Could improve emergency response times though does not create another north-south access point 	<ul style="list-style-type: none"> • Creates truck bypass route - more direct route than Leupp TI alternative • Improves emergency access to future airport industrial area 	<ul style="list-style-type: none"> • Could create truck bypass route - though long detour route • Improves emergency access to future airport industrial area
Economic Development	<ul style="list-style-type: none"> • Reduces truck impacts to downtown • Provides access to proposed intermodal facility and Hopi industrial site 	<ul style="list-style-type: none"> • Reduces truck impacts to downtown but could also divert vehicle traffic from downtown • Less direct access to airport industrial area • No direct access to Route 66 	<ul style="list-style-type: none"> • Increases traffic into downtown, supporting revitalization of downtown • Improves access to airport industrial area 	<ul style="list-style-type: none"> • Provides most direct access to south side industrial area around airport • Opens land for new development 	<ul style="list-style-type: none"> • Provides access to south side industrial area around airport • Opens land for new development



Table 13 Railroad Crossing Evaluation Summary (continued)

Evaluation Criteria	Coopertown Bypass – West Winslow Industrial Spur (ID 1)	Transcon Lane Overpass (ID 2)	Williamson Avenue (SR 87) Underpass (ID 3)	New West Winslow TI (ID 7)	Leupp TI (ID 4)
System Performance	<ul style="list-style-type: none"> Bypass will improve connectivity to airport industrial area 	<ul style="list-style-type: none"> Follows existing Transcon Lane alignment - would improve network continuity with connection to I-40 Closer to existing activity centers 	<ul style="list-style-type: none"> Increases traffic into downtown which could impact pedestrian safety and traffic flow Provides additional capacity for traffic to travel north-south to downtown 	<ul style="list-style-type: none"> Improves connectivity to airport industrial park 	<ul style="list-style-type: none"> Improves connectivity to airport industrial park
Environmental	<ul style="list-style-type: none"> No known cultural sites, biological resources, or hazmat sites Potential floodplain issues 	<ul style="list-style-type: none"> No known cultural sites, biological resources, or hazmat sites Drainage and floodplain issues 	<ul style="list-style-type: none"> No known cultural sites, biological resources, or hazmat sites Portions of alignment in 100-year FEMA floodplain Potential impacts to historic districts 	<ul style="list-style-type: none"> Potential cultural resources No known biological resources or hazmat sites 	<ul style="list-style-type: none"> No known cultural sites, biological resources, or hazmat sites
Community Support	<ul style="list-style-type: none"> Supported by the City Council Top community priority 	<ul style="list-style-type: none"> Supported during public outreach, specifically by police and fire who would like another north-south access point 	<ul style="list-style-type: none"> Supported in Navajo County Plan and during public outreach 	<ul style="list-style-type: none"> Not mentioned by public during public outreach 	<ul style="list-style-type: none"> Not mentioned by public during public outreach; mentioned by agencies



Table 14 Railroad Crossing Evaluation Summary Ranking

Evaluation Criteria	Coopertown Bypass – West Winslow Industrial Spur	Transcon Lane Overpass	Williamson Avenue (SR 87) Underpass	New West Winslow TI	Leupp TI
Cost					
Emergency and Truck Access					
Economic Development					
System Performance					
Environmental					
Community Support					

Excellent	Good	Moderate/Neutral	Fair	Poor
-----------	------	------------------	------	------



6.9 Recommended Railroad Crossing Priorities

The following recommendations are based on input from the public and stakeholders, the railroad crossing evaluation matrix, and the environmental scan.

Highest Priorities

Coopertown Bypass

The Coopertown bypass is the City of Winslow's priority north-south access project. This project will improve truck access and safety by removing trucks and other heavy vehicles from the Coopertown neighborhood. It will locate a new road between the existing Coopertown neighborhood and the Winslow airport. Compared to other options for improving north-south access, this option has a relatively low cost. It has public support and has been endorsed by the Winslow City Council.

Williamson Avenue Underpass

Widening of the Williamson Avenue Underpass is the City's preferred solution for improving north-south access across the railroad. BNSF is open to the underpass improvement provided that its design requirements for a shoofly track to detour the mainline during construction are met. These design requirements present significant engineering challenges that make this north-south mobility solution the most expensive of any considered.

Secondary Priorities

Transcon Lane Overpass

A new overpass connecting Transcon Lane to Old Clear Creek Road or SR 99 would be a more cost effective solution for meeting the City's goals of improving north-south access compared to the Williamson Avenue Underpass. It would create additional redundancy in Winslow's transportation system by providing a third point of access and a direct connection to I-40 at an existing traffic interchange. It would improve emergency access and overall system performance.

New West Winslow TI and Leupp TI

Additional access to I-40 west of Winslow would support the City's long term economic development goals west of the airport. A potential new traffic interchange and railroad crossing two miles west of the existing Hipkoe traffic interchange would provide direct access to this growth area. As growth occurs over the long term, a new railroad crossing at the Leupp TI may also be warranted to accommodate increased travel demand. These long-term improvements should be implemented in partnership with land developers as new access for land is warranted by market conditions.

Conclusion

The next step for implementing crossing improvement is a more detailed engineering and environmental study that advances design for the concepts to the point where more defined cost estimates can be prepared. This more detailed engineering and environmental study would identify the footprint, right-of-way needs, environmental issues, and other costs. The Williamson Avenue Underpass study should



include preliminary design and engineering of the shoofly detour needed for the widening. Costs of each concept could then be compared side-by-side to assist the community in prioritizing and funding the projects.



7.0 Implementation Plan

This section of the document lays out the improvements identified to maintain and enhance multimodal mobility and safety. Improvements have been prioritized for roads, transit and non-motorized systems. These improvements were primarily based on input and suggestions from the City, stakeholders, and existing plans.

7.1 Roads

Table 15 shows the recommended road improvement priorities through the 2030 planning horizon together with planning level cost estimates. These priorities include new links to improve system continuity and support economic development as well as improve safety and operations on existing roads. These priorities and recommendations are based on previous studies and public and stakeholder outreach. Figure 22 shows the locations of these recommended improvements. Appendix B provides additional detail on the cost estimates.

Near-Term Priorities

Near-term priorities are identified in the City of Winslow five-year capital improvement plan and the ADOT five-year work program. Funding had been identified for these improvements and construction is planned. This section also includes near-term recommendations for additional study at Transcon Lane, the Hipkoe Traffic Interchange, and Route 66. The City in partnership with ADOT and BNSF should conduct a design concept report to advance engineering design for railroad crossing alternatives at Williamson Avenue and Transcon Lane.

City of Winslow

The City of Winslow has obtained federal funding to extend existing Transcon Lane north of the I-40 interchange to Oak Road. This project is in the City's CIP. The Coopertown Bypass to the West Winslow Industrial Spur is also identified in the CIP.

ADOT

ADOT has not identified any road capacity improvements within the City of Winslow in its 2012 – 2016 Five-Year Transportation Facilities Construction Program.



Table 15 Road Improvement Needs

Priority	Item	Description	Jurisdiction	Unit	Cost (2010\$)	Source
Near-Term						
1	Coopertown Bypass – West Winslow Industrial Spur	Reconstruct existing road and build new 2 lane Coopertown Bypass	Winslow	5.57 miles	\$8.5 million	5
2	Transcon Lane – Oak Road connection	New 2 lane road	Winslow	0.4 miles	\$1.1 million	1
3	East End Railroad Crossing Study	Design concept study	ADOT, Winslow, BNSF	Lump Sum	\$200,000	
4	Route 66 Corridor Study/Access Study	Access management plan for Route 66 within City limits	Winslow	Lump Sum	\$50,000	1
5	Transcon Lane Truck Access Study	Evaluation of road geometry to improve truck operations	Winslow	Lump Sum	\$35,000	4
6	Hipkoe Drive Traffic Interchange Traffic Operations Study	Examination of traffic operations at Hipkoe Drive and I-40	ADOT	Lump Sum	\$50,000	1
7	Transcon Lane Truck Access Study	Widen Transcon Lane, realign the driveway accessing Flying J facility, and modify the intersection of SR87/US66/Transcon Lane	Winslow	2,000 feet	\$1.5 million	4
Mid-Term						
8	Bales Avenue Connection	New 2 lane road	Winslow	425 feet	\$240,000	1
9	Airport Road Realignment	New 2 lane road	Winslow	2,500 feet	\$830,000	2
10	North Park Drive/Berry Avenue Improvements	Safety and operations improvements	Winslow	Lump Sum	\$90,000	3
11	Williamson Avenue Improvements	Safety and operations improvements	Winslow	Lump Sum	\$90,000	3



Table 15 Road Improvement Needs (continued)

Priority	Item	Description	Jurisdiction	Unit	Cost (2010\$)	Source
12	Hillview Street from North Park Drive to Williamson Avenue	Safety and operations improvements	Winslow	Lump Sum	\$90,000	1
13	Improvements at Hipkoe Drive and I-40	Implement recommendations of Hipkoe Drive Traffic Interchange Traffic Operations Study	ADOT	Contingent on study findings		3
14	Route 66 Access Management	Implement recommendations of Route 66 Corridor Study/Access Plan	Winslow	Contingent on study findings		1
Long -Term						
15	Transcon Lane Overpass	New railroad overpass and 2 lane road	Winslow	Contingent on design concept study findings		3
16	Williamson Avenue (SR 87) Underpass	Widen to 4 lanes	ADOT	Contingent on design concept study findings		1
17	SR 87 Winslow to Payson	Passing lanes and shoulder improvements	ADOT	To be determined through future study		1
18	New interchange west of Winslow	New traffic interchange	ADOT, Developer	To be determined through future study		3
19	Coopertown connection to new West Winslow TI	New 2 lane road	Winslow, Developer	To be determined through future study		3
20	South Winslow connection	New 2 lane road	Winslow, Developer	To be determined through future study		3
21	Leupp Traffic Interchange railroad overpass	Rebuild existing traffic interchange	ADOT, Developer	To be determined through future study		3

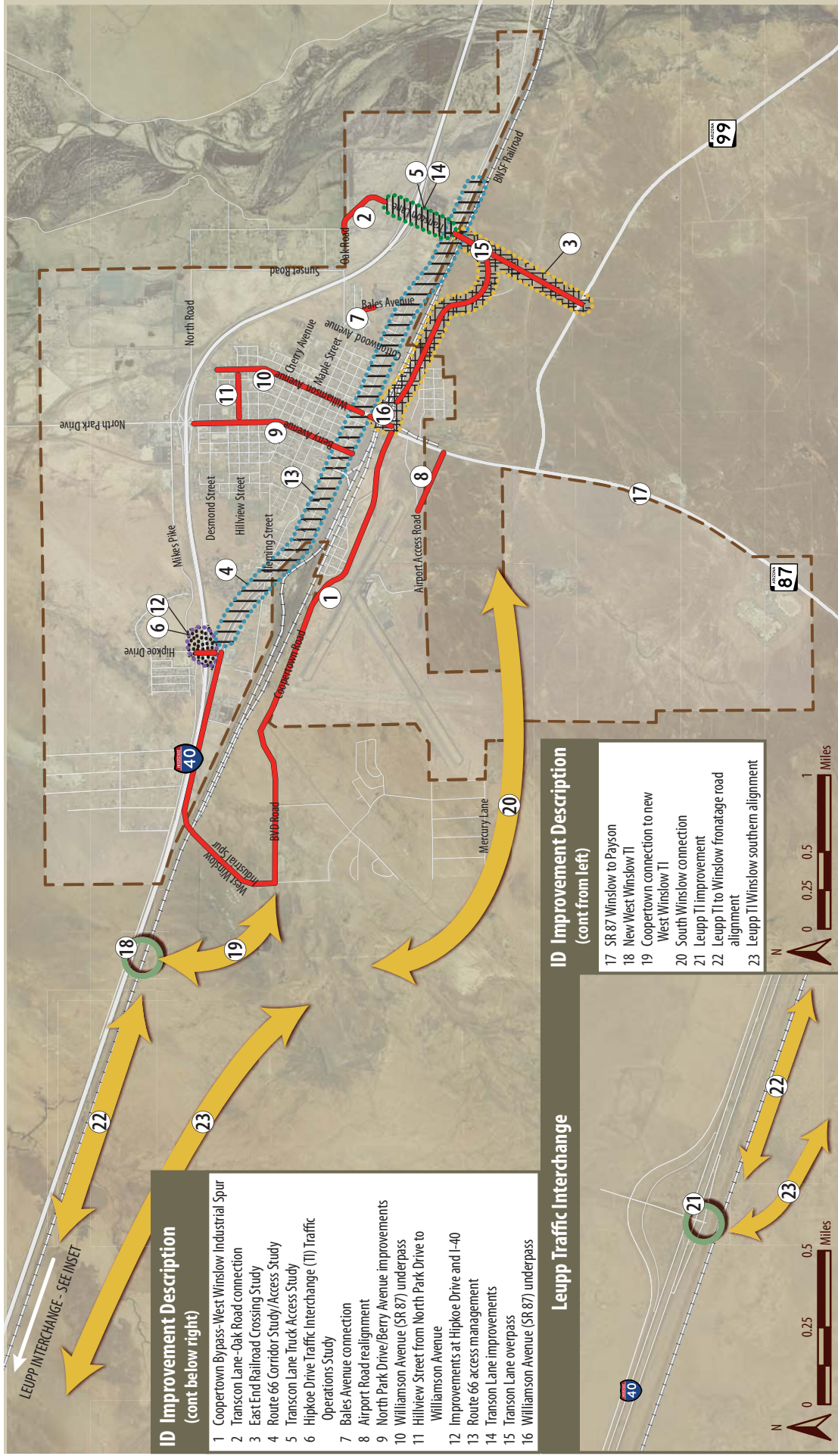


Table 15 Road Improvement Needs (continued)

