

6. IMPLEMENTATION AND FUNDING

This Chapter discusses implementation strategies and presents a summary of projects for the 2015, 2030, and 2050 planning horizons, estimated project costs, and potential revenue sources.

CHALLENGES TO IMPLEMENTATION

Implementing the multimodal transportation infrastructure within the context of approved development plans presents several major challenges, including the following:

- Right-of-way needs and right-of-way preservation for roadways
- Lead time needed to construct regional connections
- Cost of needed improvements and funding implications
- Limited funding and ability to obtain funding
- Prioritization of projects as development phases in
- Implementation of multimodal and transit projects

IMPLEMENTATION STRATEGIES

Agency and Stakeholder Coordination

To meet these challenges, it is essential that an implementation action plan for short-, mid-, and long-range transportation projects be developed in coordination with the following agencies and organizations:

- Arizona Department of Transportation
- Central Arizona Council of Governments (CAAG)
- Pinal County
- Neighboring municipalities and Tribal Governments
- Arizona State Land Department
- Developers, railroad companies, and other private sector stakeholders

As stated previously, improvements to the State Highway system can be made only after in-depth planning and engineering studies are conducted by ADOT, and upon approval of the State Transportation Board. All traffic interchange improvements must be approved by the Federal Highway Administration (FHWA). The recommendations made by this study for improvements on state facilities can serve only as suggestions for further study.

Moreover, alignments of regional and intercity bus and rail services will be chosen by ADOT, CAAG, Pinal County, or a consortium of some or all of these agencies, with significant input from host railroads and possibly from private-sector intercity bus operators.

In addition, environmental assessments must be conducted and Design-Concept Reports must be developed prior to the construction of any new roadway or multimodal facility.

Tables 6-1 and 6-2 list recommended candidate road and multimodal projects for the 2015, 2030, and 2050 planning horizons. Chapter 5 presents figures illustrating the 2030 and 2050 candidate projects. Tables 6-1 and 6-2 also list the likely primary responsible parties for implementing the projects. The estimated capital costs for the roadway and multimodal plans are presented in Tables 6-3 and 6-4, respectively. These costs exclude right-of-way costs.

TABLE 6-1. ELOY ROADWAY IMPLEMENTATION STRATEGIES

Implementation Strategy	Horizon			Responsibility
	2015	2030	2050	
Plan and Program Adoption				
Adopt the Eloy Small Area Transportation Study.	X			City
Adopt roadway functional classifications, design standards, and traffic-calming policies.	X			City
Program the recommended multimodal improvements into the Capital Program.	X			City
Coordination				
Coordinate with ADOT on completion of ADOT Design Concept Studies and the design of I-10.	X			City/ADOT
Coordinate with ADOT and stakeholders on Design Concept Studies for high capacity corridors.	X			ADOT, City, State Lands/Developers
Coordinate with CAAG on continuous updating of population projections.	X			City/County/ CAAG
Conform to Pinal County adopted access management guidelines	X			City
Planning and Studies				
Establish a process to coordinate city land use and transportation decisions on a regular basis.				City
Evaluate overall roadway network in downtown area including elimination of some diagonal roadways and “turning back” of rights-of-way to traversed land parcels.	X			City
Study pedestrian and bike-friendly streetscape and City Square concepts.	X			City
Study rationalization of roadway network to correct the four 5-way intersections in the vicinity of Frontier.	X			City
Study industrial access along South Main Street corridor between Frontier and I-10.	X			City
Implement a pavement management system (PMS)				City
Conduct Design Concept Study for I-10 from Eloy Boundary to I-8	X			ADOT
Re-design Sunshine Boulevard between Frontier and Battaglia; Toltec Highway; Sunland Gin Road; Houser Road; Battaglia Road; Eleven Mile Corner Road	X			City/Developers

TABLE 6-1. ELOY ROADWAY IMPLEMENTATION STRATEGIES (Continued)

Implementation Strategy	Horizon			Responsibility
	2015	2030	2050	
Preserve right-of-way for arterials and high capacity corridors.	X			City/County/State Lands/Developers
Upgrade existing roadways to comply with adopted functional classifications and standards as warranted.	X			City/Developers
Re-construct the following to adopted cross-sections: Sunshine Boulevard between Frontier and Battaglia; Toltec Highway; Sunland Gin Road; Houser Road; Battaglia Drive; Eleven Mile Corner Road.	X	X		City/Developers
Construct minor & major arterials as shown in 2030 Transportation Plan, Figure 5-4.		X		Public/Private Partnership
Construct high capacity corridors as shown in 2030 Transportation Plan, Figure 5-4.		X		Public/Private Partnership
Construct minor & major arterials as shown in Long-Range Vision Plan, Figure 5-5.			X	Public/Private Partnership
Construct high capacity corridors as shown in Long-Range Vision Plan, Figure 5-5.			X	ADOT
Re-construct I-10 from Picacho Peak to community of Picacho.	X			ADOT
Re-construct I-10 from northern Eloy planning boundary to I-8.			X	ADOT
Funding				
Identify high priority funding strategies.	X			City/County/ CAAG/ADOT
Coordinate to obtain funding and leverage funds for improvements.	X			City/County/ CAAG/ADOT
Monitoring and Updating Plan				
Implement a process to monitor and update plan.	X			City/CAAG/ ADOT
Coordinate on a regional traffic count program.	X			City/CAAG/ ADOT

TABLE 6-2. ELOY MULTIMODAL IMPLEMENTATION STRATEGIES

Implementation Strategy	Horizon			Responsibility
	2015	2030	2050	
Plan and Program Adoption				
Adopt the Eloy Small Area Transportation Study.	X			City
Program the recommended multimodal improvements into the capital program.	X			City
Coordination				
Appoint Transit Advisory Board.	X			City
Designate City Transportation Coordinator.	X			City
Explore implementation of ride-sharing program.	X			City
Review findings of Pinal County Transit Study and transit elements of previous area studies.	X			City
Participate in expanded “Pinal Rides” program as warranted. Assess unmet needs and deficiencies with respect to human services transportation and potential rationalization of vehicles and other assets.	X			City
Planning and Studies				
Conduct City of Eloy Transit Feasibility Study.	X			City
Identify potential transit corridors and preserve rights-of-way.	X			City/Pinal County/ADOT
Identify potential sites of future park-and-ride lots, transit centers, and passenger rail facilities and preserve acreages.	X			City/Pinal County/ADOT
Advance plan for grade separated highway-rail crossings at the Union Pacific main line and Sunshine Boulevard, Toltec Highway, Houser Road, and Battaglia Drive. Design draft facilities for each location and assess parcel and right-of-way acquisition that would be needed for each. Obtain input from first responders regarding priorities for location of grade-separated facilities.	X			City/ADOT
Preserve rights-of-way, as well as land parcels that may be needed for upgraded transportation facilities such as viaducts over the railroad as well as future transit centers and park-and-ride lots.	X			City/Developers/State Lands
Study improvement and expansion of multiuse pathway network. Determine most appropriate bicycle and pedestrian facilities for each roadway segment given planned abutting land uses.	X			City

TABLE 6-2. ELOY MULTIMODAL IMPLEMENTATION STRATEGIES (Continued)

Implementation Strategy	Horizon			Responsibility
	2015	2030	2050	
Construct additional T-hangars at airport.	X			City
Design and construct new airport terminal building.		X		City
Construct extensions to multiuse pathway network to connect new developments as warranted.	X	X	X	City
Complete 2030 multimodal plan as shown in Figure 5-11.		X		City/ADOT
Complete Long-range multimodal plan as shown in Figure 5-12.			X	City/ADOT
Funding				
Identify high priority funding strategies.	X			City/County/ CAAG/ADOT
Coordinate to obtain funding and leverage funds for improvements.	X			City/County/ CAAG/ADOT
Monitoring and Updating Plan				
Implement a process to monitor and update plan.	X			City/CAAG/ ADOT
Coordinate on a regional multimodal usage count program (incorporating motor vehicle traffic counts and gathering of transit ridership data).	X			City/CAAG/ ADOT