Priority	Item	Description	Jurisdiction	Unit	Cost (2010\$)	Source
22	Leupp Traffic Interchange to Winslow access road	New 2 lane road	Winslow, Developer	To be determined through future study		3
23	Leupp TI to Southern Winslow	New 2 lane road	Winslow, Developer	To be determined through future study		3

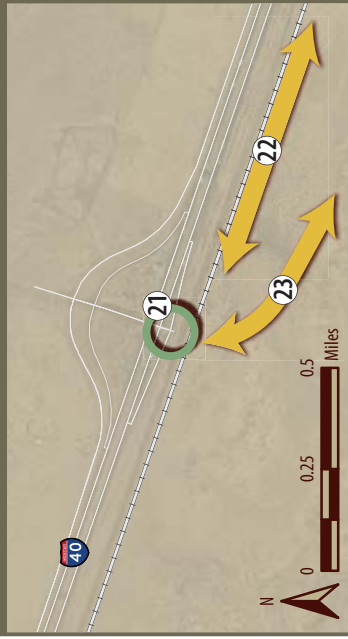
Sources: 1) Navajo County Central Region Transportation Plan, 2010; 2) Winslow-Lindbergh Regional Airport Master Plan, 2010; 3) HDR Engineering, Inc., 2012; 4) ADOT State Transportation Improvement Program (STIP) FY 2011-2014; 5) City of Winslow, 2012.





- ID Improvement Description (cont below right)**
- 1 Coopertown Bypass-West Winslow Industrial Spur
 - 2 Transcon Lane-Oak Road connection
 - 3 East End Railroad Crossing Study
 - 4 Route 66 Corridor Study/Access Study
 - 5 Transcon Lane Truck Access Study
 - 6 Hipkoe Drive Traffic Interchange (TI) Traffic Operations Study
 - 7 Bales Avenue connection
 - 8 Airport Road realignment
 - 9 North Park Drive/Berry Avenue improvements
 - 10 Williamson Avenue (SR 87) underpass
 - 11 Hillview Street from North Park Drive to Williamson Avenue
 - 12 Improvements at Hipkoe Drive and I-40
 - 13 Route 66 access management
 - 14 Transcon Lane improvements
 - 15 Transcon Lane overpass
 - 16 Williamson Avenue (SR 87) underpass

Leupp Traffic Interchange



ID Improvement Description (cont from left)

- 17 SR 87 Winslow to Payson
- 18 New West Winslow TI
- 19 Coopertown connection to new West Winslow TI
- 20 South Winslow connection
- 21 Leupp TI improvement
- 22 Leupp TI to Winslow frontage road alignment
- 23 Leupp TI Winslow southern alignment

- New corridor
- Planned roadway improvements
- Traffic interchange with railroad crossing

- East End Railroad Crossing Study
- Route 66 Corridor Study/Access Study
- Hipkoe Drive Traffic Interchange Traffic Operations Study
- Transcon Lane Truck Access Study

- City boundary
- Railroad

Figure 22 | Road Improvement Needs
Source: City of Winslow (2007), HDR (2011)



Mid-Term Priorities

Mid-term priorities will be added to the City of Winslow's five-year capital improvement program during the next cycle of updates.

City of Winslow

Mid-term priorities for the City include the Bales Avenue connection, realignment of Airport Road, and safety and operational improvements on key collector roads. The City should also implement recommend access management improvements to 2nd Street and 3rd Street along Route 66.

Operational and Safety Improvements

Based on the public outreach, this study recommends operational and safety improvements on key collector roads including Williamson Avenue, North Park Drive, Berry Drive, and Hillview Street. As a first step studies will be conducted for each of the key collector road corridors to identify mobility and traffic safety needs. These study will make recommendations to improve operations and safety that could include consolidating commercial drives to right-in right-out only driveways, adding signage, reviewing school zone signing, redefining on-street parking on selected segments, adding pedestrian crosswalk and related signing and others improvements within the existing right of way.

Airport Road Realignment

The *Winslow-Lindbergh Regional Airport Master Plan* identified a need to realign Airport Road so that it does not encroach into the Runway 29 Runway Protection Zone (RPZ). The recommended improvement bends Airport Road to the southeast and intersects with SR 87 south of the existing intersection.

Bales Avenue Connection

Identified in the *Navajo County Central Region Transportation Study* (Wilson & Company, 2010), this extension of Bales Avenue would provide an alternative link to Route 66 from creating a new east-west connection between Maple Street and Route 66.

ADOT

In partnership with the City, ADOT should implement recommended improvements to the Transcon Lane TI and the Hipkoe TI.

Long-Term Priorities

Long-term priorities are planned improvements that have not yet been identified for funding, but are next on the priority list.

City of Winslow

Through the end of this 20-year planning horizon, the City of Winslow should continue to monitor traffic operations at key intersections to identify new traffic control needs as growth occurs. The City should also implement the recommendations of the East End Railroad Crossing Design Concept Study. This



may be a grade-separated railroad crossing at Transcon Lane or a widening of the existing Williamson Avenue underpass.

The City should partner with ADOT and land developers to establish new access from I-40 west of Winslow. Access to I-40 should be provided first at a new traffic interchange two miles west of the existing Hipkoe Drive Traffic Interchange. Additional access could be provided at the Leupp Traffic Interchange as warranted by traffic and market conditions. These long term priorities require additional study.

ADOT

As traffic between Winslow and Payson grows, ADOT should evaluate the need for additional passing lanes and shoulder improvements to maintain safe and efficient operations on SR 87.

7.2 Public Transit

There is a growing unmet demand for transit services within the City of Winslow, as described in Section 5.5. The public feedback that the study team received regarding additional transit service was generally positive.

Local Demand Responsive Service

Transit service to meet this growing need should include demand responsive service that operates a limited number of subscription services such as scheduled daily or weekly trips to and from a community/senior center or to a local destination such as a supermarket or Walmart.

These are advanced reservation/demand response trips, but the community knows which day the van will be going to the specified destination and many people will schedule their trips accordingly because it is reliable. This also helps keep the operator's cost down because they can get several people to go on the same day and share a van as opposed to the van making multiple trips throughout the day/week. Figure 23 identifies activity centers within Winslow that would be served by this service.

Transit service can increase the attractiveness of a community to potential investors. Through the 20-year planning horizon, the City should continue to evaluate its budget priorities and identify a funding stream to serve as a local match for federal grant money to implement a demand responsive service that would help meet its residents' mobility needs.

Regional Transit Service

The City of Winslow should also participate in and implement the recommendations of a regional transit feasibility study that examines the potential for connections between Winslow and Holbrook and Winslow and Flagstaff. The opening of the new Navajo Nation casino at Twin Arrows in 2013 would create a new activity center that might improve the feasibility of new regional service. This study would be conducted in partnership with ADOT and NACOG, including the Hopi Tribe and the Navajo Nation.



7.3 Sidewalks, Trails, and Paths

The City of Winslow continues to invest in its non-motorized sidewalks, trails, and paths system. Table 16 shows several near-term sidewalk improvements identified in the City's capital improvement program. In addition to maintaining its existing sidewalks, the City should implement the proposed trails and paths identified in Figure 24. As new roads are constructed, the City should continue to require developers to provide sidewalks as identified in its typical road cross sections, which are shown in Figure 25.

Near-Term Priorities

Near-term priorities include sidewalk improvements on existing neighborhoods. The proposed historic and heritage destination trail identified in the City of Winslow General Plan for Coopertown Road should be implemented together with the Coopertown Bypass project.

The City should begin planning studies for a new west end pedestrian bridge across the BNSF tracks to improve pedestrian mobility between the Hopi Tribe residential area on the West Winslow Industrial Spur and activity centers, such as the Indian Health Care Center, in central Winslow.

Mid-Term Priorities

In the mid-term, the City should implement the west end pedestrian bridge across the BNSF. The proposed historic and heritage destination trail to the airport identified in the City of Winslow General Plan should be implemented together with the relocation of Airport Road.

Long-Term Priorities

Over the long term, the City should complete the implementation of the trails and paths shown in Figure 24. The east end railroad crossing improvements will provide new pedestrian access across the BNSF tracks.



Table 16 Non-Motorized Trails and Paths System Needs

Priority	Item	Description	Jurisdiction	Unit	Cost	Source
Near-Term						
1	City neighborhood walkways and streets	Sidewalk, curb, gutter, and ADA ramp improvements in four neighborhoods	Winslow	Lump Sum	\$1.7 million	1
2	Citywide walkways and streets	Sidewalk, curb, gutter, and ADA ramp improvements in throughout the City	Winslow	Lump Sum	\$340,000	1
3	Mike’s Pike East – North Park Drive to Ice House Wash	Walkways, streetscape, lighting, and drainage improvements	Winslow	Lump Sum	\$450,000	1
4	First Street - Hubbell Center to City Hall	Complete sidewalk, lighting, and streetscape between Renaissance 1 and 2.	Winslow	Lump Sum	\$300,000	1
5	Coopertown Road – West Winslow Industrial Spur Trail	Implement trail identified in General Plan concurrent with Coopertown Road improvement	Winslow	5.57 miles	\$420,000	2
Mid-Term						
6	West End Pedestrian Bridge	New pedestrian bridge over BNSF tracks at Kell Place	Winslow, BNSF	900 feet	\$3.6 million	3
7	Airport Road Trail	Implement historic and heritage destination trail identified in General Plan concurrent with Airport Road realignment	Winslow	1.45 miles	\$110,000	2
Long-Term						
8	East End Pedestrian Crossings	New pedestrian crossings with Williamson Avenue widening and Transcon Lane overpass	ADOT, Winslow	Contingent on design concept study findings		3

Sources: 1) City of Winslow Capital Improvement Plan, FY 2011-15; 2) City of Winslow General Plan, 2002; 3) HDR Engineering, Inc., 2012.



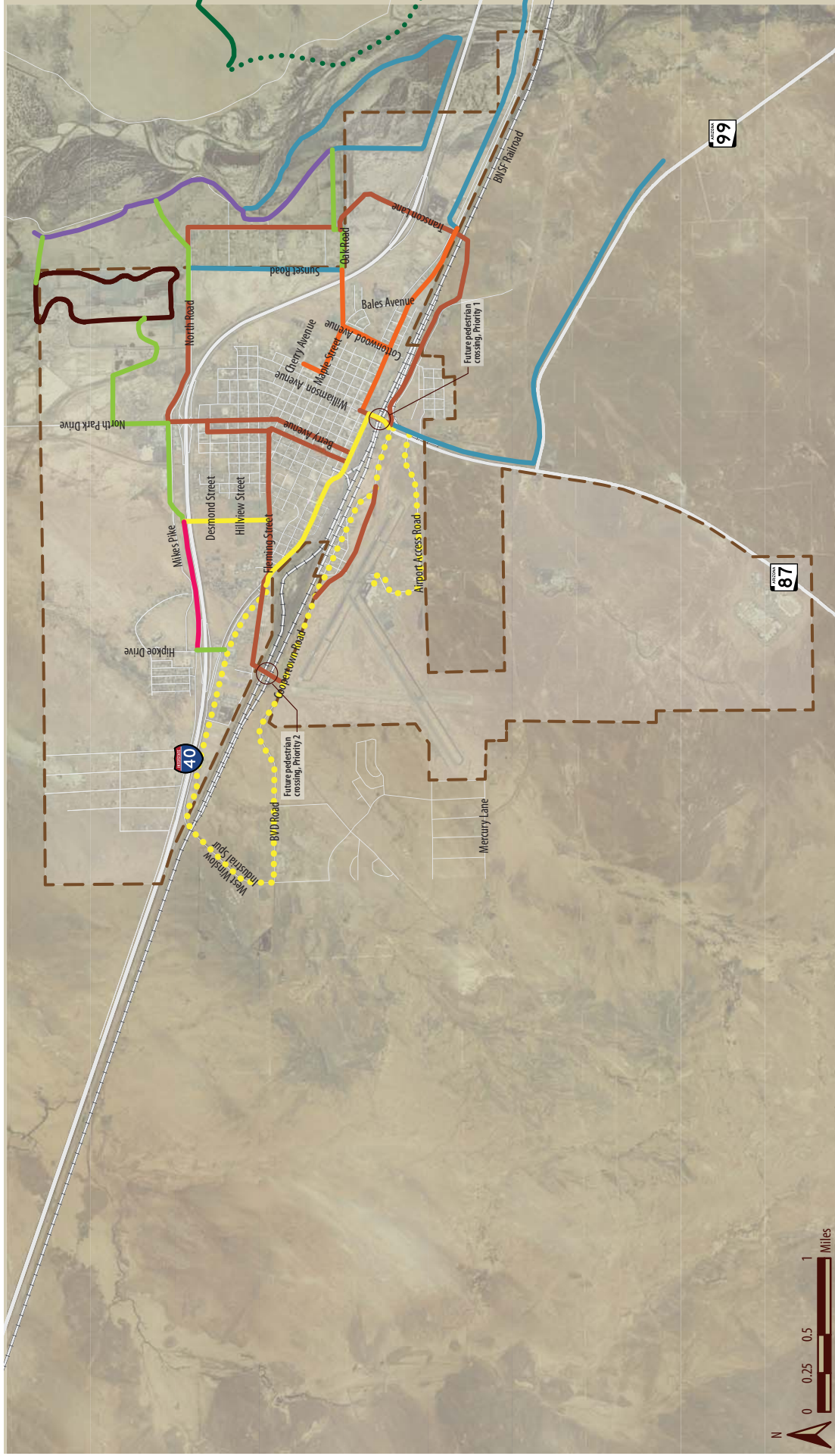


Figure 24 | City of Winslow Trails and Paths System
 Source: ALRS (2009), HDR (2011)