TABLE 6-3. ESTIMATED CAPITAL COSTS FOR ROADWAY PROJECTS

2030 Transportation Plan		
Functional Classification	Mileage	Total Costs*
Collector	1.1	\$4,033,000
Minor Arterial	250.8	\$1,254,100,000
Major Arterial- RSR	171.1	\$971,170,000
Total	423.0	\$2,229,303,000

*Excludes I-10, State Routes, frontage roads, and high capacity corridors

Long-Range 2050 Vision Plan		
Functional Classification	Mileage	Total Costs*
Collector	22.4	\$82,954,000
Minor Arterial	343.6	\$1,718,000,000
Major Arterial- RSR	245.2	\$1,471,140,000
Total	611.2	\$3,272,094,000

*Excludes I-10, State Routes, frontage roads, and high capacity corridors

TABLE 6-4. ESTIMATED CAPITAL COSTS FOR MULTIMODAL PROJECTS

2030 Transportation Plan		
Type of Service	Miles	Total Costs
Local Circulator Bus Service**	62.6	\$1,353,725
Regional Bus Service	17.7	\$26,550,000
Intercity Bus Service	28.2	\$14,100,000
Total	98.0	\$42,003,725
Long-Range 2050 Vision Plan		
Type of Service	Miles	Total Costs
Local Circulator Bus Service**	180.9	\$3,911,963
Regional Bus Service	17.7	\$26,550,000
Intercity Bus Service	28.2	\$14,100,000
Commuter Rail Service	24.7	\$371,160,000
High Speed Intercity Rail Service	38.2	To be Determined
Potential High Capacity Transit	61.3	To be Determined
Total	152.5	To be Determined

**Note: Local transit service areas are shown in square miles.

REVENUE SOURCES

This section summarizes multimodal revenue sources and estimates that are applicable to the City of Eloy, together with financial constraints and opportunities pertaining to needed roadway improvements. A number of funding mechanisms exist that could be used to fund multimodal improvements in the study area. Key federal, state, regional, and local sources are shown in Table 6-5. Funding options include both traditional and innovative sources. Traditional sources are the Arizona Highways User Revenue Fund (HURF); the Local Transportation Assistance Fund (LTAF); Federal-aid funds (Surface Transportation, Bridge, Safety, and Transportation Enhancement Funds); and local general funds, such as general obligation bonds and revenue bonds. Alternative sources of funding include special assessment districts, developer dedications, and exactions such as impact fees.

Federal Funds

The Federal government funds a variety of transportation programs: Most applicable to Eloy would be the Surface Transportation Program (STP) funds. Arizona receives about \$155 million in STP funds per year. These funds can be used on state highways or for bridge rehabilitation, transportation enhancements, and safety projects. The municipalities would work through ADOT and CAAG to utilize STP funds. In addition, FHWA STP “Flex” funds can also be used for transit capital projects. The State also administers Federal Transit Administration (FTA) Section 5304, Statewide Transportation Planning Funds, Section 5310, Elderly & Persons with Disabilities Transportation Program Funds, and Section 5311, Rural Public Transportation Program Funds.

In 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted by the federal government, providing funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU is a follow up to the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), (Federal Highway Administration, *A Summary of Highway Provisions in SAFETEA-LU*, Office of Legislation and Intergovernmental Affairs, August 2005). Table 6-6 lists the amounts of major funding categories of federal funds in SAFETEA-LU and the amounts of authorized funds for Arizona for Fiscal Year (FY) 2008.

Highway Trust Fund (HTF) is composed of the Highway Account and the Mass Transit Account, and is the source of funding for most of the programs in SAFETEA-LU. Specific funding levels depend on how much revenue is generated for the Highway Trust Fund. Federal motor fuel taxes are the major source of income into the Highway Trust Fund. SAFETEA-LU allocates funding based on four major goals: improving safety, rebuilding America’s infrastructure, protecting our environment, and advancing research and technology.