- All weather surfaced trail: "Roadside" multiuse
- Equestrian (hiking and mountain bike all terrain) trails
- Historic and heritage destinations trails - existing
- Historic and heritage destinations trails - proposed
- Levee based trail
- Trail of the Ancient Ones
- Trail of the Ancient Ones (alternate)
- Local service and links trails
- Paved trails - all uses/users
- Street or sidewalk based trail section
- Proposed trail connections
- - - City boundary
- - - Railroad

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

8.0 Transportation Revenue Sources

The following section summarizes the revenue sources that are currently available for funding road transportation projects in the City of Winslow. It should be noted that in the current environment the funding of significant transportation projects is complex and, in most cases, requires multiple sources. Also, transportation funding is dynamic and there is a need to continuously monitor the existing sources and new sources that may become available as state and federal legislation changes. Innovation has become the mainstay of successful transportation funding.

Federal Funding Sources

There are a number of federal funding programs that can be used to address transportation needs within the study area. These funds are typically distributed through and by ADOT. In some cases, such as Transportation Enhancement Funds, regional Councils of Governments (COGs) rank the local applications. The Winslow area is represented by NACOG.

American Recovery and Reinvestment Act (ARRA) Funds

Since the recent economic downturn, the ARRA has also provided “stimulus funding” for projects including transportation, though additional ARRA funds beyond those already obligated are uncertain. While these funds are most welcome, the requirements for rapid obligation and expenditure of these funds, while mandating adherence to all federal project requirements, makes it difficult to use these resources for projects that would require federal environmental clearance. Environmental reviews to comply with the National Environmental Policy Act (NEPA) can be quite lengthy, and since such reviews are not required for state and local projects in Arizona, it can be difficult to use these funds for many desired projects, especially those that include right of way acquisition, utility relocation, and capacity expansion.

Highway Safety Improvement Program (HSIP)

The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. Each State's apportionment of HSIP funds is subject to a set aside for construction and operational improvements on high-risk rural roads. High-risk rural roads are roads functionally classified as rural major or minor collectors or rural local roads with a fatality and incapacitating injury crash rate above the statewide average for those functional classes of roads; or likely to experience an increase in traffic volume that leads to a crash rate in excess of the average statewide rate. The funds are distributed through ADOT to the various regional COGs, and then to the local agencies for use on specific safety projects.

Interstate Maintenance Funds

These funds are restricted to maintenance costs for the existing Interstate Highway System.

National Highway System (NHS) Program

The program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System, and designated connections to major intermodal terminals. For this



study, NHS money would be primarily used for I-40 improvements. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors.

Safe Routes to School (SRTS) Program

The purpose of the Federal SRTS Program is to make walking and bicycling to school a safe and routine activity. The program provides reimbursable funds for elementary and middle schools to implement projects that encourage children to walk and bicycle to school. The program has averaged \$2.2 million per year in funding in Arizona and is administered by ADOT. Eligible projects include, but are not limited to:

- Sidewalk improvements
- Traffic calming and speed reduction improvements
- Pedestrian and bicycle crossing improvements
- On-street bicycle facilities
- Off-street bicycle and pedestrian facilities
- Traffic diversion improvements in the vicinity of schools

Surface Transportation Program (STP)

The STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intra-city and intercity bus terminals and facilities. For projects programmed with STP funds from a COG Transportation Improvement Program, local project sponsors may exchange STP funds for a reduced amount of Highway User Revenue Fund (HURF) funds from ADOT, enabling the project sponsor to assume greater control over project development and implementation. The exchange program is currently on hold by ADOT until the HURF gains are shown for the revenue stream.

State Funding Sources

State funding for transportation is somewhat limited. Gasoline tax, vehicle fees, and lottery proceeds are the only revenue sources. As vehicles become more fuel efficient, and roadway costs increase, the buying power of the fuel tax is diminishing. The state gasoline tax has not been raised for many years. Forty of the fifty states have higher gasoline taxes than Arizona. In addition to these constraints, a portion of the fuel tax revenues is being used to support the operation of the Department of Public Safety, which patrols the State Highway System. Current state funding sources are as follows:

Arizona Gaming Sources (Proposition 202)

Proposition 202 was passed in November 2002 and set the stage for new gaming compacts between the State and the respective tribes. A provision of Proposition 202 was the sharing of gaming revenues with the State and local governments. Proposition 202 allows an Indian tribe to make twelve percent of its total annual contribution to cities, towns, or counties for government services that benefit the general public, including public safety, mitigation of the impacts of gaming, or promotion of commerce and economic development.



Greater Arizona Development Authority (GADA)

The GADA was created by the Arizona State Legislature to assist local and tribal governments and special districts with the development of public infrastructure. GADA leverages its funds to lower the costs of financing and help accelerate project development for public facilities owned, operated, and maintained by a political subdivision, special district or Indian tribe. GADA has both financial and technical assistance programs.

Highway Extension Expansion and Loan Program (HELP)

House Bill 2488, enacted into law on August 21, 1998, established a comprehensive loan and financial assistance program for eligible highway projects in Arizona. The program, designated as HELP, provides communities in Arizona a new financing mechanism to stretch limited transportation dollars and bridge the gap between the needs and available revenues. HELP provides the State and its communities with an innovative financing mechanism to accelerate the funding of road construction projects and has proven to be a significant tool for financing the construction of highway projects throughout the State. Similar to bond funds, the HELP is a loan, hence there are payback obligations. The major advantage is there are no application fees and the rate under statute is “below market.” Currently, HELP loan applications are not being accepted due to state budget issues.

Highway User Revenue Fund (HURF)

HURF represents the most significant source of transportation funds in the State of Arizona. Funds are derived primarily from motor vehicle fuel taxes and vehicle license taxes. HURF funds are shared with and allocated through ADOT and distributed as an entitlement to cities, towns, and counties based on population. These funds may be “swept” into the general fund during a state fiscal crisis. These are typically expended for maintenance rather than capital improvements.

Statewide Planning and Research Funds

These federal highway funds are distributed by ADOT. They can be used for a broad number of transportation projects, including transit.

Transportation, Community, and System Preservation Program (TCSP)

The TCSP Program is intended to address the relationships among transportation, community, and system preservation plans and practices and identify private sector-based initiatives to improve those relationships. States, metropolitan planning organizations, local governments, and tribal governments are eligible for TCSP Program discretionary grants to plan and implement strategies which improve the efficiency of the transportation system, reduce environmental impacts of transportation, reduce the need for costly future public infrastructure investments, ensure efficient access to jobs, services and centers of trade, and examine development patterns and identify strategies to encourage private sector development patterns which achieve these goals.

Transportation Enhancement Program (TE)

These federal funds are distributed by ADOT and may be used for bicycle, pedestrian, and aesthetic enhancements to transportation projects. These funds are limited and in high demand. Individual project



funding limits are \$943,000 for state system projects and \$750,000 for local projects, supplemented by local matching funds in the minimum amount of 5.7% of the total project value.

Local Funding Sources

There is a wide range of options available for local funding sources. State enabling legislation varies as well as some, but not all, jurisdictions have been empowered by state statutes to levy things such as dedicated sales taxes. Local funding sources overlap to some degree with private funding options since they rely on resident funding and sometimes developers. Local funding sources include:

Bonding

Funding for capital projects from the sale of bonds by a public agency. Bond programs must be approved by a vote of the public. Bonding is actually a financing tool rather than a funding source. A revenue stream, typically from a secondary property tax, is needed to retire general obligation bond debt service.

Development Impact Fees

An increasing number of growing Arizona communities are relying on transportation development impacts fees for both residential and commercial development. Development impact fees are one-time payments for public facilities based on a pro-rata share of costs incurred for facilities needed to accommodate new development. Development fees relate to only capital facility expansions benefiting new development and are not to be utilized for rehabilitation efforts or operating expenses.

General Fund

The Capital Improvement Program (CIP) identifies city general fund monies used for improvements, operations, and maintenance.

Improvement Districts

Improvement districts are authorized by the State legislature for the construction of a wide range of public works facilities. They are formed to fund repaving projects, construction of roads or sidewalks, installation of landscaping, and other public improvements within a defined geographic area. The districts are initiated by property owners who combine resources with the City to finance the improvements. Property owners are assessed over a several year timeframe to repay their share of the cost of the improvement.

Transit Funding Assistance

Transit services are funded through a variety of federal, state, and local programs, as well as farebox revenue, advertising, and other nongovernmental sources. Most local government funding for transit service is provided by general fund revenues of municipalities and/or counties. Sources of potential transit funding include:

Section 5311 Formula Funds

This funding supports capital expenditures (based on an 80/20 match with municipality or other entity), operating expenses (50/50 match), and administrative expenses (80/20 match). The funding is



allocated through an annual competitive application process. These monies are used to support public transit service in non-metropolitan (rural) areas such as the study area. These funds can be used for both capital and operating costs

Section 5310 Funds

This program provides capital funds for vehicles for agencies providing transit service to the elderly and persons with disabilities. The primary target recipients are non-profit agencies and Native American Indian tribes. Local public agencies can apply for these funds if no “willing and able” non-profit agencies are available in a service area. These funds are available to both urban and rural recipients. Funds can be used to cover 80% of vehicle costs, but recipients must fund the costs of operating service.

Surface Transportation Program (STP) Flex Funds

These federal highway funds are available through ADOT in support of the Section 5311 Program. Typically these funds are used to augment the capital procurement process. STP funding levels for local governments are determined annually by the State Transportation Board.

Public-Private Partnerships (P3)

A public-private partnership refers to the contractual agreement between a public agency and a private sector entity that allows the private sector entity to have greater participation in the delivery of a transportation project. House Bill (HB) 2396, signed into law in 2009, allows ADOT to use public-private partnerships as a tool to address Arizona’s transportation requirements. This law grants ADOT broad authority to partner with the private sector to build or improve Arizona transportation facilities. Under the law, public-private partnerships include any project in which the private partner takes on risk and responsibility for transportation improvements that would have previously been borne solely by ADOT.



9.0 Policies and Guidelines

9.1 Typical Road Cross Sections

The design requirements of a given street depend, in part, upon the function of the facility as well as the magnitude and characteristics of the projected traffic volumes. Road widths and rights-of-way width based on City standards are recommended for future roads located within the incorporated area. Figure 25 illustrates typical street sections for minor streets, collector streets, and arterial streets showing the provision of multimodal facilities. The key element of these cross sections is the increased or reduced right-of-way width depending upon the road function. The City will continually assess existing road cross sections for unique circumstances that could require modification of the accepted right-of-way widths.

The proposed typical road cross sections for the City of Winslow were formulated based on traditional transportation planning methodologies, community goals and values, network continuity, provision of a balanced transportation system, land access, and projected population and employment growth. Additional right-of-way may be reserved to accommodate features such as:

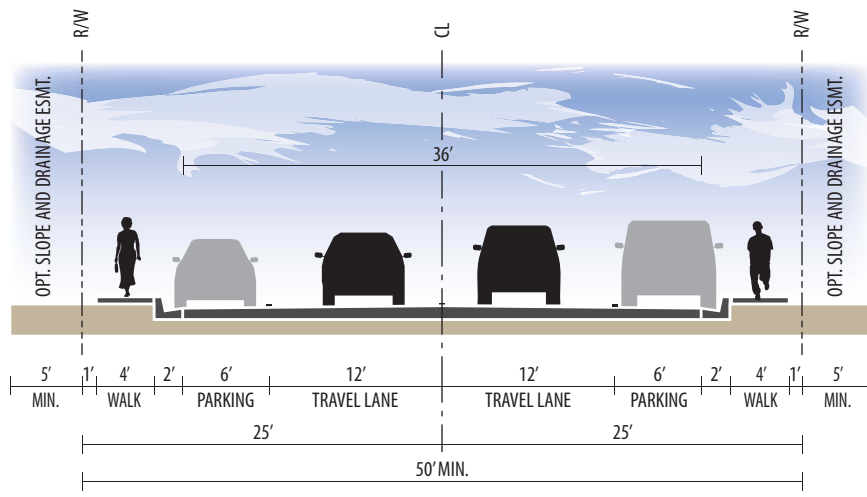
- Future traffic needs
- Space for efficient vehicle operations
- Adequate room for turning movements

Border areas are provided on both sides of each cross section for utilities, such as water, sewer, telephone, and electric services. Border areas are typically included within the right-of-way of each cross section, but the City may permit a developer to dedicate the border area during the plat approval process rather than include the border area within the right-of-way.

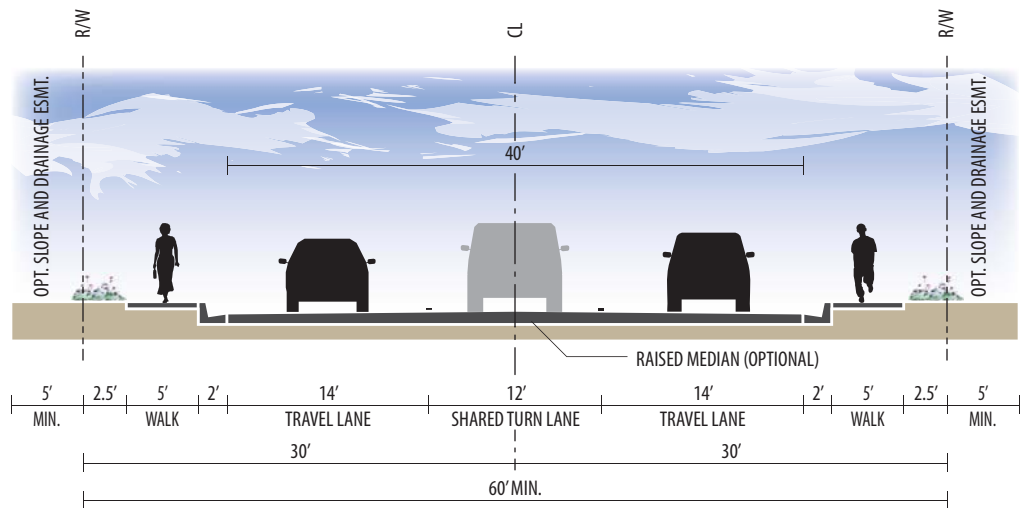
Additionally, right-of-way requirements for arterial and collector facilities may increase at intersections or major driveways to provide room for turn lanes, turn-bays, and traffic signalization. In addition, for roads which are maintained by ADOT, additional right-of-way may be required to accommodate future expansion of the state highway system.

While street classification reflects the functions that roads serve as part of the street and highway network, road design standards are related to traffic volume, design capacity, and level of service. Typical cross sections identify the recommended minimum dimensional criteria for right-of-way and pavement width, and configurations for number of travel lanes, medians, and on-street parking. Recommended road cross sections for the City were developed based on local conditions and preferences, emergency vehicle access requirements, cross section standards for other Arizona cities, and other sources.

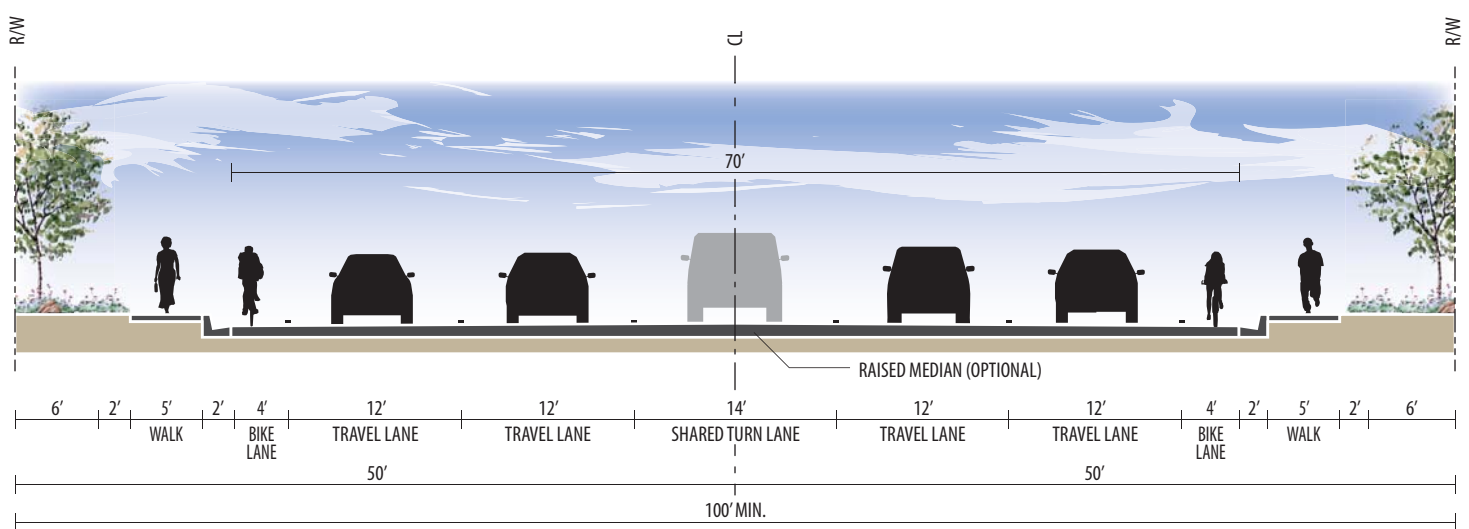




MINOR STREET



COLLECTOR STREET



ARTERIAL STREET

Figure 25 | Road Cross Sections

Source: City of Winslow (2006), HDR (2011)

December 30, 2011 | HDR



9.2 Access Management

Access management is the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed. Access management attempts to balance the need to provide good mobility for through traffic with the requirements for reasonable access to adjacent land uses. ADOT defines access management as the control of the location and design of all vehicular approaches to the state highway system including driveways and public and private roads. This control includes the option to deny a direct highway connection when it is appropriate.

The most important concept in understanding the need for access management is that through movement of traffic and direct access to property are in mutual conflict. No facility can move traffic effectively and provide unlimited access at the same time. In many cases, accidents and congestion are the result of street operations attempting to serve both mobility and access at the same time.

The challenge of access management is creating and maintaining a balance between land development plans and the functional integrity of the roads that serve these developments and the region.

An effective access management program will accomplish the following:

- 1) Limit the number of conflict points at driveway locations. Conflict points are indicators of the potential for accidents. The more conflict points that occur at an intersection, the higher the potential for vehicular crashes. When left turns and cross street through movements are restricted, the number of conflict points are significantly reduced.
- 2) Separate conflict areas. Intersections created by streets and driveways represent basic conflict areas. Adequate spacing between intersections allows drivers to react to one intersection at a time, and reduces the potential for conflicts.
- 3) Reduce the interference of through traffic. Through traffic often needs to slow down for vehicles exiting, entering, or turning across the road. Providing turning lanes, designing driveways with large turning radii, and restricting turning movements in and out of driveways allows turning traffic to get out of the way of through traffic.
- 4) Provide sufficient spacing for at-grade, signalized intersections. Good spacing of signalized intersections reduces conflict areas and increases the potential for smooth traffic progression.
- 5) Provide adequate on-site circulation and storage. The design of good internal vehicle circulation in parking areas and on local streets reduces the number of driveways that businesses need for access to the major road.

Source: Transportation Access Management Guidelines for the City of Tucson (2003)

Traffic signal spacing is among the most important access management components. According to the Access Management Manual decreasing signal spacing from four to two per mile decreases total delay by nearly 60 percent and vehicle-hours of travel by nearly 50 percent (TRB, 2003).



The City of Winslow does not have access management plans or policies in place. An access management plan for Route 66 within the City limits was recommended in the 2010 Navajo County Central Regional Transportation Study. In addition to classifying roads according to function and then planning, designing, and maintaining them based on these hierarchical classifications (as the City does today), a comprehensive access management plan would:

1. Detail acceptable levels of access and volume levels of road classifications and establish criteria for spacing of signals and access points
2. Apply appropriate geometric design and engineering standards at access points that relate to the road classification
3. Establish policies, regulations, and permitting procedures to implement the management plan

An access management plan is a comprehensive study of existing and planned transportation infrastructure and land use within a defined study area that establishes a plan for providing reasonable access to all properties, while restoring or preserving the integrity of the transportation system. The primary benefit of having such a plan is that it lays the foundation for correcting existing access management problems and preventing others from occurring in the future.

Adopting these types of guidelines would make them much more enforceable. In addition to road regulations, the City may wish to incorporate guidelines into the land development regulations such as subdivision controls or lot dimension requirements that can influence access issues.



10.0 Conclusion

As noted in the Introduction of this Plan, the need for new facilities is predicated on the growth which is occurring within the City of Winslow, the surrounding area, and the region as a whole. The factors that make the City of Winslow a desirable place to live remain in place, and long-term it is expected that population and employment in the City of Winslow and the region will continue to grow. By taking the recommendations as outlined in this Plan, the City of Winslow will be prepared to meet the multimodal transportation demands of the next generation.



Appendix A: Environmental Scan

This appendix provides information on a high-level environmental scan completed of the study area. The environmental scan was developed to identify and describe environmentally sensitive areas that might constitute fatal flaws for potential north-south railroad crossing alternatives. This scan includes analysis of cultural resources, floodplains, biotic communities, and sites with active leaking underground storage tanks.

Cultural Resources

The cultural resources information presented is intended to identify prehistoric and historic sites that would be avoided during the development of alternatives to improve north-south access across the BNSF railroad. Figure A.1 identifies the cultural resources sites within the study area.

Regulatory Considerations

In accordance with Section 106 of the National Historic Preservation Act (NHPA), federal agencies must take into account the affects of proposed projects on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP). The NHPA, as amended (16 United States Code § 470) and its implementing regulations (36 Code of Federal Regulations Part 800) provide the process and guidelines for historic property evaluations. To be determined eligible for inclusion in the NRHP, properties must be important in American history, architecture, archaeology, engineering, or culture. They also must possess integrity of location, design, settings, materials, workmanship, feeling, and association, and meet at least one of the following four criteria:

- Criterion A: are associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B: are associated with the lives of persons significant in our past
- Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant distinguishable entity whose components may lack individual distinction
- Criterion D: have yielded, or may be likely to yield, information important in prehistory or history