TABLE 6-5. MATRIX OF KEY MULTIMODAL FUNDING SOURCES

Fund Name	Description	Eligible Uses	Application Process
Federal			
STP	Federal funds, administered by FHWA and ADOT	Variety of capital projects including highways, bridges, and enhancement projects	Programmed CAAG and ADOT District
High Risk Rural Roads	Federal funds, administered by FHWA and ADOT	Correct safety problems on roadways classified as rural major collectors, rural minor collectors and rural local roads	Programmed through ADOT
Safe Routes to School Program	Federal funds, administered by FHWA and ADOT	Sidewalk, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, traffic diversion improvements near schools	Programmed through ADOT
State			
HURF	State funds, derived from fuel tax and VLT, administered by ADOT	Nearly any capital project related to roadway improvements	Funds allocated to jurisdiction as proportion of population
LTAFF	State funds derived from lottery sales	General transportation improvements	Funds allocated to jurisdiction as proportion of population
County			
Pinal County Transportation Excise Tax	½ cent sales tax dedicated to road improvements within Pinal County	1.Highway and street purposes for county, city or town roads, streets, and bridges. 2.Principal and interest on highway and street bonds. 3.Multi-modal transportation systems. 4.Regional transportation studies. 5.Cooperative transportation projects and studies between the federal government and its agencies, the State government and its agencies, and the incorporated cities and towns within the County.	Funds allocated to jurisdiction as proportion of population
Impact Fees*	Fee imposed by local jurisdiction on development on per unit basis	Used to fund a variety of infrastructure needs including transportation	Locally administered
Development Stipulations*	Requirements that developers dedicate appropriate ROW and build streets adjacent to project	Benefits are derived by offsetting cost of acquiring ROW and building infrastructure	Locally administered

*If Enacted

**TABLE 6-6. FY 2008 FEDERAL FUNDING SOURCES FOR ARIZONA
(IN MILLIONS OF DOLLARS)**

Description	Amount
Surface Transportation Enhancement (TEA)	\$138.8
National Highway System Interstate Maintenance	\$174.1
Highway Safet Improvement Program (HISP)	\$33.8
Bridge Replacement and Rehabilitation	\$22.9
Congestion Mitigation & Air Quality	\$35.2
Recreational Trails	\$4.9
Planning and Research	\$12.6
Metropolitan Planning	\$5.3
Border Infrastructure Program	\$8.9
Safe Routes to School	\$2.8
Equity Bonus	\$74.4
Indian Reservation	\$0.6
FTA, Section 5310	\$2.3
FTA, Section 5311	\$9.1
Total	\$607.2

Source: Arizona Department of Transportation, Funding Sources and Authorities, FY 2008 portion of State Transportation Funds are flexed to FTA for Transit projects Statewide.

Surface Transportation Program federal funds are allocated to ADOT and may be programmed on any segment of the interstate system or state highway. Portions of this fund may also be used for bridge rehabilitation, transportation enhancements, and safety projects, such as hazard elimination and environmentally related activities. A new provision permits a portion (up to 15 percent) of funds reserved for rural areas to be spent on rural minor collectors. Apportioned funds are to be distributed based on the following factors:

- Twenty-five percent based on total lane miles of federal-aid highways
- Forty percent based on vehicle miles traveled on lanes on federal-aid highways
- Thirty-five percent based on estimated tax payments attributable to highway users in the States into the Highway Account of the Highway Trust Fund (often referred to as “contributions” to the Highway Account)

Each state is to receive a minimum of one-half percent of the funds apportioned for STP. Arizona’s allocation is based on the state’s lane-miles of federal-aid highways; total vehicle-miles traveled on those federal-aid highways, and estimated contributions to the Highway Account of the HTF.

The National Highway System (NHS) funds are designated for improvement to the National Highway System which consists of an interconnected system of principal arterial routes which serve major population centers, international border crossings, airports, public transportation facilities, and other intermodal transportation facilities as well as major travel destinations. The NHS funding level for Arizona is based the state's lane-miles of principal arterials (excluding Interstate), vehicle-miles traveled on those arterials, diesel fuel used on the state's highways, and per capita principal arterial lane-miles.