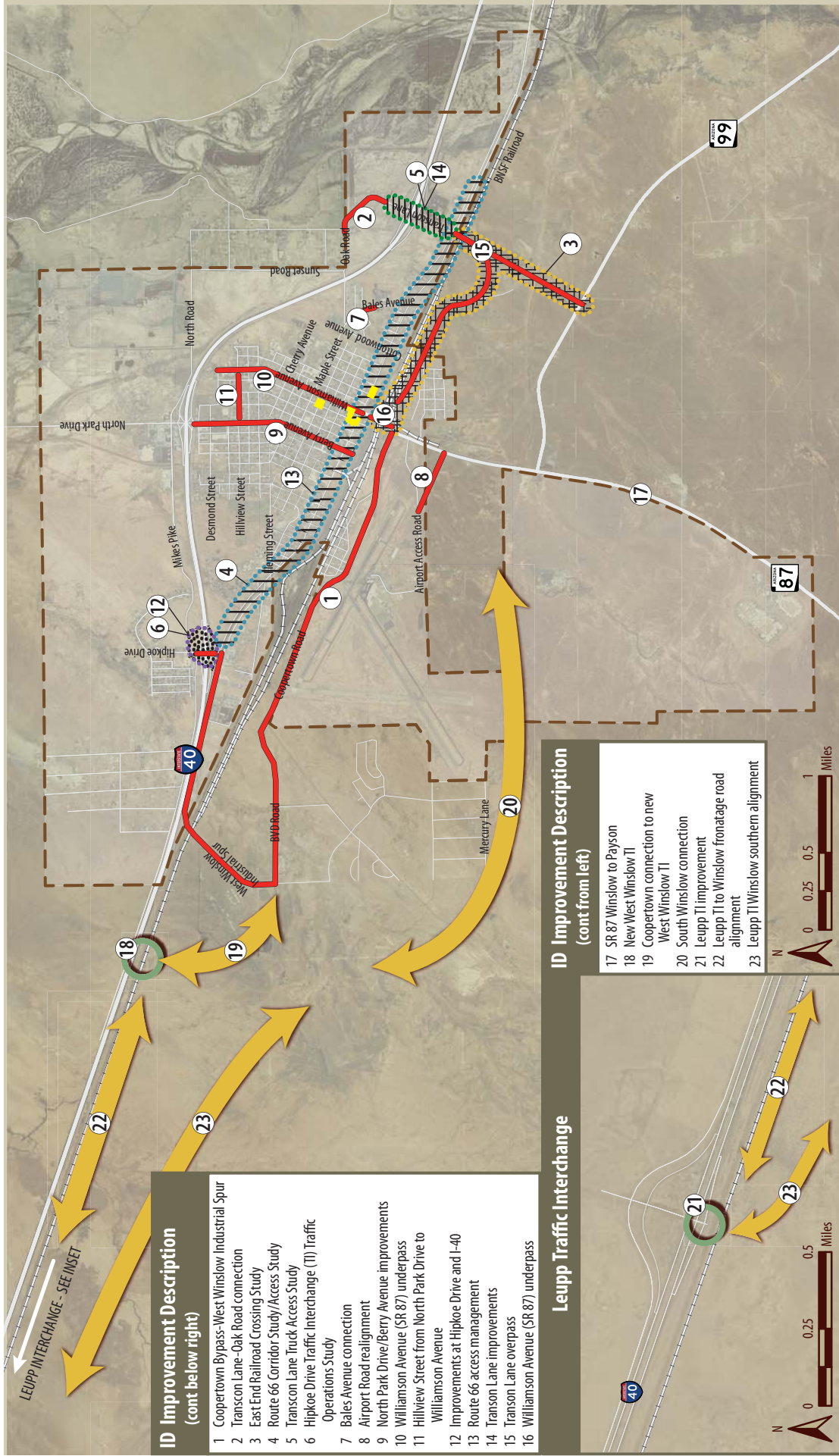
Properties can be of local, state, or national importance. Typically, historic properties are at least 50 years old. Younger properties can be considered if they are of exceptional importance.

Under Section 4(f) of the U.S. Department of Transportation Act, FHWA can approve use of publicly owned land designated as a public park or recreation area, wildlife or waterfowl refuge of national, state, or local significance, or a historic site of national, state, or local significance only if there is no prudent and feasible alternative and the project includes all possible planning to minimize harm to such lands. If a historic site is determined “not eligible” for the NRHP, but an official (Mayor, President of the local historic society, etc.) formally provides information to indicate that the historic site is of local significance, FHWA **may** determine that it is appropriate to apply Section 4(f). With respect to historic bridges or highways, Section 4(f) only applies when the structure will be demolished, or if the historic



quality for which the structure was determined to be NRHP eligible is adversely affected by the proposed action. For the purposes of Section 4(f) and this study, a historic site is defined as any historic property eligible under Criteria A, B, or C.





- ID Improvement Description (cont below right)**
- 1 Coopertown Bypass-West Winslow Industrial Spur
 - 2 Transcon Lane-Oak Road connection
 - 3 East End Railroad Crossing Study
 - 4 Route 66 Corridor Study/Access Study
 - 5 Transcon Lane Truck Access Study
 - 6 Hipkoe Drive Traffic Interchange (TI) Traffic Operations Study
 - 7 Bales Avenue connection
 - 8 Airport Road realignment
 - 9 North Park Drive/Berry Avenue improvements
 - 10 Williamson Avenue (SR 87) underpass
 - 11 Hillview Street from North Park Drive to Williamson Avenue
 - 12 Improvements at Hipkoe Drive and I-40
 - 13 Route 66 access management
 - 14 Transcon Lane improvements
 - 15 Transcon Lane overpass
 - 16 Williamson Avenue (SR 87) underpass

Leupp Traffic Interchange

ID Improvement Description (cont from left)

- 17 SR 87 Winslow to Payson
- 18 New West Winslow TI
- 19 Coopertown connection to new West Winslow TI
- 20 South Winslow connection
- 21 Leupp TI improvement
- 22 Leupp TI to Winslow frontage road alignment
- 23 Leupp TI Winslow southern alignment

Figure A.1 | Cultural Resources
Source: HDR (2011), A2Site (2011)

Historical sites
 New corridor
 Planned roadway improvements
 Traffic interchange with railroad crossing
 East End Railroad Crossing Study
 Route 66 Corridor Study/Access Study
 Hipkoe Drive Traffic Interchange Traffic Operations Study
 Transcon Lane Truck Access Study

City boundary
 Railroad

Discussion of Cultural Resources in the Study Area

This section presents a *preliminary* assessment of the cultural resources in the study area and does not constitute a formal Class I overview. Data were obtained from a variety of sources: Arizona State Museum (ASM), the ADOT Historic Preservation Portal, the ADOT Bridge Group's Arizona State Highway System Bridge Record (1997), the Arizona Local and Federal Highway System Bridge Record (1997), and the AZSITE and NRHP online databases.

Table A.1 lists the 22 cultural resource surveys that have been performed within the study area. The majority of the study area has not been surveyed for cultural resources. Furthermore, several previous surveys were performed over 10 years ago. According to the State Historic Preservation Office (SHPO) guidelines, resurvey would likely be required in those areas if included in the project footprint.

Located on the Colorado Plateau, Winslow is at 4,856 feet above mean sea level. The average maximum temperature is 70 degrees, the average minimum 39.5 degrees; annual precipitation averages 8 inches (www.climate-zone.com). Winslow is situated within the floodplain of the Little Colorado River, which borders the eastern edge of the study area. All of these factors affect human settlement patterns.

At least six projectile points dating to the Paleo-Indian Period (about 9500 to 7000 B.C.) have been documented adjacent to or within 15-30 miles of the study area. Two Archaic Period (about 7000 to 1500 B.C.) sites (one early, one late) have been documented immediately adjacent to the study area. Based on this information, there is potential for encountering Paleo-Indian or Archaic sites or projectile points within the study area.

Within the study area, 27 archaeological sites have been documented, 11 of which are NRHP eligible and 2 of which would require archaeological testing to evaluate NRHP eligibility. Site AZ J: 14:18 (ASM), also referred to as the Sunset Crossing Site, is listed on the Arizona Register of Historic Places (AR); its NRHP eligibility has not been evaluated. Table A.2 lists the archaeological sites identified in the study area. Roughly 50 percent of the archaeological sites in the study area are prehistoric, probably Anasazi, and the majority are artifact scatters, which may be indicative of seasonal/limited activity or earlier settlement. Earlier prehistoric occupation is evidenced by below ground pit houses rather than the later above ground masonry structures. Taking into consideration the aforementioned factors and results of previous research, additional prehistoric sites are likely to be encountered in the study area.

Winslow and the surrounding region have long served as a transportation corridor for Euroamerican travelers. The Whipple and Sitgreaves trails, both of which extended through the region, were established in the mid 1850s as early routes of exploration. The U.S. Military traveled through the same corridor, building the Beale Wagon Road to transport troops and goods. The route, which served stage freight, also was used by the Mormons during colonization (Walker and Bufkin 1986). A total of 45 bridges are located in the study area. The majority are less than 50 years old and are, therefore, not eligible for NRHP consideration. Three bridges are listed on the NRHP, however. Additionally, two bridges would require NRHP eligibility evaluations if affected by the proposed project. Table A.3 identifies the bridges in the study area and their NRHP status.



The earliest Euroamerican settler arrived in Winslow in 1880. Two years later, the post office was established (Barnes 1980). More settlers followed. Three historic districts are within the Winslow city limits. The Winslow Commercial Historic District (WCHD), which encompasses 17 buildings, is roughly bounded by 3rd Street, Williamson Avenue, 1st Street, and Warren Avenue; 112 Kinsley Avenue was added in 2002. Buildings within the WCHD were built between 1898 and 1935. The Winslow Residential Historic District (WRHD), with 12 houses dating from 1897 to 1910, is located along Kinsley Avenue from Oak Street to Aspinwall Street. The La Posada Historic District (LPHD), which is comprised of 6 buildings—the La Posada Hotel, Winslow Train Depot, a barn, microwave antenna tower, associated features and landscaping—dates to 1930, and is located along 2nd Street. All three are listed on the NRHP. Table A.4 identifies the historic buildings in the study area.

There are six properties in the study area listed in the NRHP. Additional cultural resources eligible for NRHP listing that have not been evaluated as of yet are likely present. A comprehensive review of NRHP properties, which would involve a visit to the SHPO's office to examine NRHP county maps, falls outside the scope of the current study. Table A.5 identifies the properties in the study area that are listed on the NRHP.

Based on the preliminary research, the minimum number of potential Section 4(f) properties is 45. These are mostly situated in and around Winslow's historic downtown area and along the old Route 66 corridor. More intensive and comprehensive research may result in the identification of additional Section 4(f) properties.



Table A.1 Previous Cultural Resource Surveys within the Study Area

Project Number	Project Name	Reference
1984-213.ASM	Winslow State Prison Survey	Madsen 1984
1985-45.ASM	Homol'ovi IV Land Exchange	Unknown
1988-219.ASM	AT&T Fiber Optic Route from Flagstaff to New Mexico State Line	Landis 1989a; Landis 1989b
1989-132.ASM	Sunshine to Winslow 69kV Rebuild	Irwin 1989
1990-43.ASM	US West Fiber Optic Line Winslow to Joseph City	Chenault and Greenwald 1990
1990-130.ASM	Winslow Frontage Road Survey	Weaver 1990
1991-188.ASM	Materials Pit #8109 Survey	Weaver 1991
1996-457.ASM	LWCF Replacement Parcels survey	Weaver 1997
1997-440.ASM	Winslow: SR 87 Alternatives	DeMaagd 1998
1998-474.ASM	SR 87 S. of Winslow MP 330.4-340.8	Spaulding 1998
2000-150.ASM	SR 99	Courtright 2000
2001-446.ASM	Winslow Cell	Kober 2001
2003-331.ASM	Holbrook Maintenance District: I-40 Addendum	Lonardo 2002
2003-322.ASM	SR 87	Breen 2002
2003-321.ASM	I-40: Holbrook Maintenance District	Lonardo et al. 2003
2003-323.ASM	Business 40: Holbrook Maintenance District	Webb 2002
2003-513.ASM	Little Colorado River Bridge	Unknown
2004-162.ASM	I-40, North Park TI	Strohmayr 2004
2004-741.ASM	Winslow Crossing Survey	Purcell 2004
SHPO-2002-904	American Tower Corporation Site Number FS024, "Felkins"	Unknown
SHPO-2000-3043	American Tower Corporation Site Number FS024, "Felkins"	Unknown
SHPO-2001-1847	SpectraSite Communications, Inc. New Lattice Tower Wireless Telecommunications - WINSLOW	Unknown



Table A.2 Archaeological Sites within the Study Area

Site Number	Description	NRHP Eligibility (Criterion)	Reference	Potential 4(f) Property?
AZ I:15:156(ASM)	Historic Route 66	Eligible (A, C, D)	Jacobs 2002	Yes
AZ J:13:5(ASM)	Prehistoric ceramic scatter	Unknown	AZSITE	
AZ J:13:21(ASM)	Prehistoric and historic artifact scatter	Requires testing	Jacobs 2002	
AZ J:13:22(ASM)	Historic foundation and artifact scatter	Requires testing	Jacobs 2002	
AZ J:13:23(ASM)	Prehistoric artifact scatter	Eligible	Jacobs 2002	
AZ J:13:26(ASM)	Historic structure and foundation	Not eligible	Lonardo 2002 Lonardo 2003	
AZ J:14:8(ASM)	Prehistoric lithic scatter	Unknown	AZSITE	
AZ J:14:16(ASM)	Lithic quarry of unknown temporal affiliation	Unknown	AZSITE	
AZ J:14:17(ASM)	Ballinger’s Camp/Brigham City	Listed (A, D)	NR	Yes
AZ J:14:18(ASM)/ Sunset Crossing Site	Rocky ledge used to cross Little CO River in 19 th century	Listed	AR	Yes
AZ J:14:340(ASM)	Historic house foundation and associated trash	Unknown	AZSITE	
AZ J:14:341(ASM)	Prehistoric lithic scatter	Unknown	AZSITE	
AZ J:14:344(ASM)	Historic trash scatter	Eligible	DeMaagd 1998	
AZ J:14:345(ASM)	Historic land fill	Eligible	DeMaagd 1998	
AZ J:14:346(ASM)	Historic trash scatter	Eligible	DeMaagd 1998	
AZ J:14:349(ASM)	Prehistoric artifact scatter	Eligible	DeMaagd 1998	
AZ J:14:350(ASM)	Prehistoric lithic quarry and historic landfill	Eligible	DeMaagd 1998	
AZ J:14:355(ASM)	Prehistoric and historic artifact scatter	Eligible	DeMaagd 1998	
AZ J:14:356(ASM)	Fire pit of unknown temporal affiliation	Unknown	DeMaagd 1998	
AZ P:2:42(ASM)	Prehistoric feature; historic feature and artifact scatter	Unknown	AZSITE	



Table A.2 Archaeological Sites within the Study Area

Site Number	Description	NRHP Eligibility (Criterion)	Reference	Potential 4(f) Property?
AZ P:2:43(ASM)	Prehistoric artifact scatter	Unknown	AZSITE	
AZ P:2:44(ASM)	Prehistoric artifact scatter and petroglyph	Unknown	AZSITE	
AZ P:2:45(ASM)	Prehistoric and historic artifact scatter and feature	Unknown	AZSITE	
AZ P:2:46(ASM)	Prehistoric lithic scatter	Unknown	AZSITE	
AZ P:2:63(ASM)	Prehistoric and historic artifact scatter	Eligible	DeMaagd 1998	
AZ P:2:64(ASM)	Historic trash scatter	Eligible	DeMaagd 1998	
AZ AA:6:63(ASM)	Historic State Route 87	Eligible (D)	Jacobs 2009	

Source: AZSITE, January 2011.



Table A.3 Bridges in Study Area

ADOT Structure Number	Name	Year Built	Route	Milepost	Eligibility (Criterion)
1317	Leupp TI UP SR 999	1969	I-40	245.39	Not eligible
5963	RCB EB & WB	1948	I-40	246.95	Not eligible
336	Tucker Flat Bridge EB	1949	I-40	248.99	Not eligible
1318	Tucker Flat Bridge WB	1969	I-40	248.99	Not eligible
6717	RCB	1974	I-40	251.46	Not eligible
1650	West Winslow TI UP	1974	I-40	252.12	Not eligible
1810	Cemetery Wash Bridge WB	1980	I-40	253.07	Not eligible
1809	Cemetery Wash Bridge EB	1980	I-40	253.07	Not eligible
6691	RCB EB & WB	1979	I-40	253.27	Not eligible
1651	North Park TI OP EB	1979	I-40	253.62	Not eligible
1652	North Park TI OP WB	1974	I-40	253.62	Not eligible
6692	Channel A RCB	1979	I-40	253.8	Not eligible
1781	Ruby Wash Bridge EB	1979	I-40	254.64	Not eligible
1782	Ruby Wash Bridge WB	1979	I-40	254.64	Not eligible
1777	Maple Street OP EB	1979	I-40	255.1	Not eligible
1778	Maple Street OP WB	1979	I-40	255.1	Not eligible
6693	RCB EB & WB	1979	I-40	255.37	Not eligible
1779	East Winslow OP TI EB	1979	I-40	255.75	Not eligible
1780	East Winslow OP TI WB	1979	I-40	255.75	Not eligible
6694	RCB	1979	I-40	256.21	Not eligible
1596	Little Colorado River Bridge EB	1972	I-40	256.95	Not eligible
1597	Little Colorado River Bridge WB	1972	I-40	256.95	Not eligible
4254	Icehouse Wash Culvert EB	1934	I-40B	253.31	Not eligible



Table A.3 Bridges in Study Area

ADOT Structure Number	Name	Year Built	Route	Milepost	Eligibility (Criterion)
4255	Icehouse Wash Culvert WB	1953	I-40B	253.31	Not eligible
4256	Ruby Wash Culvert EB	1932	I-40B	254.28	Not eligible
4257	Ruby Wash Culvert WB	1953	I-40B	254.28	Not eligible
4258	Culvert	1939	I-40B	255.19	Not eligible
275	Ruby Channel Bridge	1944	SR 87	341.82	Eligible (C)
4677	Icehouse Channel Culvert	1944	SR 87	341.91	Not eligible
194	Winslow Underpass	1936	SR 87	342.1	Listed (A, C)
4260	Culvert NB	1954	SR 87	344.14	Not eligible
4261	Culvert SB	1954	SR 87	344.14	Not eligible
4263	Culvert	1954	SR 87	344.32	Not eligible
4262	Culvert	1939	SR 87	344.32	Not eligible
229	Winslow Bridge	1939	SR 87	344.95	Listed (A, C)
1038	Clear Creek Arch Bridge	1951	SR 99	38.19	Eligible (C)
1036	Jacks Canyon Bridge	1949	SR 99	38.9	Not eligible
8489	West Mahoney Street RCB	1900	N/A	N/A	Unknown
9495	Hillview Street RCB	1965	N/A	N/A	Not eligible
9496	Fleming Street-Timber Bridge	1930	N/A	N/A	Unknown
9498	Aspinwall Street RCB	1977	N/A	N/A	Not eligible
9899	Channel A Bridge	1981	N/A	N/A	Not eligible
9900	Ruby Drain Bridge	1979	N/A	N/A	Not eligible
9903	Maple Street RCB	1987	N/A	N/A	Not eligible

Source: AZSITE, January 2011.

Notes: OP – overpass; EB – eastbound; WB – westbound; UP – underpass; TI – traffic interchange; RCB – reinforced concrete box.



Table A.4 Historic Buildings within the Study Area

Property Number	Description	Location	Potential 4(f) Property?
MPAEXP-3154	Brick building (1916-1927)	209 Williamson Avenue (WCHD)	Yes
MPAEXP-3155	La Prade Building/Winslow Hotel (1898)	122 E. 2nd Street (WCHD)	Yes
MPAEXP-3156	Campbell & Hubbard Building (1911)	114 E. 2nd Street (WCHD)	Yes
MPAEXP-3157	Dye, T. E., Building/Post Office (1910)	108 E. 2nd Street (WCHD)	Yes
MPAEXP-3158	Dye, T. E., Building #2 (1912)	106 E. 2nd Street (WCHD)	Yes
MPAEXP-3159	Elks Building (1912)	100-104 E. 2nd Street (WCHD)	Yes
MPAEXP-3162	Woods, Charles, Building (1898)	100 W. 2nd Street (WCHD)	Yes
MPAEXP-3163	Penney, J. C., Building (1916-1927)	102-106 W. 2nd Street (WCHD)	Yes
MPAEXP-3164	Winslow Post Office (1935)	219 Williamson Avenue (WCHD)	Yes
MPAEXP-3166	Navajo County Bank Building (1904)	128 Kinsley Avenue/103 W. 2nd Street (WCHD)	Yes
MPAEXP-3167	Rialto Theater (1920-1927)	115 Kinsley Avenue (WCHD)	Yes
MPAEXP-3171	Bruchman Indian Trading Post (1923)	113 W. 2nd Street (WCHD)	Yes
MPAEXP-3172	Hunter Garage/Old Trails Garage (1914)	118 E. 2nd Street (WCHD)	Yes
MPAEXP-3173	F. T. La Prade Building #2 (1912)	116 E. 2nd Street (WCHD)	Yes
MPAEXP-3174	Lathrop Opera House (1912) ^a	110-112 E. 2nd Street (WCHD)	Yes
MPAEXP-3176	J. B. Drumm Building (1912)	110 W. 2nd Street (WCHD)	Yes
MPAEXP-3177	Breed Building Addition (1898)	109 Kinsley Avenue (WCHD)	Yes
MPAEXP-3181	Charles Stegmier House (1901-1910)	100 E. Aspinwall Street (WRHD)	Yes
MPAEXP-3182	Wood building (1901-1910)	508 Kinsley Avenue (WRHD)	Yes
MPAEXP-3183	W. A. Parr Rental Cottage (1898)	514 Kinsley Avenue (WRHD)	Yes
MPAEXP-3184	W. A. Parr Rental Cottage (1898)	518 Kinsley Avenue (WRHD)	Yes
MPAEXP-3185	J. X. Woods/Friend House (1901-1910)	521 Kinsley Avenue (WRHD)	Yes
MPAEXP-3186	Brick building (1892-1901)	519 Kinsley Avenue (WRHD)	Yes



Table A.4 Historic Buildings within the Study Area

Property Number	Description	Location	Potential 4(f) Property?
MPAEXP-3187	Brick building (1901-1910)	517 Kinsley Avenue (WRHD)	Yes
MPAEXP-3188	Brick building (1901-1910)	513 Kinsley Avenue (WRHD)	Yes
MPAEXP-3189	Norman William House (1897)	509 Kinsley Avenue (WRHD)	Yes
MPAEXP-3190	Frank Newton House (1897)	505 Kinsley Avenue (WRHD)	Yes
MPAEXP-3191	U.Z. Rand/Dr. Sprankle House (1897)	501 Kinsley Avenue (WRHD)	Yes
MPAEXP-3192	W. A. Parr Rental Cottage (1898)	522 Kinsley Avenue (WRHD)	Yes
MPAEXP-7204	La Posada Hotel (1930)	200 E. 2nd Street (LPHD)	Yes
MPAEXP-7205	Winslow Train Depot (1930)	200 E. 2nd Street (LPHD)	Yes
MPAEXP-7206	Barn Storage Building	200 E. 2nd Street (LPHD)	Yes
MPAEXP-7207	Site wall and associated features	200 E. 2nd Street (LPHD)	Yes
MPAEXP-7208	Site landscaping (1930)	200 E. 2nd Street (LPHD)	Yes
MPAEXP-7209	Microwave antenna tower	200 E. 2nd Street (LPHD)	Yes

Source: AZSITE, January 2011.



Table A.5 National Register Listed Properties in Winslow

Property Name	Description	Criterion	Potential 4(f) Property?
Ballinger's Camp/Brigham City	Founded 1876 by Latter Day Saints; 3 miles north of Winslow on Little CO River	A	Yes
La Posada Historic District	Built 1930, Architect: Mary Jane Colter; 200 E. 2nd St	A, C	Yes
Winslow Bridge	Built 1939, steel cantilever plate deck girder	A, C	Yes
Winslow Commercial Historic District	Bounded by 3rd St, Williamson Ave., 1st St, and Warren Ave.; increased to 112 Kingsley Ave	A, C	Yes
Winslow Residential Historic District	Along Kinsley Avenue from Oak to Aspinwall	A, C	Yes
Winslow Underpass	Located at AT&SF RR and SR 87 intersection	A, C	Yes

Source: AZSITE, January 2011.

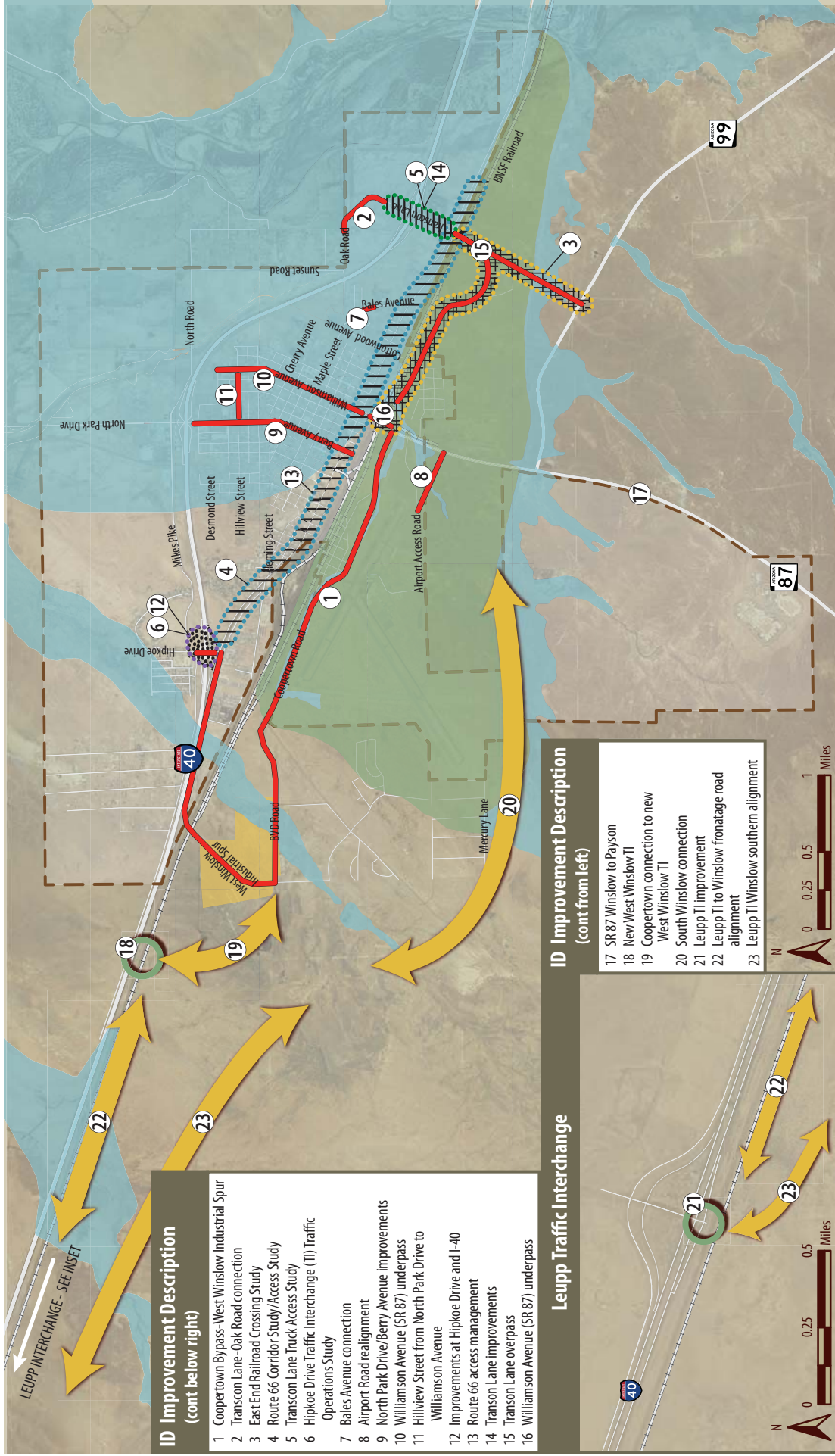


Flood Hazard

The Federal Emergency Management Agency (FEMA) provides flood hazard information. The information presented is intended to identify potential floodplain and drainage issues associated with the identification and development of alternatives to improve north-south access across the BNSF railroad.