Interstate Maintenance (IM) funds are designated for reconstruction of bridges, interchanges and over crossings along existing Interstate routes, acquisition of right-of-way, and preventative maintenance. These funds are not to be used for the construction of new travel lanes other than high occupancy vehicle lanes or auxiliary lanes. The allocation of IM funds is based on the state's lane-miles of Interstate routes open to traffic, vehicle-miles traveled, and contributions to the Highway Account of the Highway Trust Fund attributable to commercial vehicles. A State may transfer up to 50 percent of its IM apportionment to its NHS, STP, Congestion Mitigation & Air Quality (CMAQ), Highway Bridge Replacement and Rehabilitation, or Recreational Trails apportionment.

Bridge Replacement and Rehabilitation funds can be used for bridge replacement or rehabilitation for eligible bridges located on any public road. The state has the option to transfer up to 50 percent of its bridge funds to NHS or STP funds.

Congestion Mitigation & Air Quality (CMAQ) funds are programmed for both freeway management projects, demand management projects, as well as other related air quality projects including bicycles facilities. These funds are designated for urban areas experiencing traffic congestion that are in non-attainment of the National Ambient Air Quality Standards (NAAQS) for one or more category pollutants. Currently, CMAQ funds are only spent in Maricopa County.

Funds for the Recreation Trails Program are administered by the Federal Highway Administration in apportionments to the Recreational Trails Program. A state recreational trails advisory committee represents both motorized and non-motorized recreational trail users. The allocated funds are split into 30 percent for motorized use, 30 percent for non-motorized use, and 40 percent for diverse trails.

The State Planning and Research (SPR) Program provides funds for the planning of future highway and local transportation systems. Research, development, and technology transfer activities necessary in connection with the planning, design, construction, and maintenance of highways, public transportation, and intermodal transportation system. This Eloy Small Area Transportation Study is funded largely by SPR funds, together with funds from the City of Eloy.

Metropolitan Planning Funds in Arizona are used to carry out the planning process required by Title 23, United States Code, including the development of metropolitan area transportation plans and transportation improvement programs. Metropolitan Planning Organizations (MPOs) are eligible to receive these funds.

Border Infrastructure Program distributes funds among four States: Arizona, California, New Mexico, and Texas. The funds are used to support the construction and improvement to the motor carrier safety inspection facilities along the United States-Mexican border. The objective of the program is two-fold—safety and the development of infrastructure to facilitate truck flow through critical commerce corridors in the four states.

Equity Bonus ensures that the State will have a guaranteed return on its contributions to the Highway Account of the Highway Trust Fund. The specified percentages are 90.5 percent for 2005 and 2006, 91.5 percent for 2007, and 92 percent for 2008 and 2009. This SAFETEA-LU program replaces TEA-21's Minimum Guarantee program.

The Hazard Elimination System (HES) is a program that was previously identified as the Candidate Locations for Operations and Safety Evaluations (CLOSE) program. The primary objective of the HES program is to reduce the number and severity of traffic crashes and decrease the potential for crashes on state highways.

Authorized funding for the HES program is under Section 924 of the Highway Safety Improvement Program of Title 23 of U.S.C. 105(f), 152, 315, and 402; Section 203 of the Highway Safety Act of 1973, as amended; 49 CFR 1.48(b).

Most types of public surface transportation facility improvement may be eligible for funding, provided that the sole purpose of the improvement is to substantially improve safety or to eliminate traffic hazards. However, improvements primarily for capacity enhancements with safety as a by-product will not be approved.

Federal Lands Highways (FLH) funds can be used for Indian Reservation Roads, Park Roads and Parkways, Public Lands Highways, and Refuge Roads. FLH funds also can be used for transit facilities within public lands, national parks, and Indian reservations. The funds can also be used as the state/local match for most types of federal-aid highway funded projects.

Transportation Enhancement funds are one type of federal funds, which are available directly for local projects. These funds are set aside in order to add community or environmental value to a completed or ongoing transportation project. The Arizona State Transportation Board retains fifty percent of the Transportation Enhancement funds for ADOT projects. The remaining enhancement funds are available for local projects recommended by the MPOs and rural councils of governments (COGs).