FEMA identifies floodplains depending on the varying level of flood risk. Within the 100-year floodplain, there is a 1 percent annual chance of flooding. Within the 500-year floodplain there is a 0.2 percent annual chance of flooding. Figure A.2 shows that much of downtown Winslow north of the BNSF tracks is within FEMA's 100-year floodplain. South of the railroad, the FEMA data shows that Coopertown and the Winslow-Lindbergh Regional Airport are within the 500-year floodplain.





- ID Improvement Description (cont below right)**
- Coopertown Bypass-West Winslow Industrial Spur
 - Transcon Lane-Oak Road connection
 - East End Railroad Crossing Study
 - Route 66 Corridor Study/Access Study
 - Transcon Lane Truck Access Study
 - Hipkoe Drive Traffic Interchange (TI) Traffic Operations Study
 - Bales Avenue connection
 - Airport Road realignment
 - North Park Drive/Berry Avenue improvements
 - Williamson Avenue (SR 87) underpass
 - Hillview Street from North Park Drive to Williamson Avenue
 - Improvements at Hipkoe Drive and I-40
 - Route 66 access management
 - Transcon Lane improvements
 - Transcon Lane overpass
 - Williamson Avenue (SR 87) underpass

Leupp Traffic Interchange

ID Improvement Description (cont from left)

- SR 87 Winslow to Payson
- New West Winslow TI
- Coopertown connection to new West Winslow TI
- South Winslow connection
- Leupp TI improvement
- Leupp TI to Winslow frontage road alignment
- Leupp TI Winslow southern alignment

- 100-year floodplain
- 500-year floodplain
- Possible flood hazard
- New corridor
- Planned roadway improvements
- Traffic interchange with railroad crossing

- East End Railroad Crossing Study
- Route 66 Corridor Study/Access Study
- Hipkoe Drive Traffic Interchange Traffic Operations Study
- Transcon Lane Truck Access Study

- City boundary
- Railroad

Figure A.2 | Floodplain

Source: HDR (2011), City of Winslow (2011), Coconino County (2011)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

Biological Resources

The study area is located in a transition between the Plains and Great Basin Grassland (Grassland) and Great Basin Desert Scrub (Desert Scrub) biotic communities. The Grassland community typically occurs in open country from 5,000 to 7,000 feet above mean sea level (amsl) and is dominated by mixed or short-grass vegetation. Heavy grazing has altered much of this biotic community. Typical grasses include, but are not limited to, gramas (*Bouteloua* spp.), buffalo grass (*Buchloe dactyloides*), and Indian rice grass (*Oryzopsis hymenoides*). Shrubs may include four-wing saltbush (*Atriplex canescens*) or sagebrush (*Artemisia* spp.), among others. The Desert Scrub community typically occurs at elevations between 4,000 and 6,000 feet amsl and is dominated by cold-adapted sagebrush, saltbush, and winterfat (*Ceratoides lanata*). Characteristic warm weather species include rabbitbrush (*Chrysothamnus* spp.) and hopsage (*Grayia spinosa*). Cacti (*Opuntia* spp.), including prickly pear and cholla, are characteristic but tend to be of short stature and are sparse within this community (Brown, 1994).

Figure A.3 shows the biotic communities in the study area.

Cottonwood-Willow Communities

This is a riparian community associated with the Little Colorado River. Mature Fremont cottonwood (*Populus fremontii*) and Gooding willow (*Salix gooddingii*) are the dominant species. Other aquatic species such as, but not limited to, cattail (*Typha* spp.) and seep willow (*Baccharis salicifolia*) may also be present.

Pinyon-Juniper Communities

The pinyon-juniper communities are typified by moderate density of pinyon pine (*Pinus edulis*) and one-seed juniper (*Juniperus monosperma*) that encroached into the Grassland and Desertscrub communities of the study area as a result of human development and livestock grazing in the last century. The pinyon-juniper community here appears among sloped, exposed rocky land.

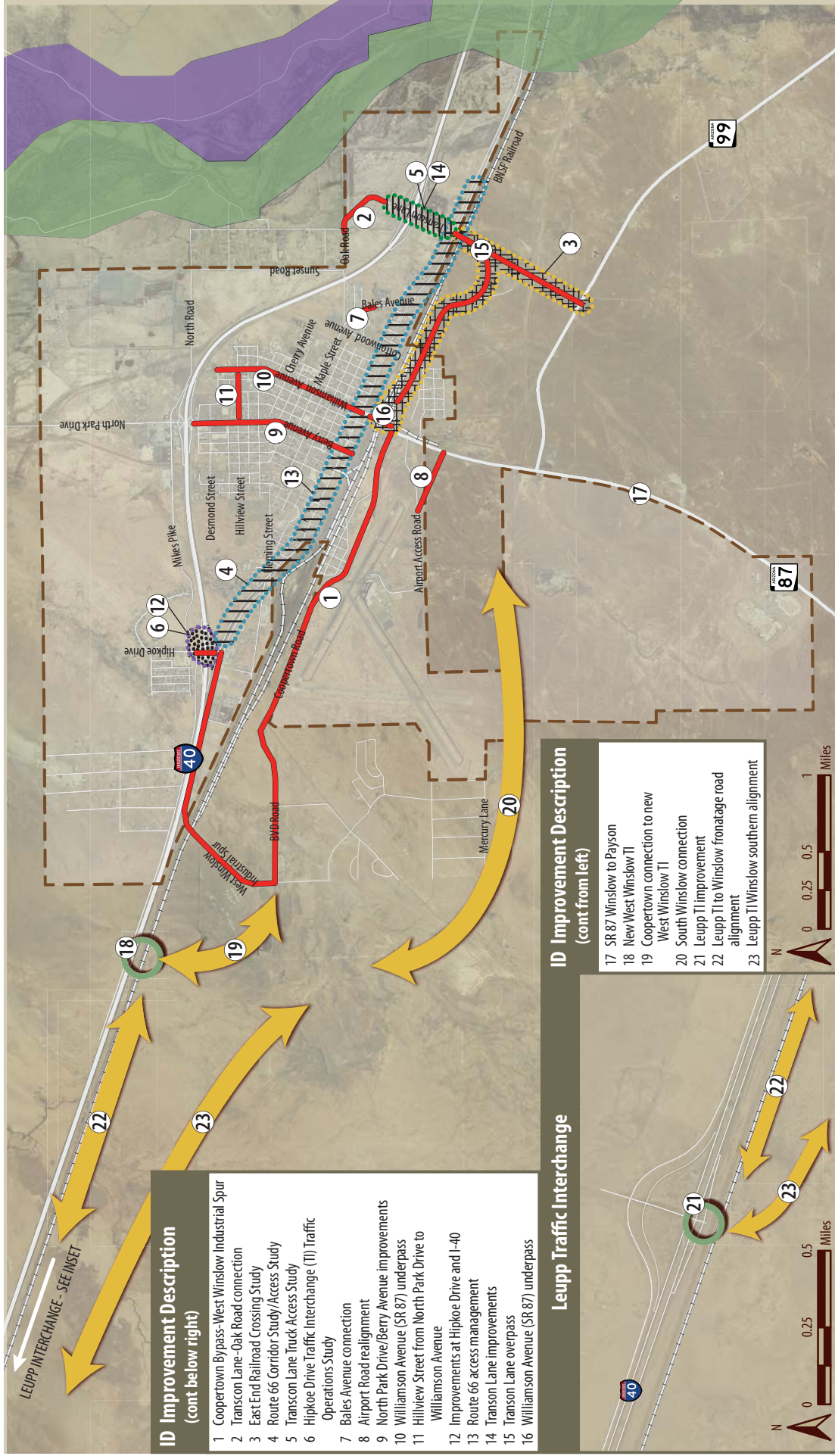
Sacaton Grass Communities

The sacaton grass community is commonly associated with riparian areas; it is dominated by the deep-rooted sacaton grass (*Sporobolus wrightii*). Within the study area, this community is located adjacent to the cottonwood-willow community associated with the Little Colorado River.

Shrub-Grass Disclimax Communities

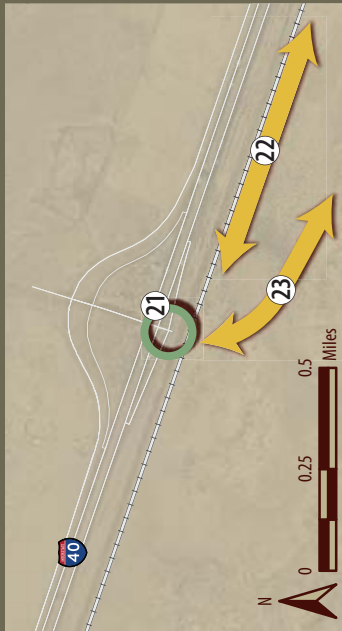
A stable, shrub-grass community is a result of livestock overgrazing that reached a disturbance climax, or disclimax. It consists of moderately dense under stories of rabbitbrush and sagebrush, but may also include four-wing saltbush and grasses such as gramas. Prickly pear and cholla are common cacti species in a grassland and desert scrub disclimax.





- ID Improvement Description (cont below right)**
- Coopertown Bypass-West Winslow Industrial Spur
 - Transcon Lane-Oak Road connection
 - East End Railroad Crossing Study
 - Route 66 Corridor Study/Access Study
 - Transcon Lane Truck Access Study
 - Hipkoe Drive Traffic Interchange (TI) Traffic Operations Study
 - Bales Avenue connection
 - Airport Road realignment
 - North Park Drive/Berry Avenue improvements
 - Williamson Avenue (SR 87) underpass
 - Hillview Street from North Park Drive to Williamson Avenue
 - Improvements at Hipkoe Drive and I-40
 - Route 66 access management
 - Transcon Lane improvements
 - Transcon Lane overpass
 - Williamson Avenue (SR 87) underpass

Leupp Traffic Interchange



ID Improvement Description (cont from left)

- SR 87 Winslow to Payson
- New West Winslow TI
- Coopertown connection to new West Winslow TI
- South Winslow connection
- Leupp TI improvement
- Leupp TI to Winslow frontage road alignment
- Leupp TI Winslow southern alignment

- Cottonwood-Willow
- Sacaton Grass
- Shrub-Grass Disclimax
- New corridor
- Planned roadway improvements
- Traffic interchange with railroad crossing

- East End Railroad Crossing Study
- Route 66 Corridor Study/Access Study
- Hipkoe Drive Traffic Interchange Traffic Operations Study
- Transcon Lane Truck Access Study

- City boundary
- Railroad

Figure A.3 | Biotic Communities
Source: ALRIS (2009), HDR (2011)

December 30, 2011 | HDR



CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

The Arizona Game and Fish Department’s On-Line Environmental Review Tool identified seven special status species in the project vicinity. Shown in Table A.6, additional study together with coordination with U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the BLM and the State will be required to determine the affect of planned transportation improvements on these species and their habitat.

Table A.6 Special status species occurrences/critical habitat/tribal lands within five miles of project vicinity

Name	Common Name	USFWS	USFS	BLM	State
<i>Aquila chrysaetos</i>	Golden Eagle	BGA			
<i>Astragalus xiphoides</i>	Gladiator Milk Vetch	SC			SR
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S	S	
<i>Catostomus</i> sp. 3	Little Colorado Sucker	SC	S	S	WSC
<i>Errazurizia rotundata</i>	Roundleaf Errazurizia			S	SR
<i>Gymnogyps californianus</i>	10J area for California condor				
<i>Haliaeetus leucocephalus</i> (wintering pop.)	Bald Eagle - Winter Population	SC, BGA	S	S	WSC

Source: Arizona Game and Fish Department, 2011.

Notes: **BGA** – Bald and Golden Eagle Protection Act: Prohibits take of bald and golden eagles without prior USFWS permit.

SC – Species of Concern: The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the US Fish and Wildlife Service, but neither term has official status (currently all former C2 species).

S – Sensitive: those taxa occurring on BLM Field Office Lands in Arizona which are considered sensitive by the Arizona State Office.

SR - Salvage Restricted: collection only with permit.

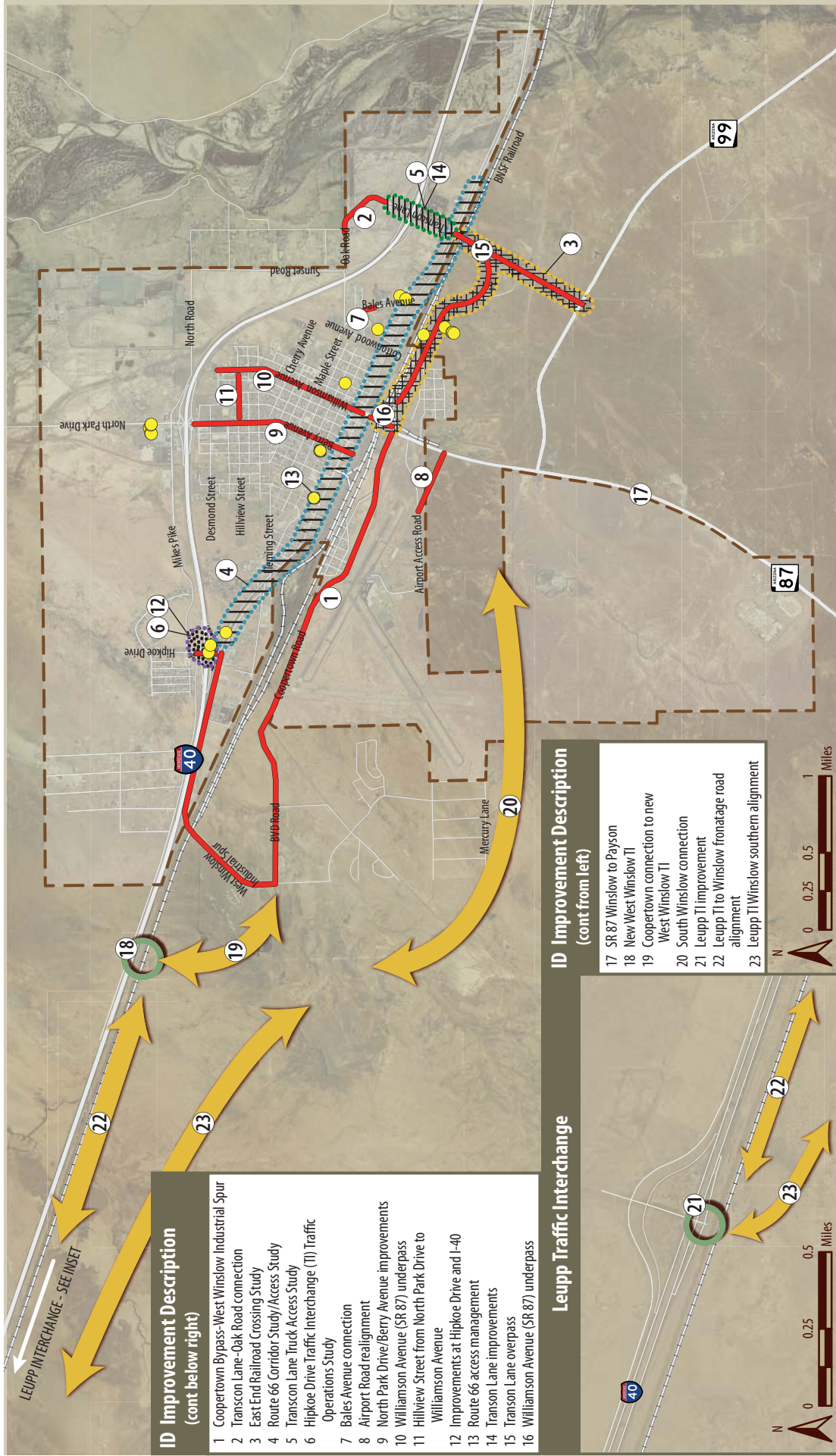
WSC - Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep). Species indicated on printouts as WSC are currently the same as those in Threatened Native Wildlife in Arizona (1988).



Contamination/Hazardous Materials

The location of hazardous materials sites is another important factor in evaluating transportation improvement alternatives. Figure A.4 shows the location of underground storage tanks, leaking underground storage tanks, and brownfield grant sites within the City of Winslow study area that have been identified by the Arizona Department of Environmental Quality (ADEQ).





- ID Improvement Description (cont below right)**
- 1 Coopertown Bypass-West Winslow Industrial Spur
 - 2 Transcon Lane-Oak Road connection
 - 3 East End Railroad Crossing Study
 - 4 Route 66 Corridor Study/Access Study
 - 5 Transcon Lane Truck Access Study
 - 6 Hipkoe Drive Traffic Interchange (TI) Traffic Operations Study
 - 7 Bales Avenue connection
 - 8 Airport Road realignment
 - 9 North Park Drive/Berry Avenue improvements
 - 10 Williamson Avenue (SR 87) underpass
 - 11 Hillview Street from North Park Drive to Williamson Avenue
 - 12 Improvements at Hipkoe Drive and I-40
 - 13 Route 66 access management
 - 14 Transcon Lane improvements
 - 15 Transcon Lane overpass
 - 16 Williamson Avenue (SR 87) underpass

Leupp Traffic Interchange

ID Improvement Description (cont from left)

- 17 SR 87 Winslow to Payson
- 18 New West Winslow TI
- 19 Coopertown connection to new West Winslow TI
- 20 South Winslow connection
- 21 Leupp TI improvement
- 22 Leupp TI to Winslow frontage road alignment
- 23 Leupp TI Winslow southern alignment

- Leaking underground storage tanks (active)
- New corridor
- Planned roadway improvements
- Traffic interchange with railroad crossing

- East End Railroad Crossing Study
- Route 66 Corridor Study/Access Study
- Hipkoe Drive Traffic Interchange Traffic Operations Study
- Transcon Lane Truck Access Study

- City boundary
- Railroad

Figure A.4 | Active Leaking Underground Storage Tanks
 Source: HDR (2011), ASLD (2010)

December 30, 2011 | HDR




























CITY OF WINSLOW NORTH-SOUTH TRANSPORTATION STUDY

Environmental Scan Evaluation Matrix

None of the potential north-south BNSF railroad crossings appear to have environmental fatal flaws. Two of the potential crossings are located in flood zones and the Williamson Avenue underpass could potentially affect historic route 66 along with nearby historic properties. Table A.7 below ranks the environmental conditions for each of the five recommended railroad crossings.

Table A.7 Ranking of Environmental Conditions

Environmental Scan	Coopertown Bypass – West Winslow Industrial Spur	Transcon Lane Overpass	Williamson Avenue Underpass	West Winslow TI	Leupp TI
Cultural Resources					
Flood Hazards					
Biotic Communities					
Contamination/ Hazardous Materials					

	Excellent		Good		Moderate/Neutral		Fair		Poor
---	-----------	---	------	---	------------------	---	------	---	------

Appendix B: Improvement Cost Estimates

Road Improvement Cost Estimates

Priority	Item	Description	Unit	Cost	Comments - Source for Cost
Near-Term					
1	CooperTown Bypass - West Winslow Industrial Spur	Reconstruct the existing road and new 2 Lane CopperTown Bypass	5.57 miles	\$8,500,000	City of Winslow
2	Transcon Lane - Oak Road Connection	New 2 Lane Roadway	0.4 miles	\$1,100,000	@\$1.1M per lane mile (HDR SRPMIC LRTP Estimate), 25% constingency added
3	East End Railroad Crossing Study	Design Concept Study	Lump Sum	\$200,000	Speedway UPRR underpass Study, 50% contingency added
4	Route 66 Corridor Study/ Access Study	Access Management plan for Route 66 within City limits	Lump Sum	\$45,000	Route 66, 4.6 miles roadway, 1 traffic signal, 6,100 ADT. Cost Source: City of Tucson Downtown Links Access Study/Sedona Route Transfer Study, \$35,000 per study with 25% constingency added
5	Transcon Lane Truck Access study	Evaluation of road geometry to improve truck operations	Lump Sum	\$35,000	Speedway UPRR Uunderpass Study,25% contingency added
6	Hipkoe Drive Interchange Traffic Operations Study	Evaluation of traffic operations at Hipkoe Drive and I-40	Lump Sum	\$45,000	Hipkoe TI - 2,500 ADT. Cost Source: City of Tucson Downtown Links Access Study/Sedona Route Transfer Study, \$35,000 per study with 25% constingency added
7	Transcon Lane Improvements	Implement recommendations of Transcon Lane Truck Access Study	2,000 feet	\$1.5 million	City of Winslow, NACOG TIP
Mid-Term					
8	Bales Avenue Connection	New 2 Lane Roadway	425 feet	\$240,000	@\$1.1M per lane mile (HDR SRPMIC Estimate LRTP), 35% constingency added
9	Airport Road Realignment	New 2 Lane Roadway	2500 feet	\$830,000	airport master plan cost - \$746,325, 10% contingency added

Road Improvement Cost Estimates

Priority	Item	Description	Unit	Cost	Comments - Source for Cost
Mid-Term					
10	North Park Drive/Berry Avenue Improvements	Safety and operations improvements	Lump Sum	\$90,000	North Park Drive/Berry Avenue 1.1 mile roadway, 1 traffic signal, 6,100 ADT. Cost Source: City of Tucson Downtown Links Access Study/Sedona Route Transfer Study, \$50,000 for study and traffic control improvement \$20,000 with 20% constingency added
11	Williamson Avenue Improvements	Safety and operations improvements	Lump Sum	\$90,000	Williamson Avenue 1 mile roadway, 2 traffic signals, 4,000 ADT. Cost Source: City of Tucson Downtown Links Access Study/Sedona Route Transfer Study, \$50,000 for study and traffic control improvement \$20,000 with 20% constingency added
12	Hillview Street from North Park Drive to Williamson Avenue	Safety and operations improvements	Lump Sum	\$90,000	Hillview Street from North Park Drive to Williamson Avenue 0.35 mile roadway, 1,100 ADT. Cost Source: City of Tucson Downtown Links Access Study/Sedona Route Transfer Study, \$50,000 for study and traffic control improvement \$20,000 with 20% constingency added
13	Improvements at Hipkoe Drive and I-40	Implement recommendations of Hipkoe Drive Traffic Interchange Traffic Operations Study	na	na	costs contingent upon the findings of the study
14	Route 66 Access Management	Implement recommendations of Route 66 Corridor Study/Access Plan	na	na	costs contingent upon the findings of the study

Non-Motorized

Priority	Item	Description	Unit	Cost	Comments - Source for Cost
Near-Term					
1	City neighborhood walkways and streets	Sidewalk, curb, gutter, and ADA ramp improvements in four neighborhoods	--	\$1,700,000	City of Winslow CIP, FY 2011-2015
2	Citywide walkways and streets	Sidewalk, curb, gutter, and ADA ramp improvements throughout the City	--	\$340,000	City of Winslow CIP, FY 2011-2015
3	Mike's Pike East - North Park Drive to Ice House Wash	Walkways, streetscape, lighting and drainage improvements	--	\$450,000	City of Winslow CIP, FY 2011-2015
4	First Street - Hubbell to City Hall	Complete sidewalk, lighting, and streetscape between Renaissance 1 and 2	--	\$300,000	City of Winslow CIP, FY 2011-2015
5	Coopertown Road - West Winslow Industrial Spur Trail	Implement trail identified in General Plan concurrent with Coopertown Road improvement	5.57 miles	\$420,000	Source: San Xavier District Pedestrian Access and Safety Study. 8' trail, 10% contingency, \$67000 per mile includes trail, drainage, amenities, crosswalks
Mid-Term					
6	West End Pedestrian Bridge	New pedestrian bridge over BNSF tracks at Kell Place	900 feet	\$3,570,000	Source: San Xavier Pedestrian Bridge estimate. \$275 per sq ft, 20% contingency
7	Airport Road Trail	Implement historic and heritage destination trail identified in General Plan concurrent with Airport Road realignment	1.45 miles	\$110,000	Source: San Xavier District Pedestrian Access and Safety Study. 8' trail, 10% contingency, \$67000 per mile includes trail, drainage, amenities, crosswalks