SAFETEA-LU PROGRAMS

In addition to continuing the programs outlined above, SAFETEA-LU created a number of new transportation programs. Three programs of particular interest to counties are summarized below by Robert Fogel, the Senior Legislative Director for the National Association of Counties (NACo):

Highway Safety Improvement Program (HSIP) replaces the safety set-aside that was formerly part of the Surface Transportation Program. Funds are distributed by formula to the states that can be used on a broad array of safety improvement projects to reduce the number and severity of highway-related crashes and to decrease the potential for projects on all highways. That means on any road owned by county government. This includes projects aimed at intersection safety improvement, pavement and shoulder widening, rumble strips, signage, and guardrails. County officials need to get involved in this program at an early stage and document the projects they want funded. Every state is required to develop a Strategic Highway Safety Plan (SHSP) that involves a comprehensive, collaborative and data driven approach of highway safety. This plan is required to lay out projects and strategies for which the federal will be used to reduced or eliminate safety hazards. For counties, it is important to note that the SHSP must be developed in collaboration with key safety stakeholders in the State, which includes local officials, and the SHSP must be data driven. The presumption is that the federal safety funds must be invested in projects where the data (fatalities, crashes, police records, etc.) supports the need for investment.

As a part of the HSIP, there is a specific set aside for **High Risk Rural Roads**. This was a NACo priority. While any of the \$1.2 billion annually can be spent on rural roads, \$90 million is specifically targeted for safety problems on roadways classified as rural major collectors, rural minor collectors, and rural local roads. The funds can be used for construction and operational improvements related to safety but must be used on roads that have a crash rate and for fatalities and incapacitating injuries that exceeds the statewide average for those functional classes of roads. A second set aside on the HSIP program is for Railway-Highway Grade Crossing. At \$220 annually, this program is increased by approximately \$65 million beyond TEA-21 levels. This program is basically unchanged and is aimed at funding projects on any public road that eliminates hazards at rail grade crossings, including the separation or protection, reconstruction, and relocation of grade crossings.

The **Safe Routes to School Program** is a totally new program focused on enabling and encouraging children to safely walk and bicycle to school. This is another program for which counties and all the roads they own are eligible. County leaders should work vigorously to get their projects at the top of the funding list. An average of \$122 annually will be distributed by formula to each State to be used by state, counties and cities, and regional agencies, including non-profit organizations, to further this objective. Each state has to designate a coordinator for this new program, a person county officials should contact. Project eligible include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, traffic diversion

improvements near schools, and a variety of projects to encourage the use of bicycles. Each State must use between 10-30 percent of the funds for non-infrastructure related activities, such as public awareness campaigns, traffic education and enforcement near schools and student sessions on pedestrian and bicycle safety.

American Recovery and Reinvestment Act “Stimulus” Funds

The American Recovery and Reinvestment Act of 2009 (ARRA) includes provisions for modernizing infrastructure. Allocation of the approximate \$350 million received by ADOT for highway and bridge projects statewide according to state formula has resulted in funding for one project within the Eloy Planning Area as summarized in Table 6-7.

TABLE 6-7. ARRA FUND PROJECT IN ELOY PLANNING AREA

Route	Project Name	Estimate	Contract Amount	County	Type of project	Project status
I-10	Picacho Peak to Town of Picacho	\$30,000,000	N/A	Pinal	Roadway widening	Bid

Source: Arizona Department of Transportation

Construction on some ARRA projects was expected to begin by summer 2009. All transportation projects funded by the American Recovery and Reinvestment Act must be completed within three years.

ARIZONA STATE SHARED REVENUE

Highway User Revenue Fund

One of the main sources of state transportation funds is the Highway User Revenue Fund. These funds are comprised of gasoline taxes, use fuel tax, motor carrier fees, vehicle license taxes, and other registration fees. The principal sources of revenue are presented in Table 6-8:

- Gasoline Taxes: Arizona’s motor vehicle fuel tax of 18 cents per gallon is the largest source of revenue for HURF.
- Use Fuel Taxes: Use fuel taxes are taxes on diesel fuel and range between 18 cents per gallon for passenger cars to 26 cents per gallon for commercial trucks and buses. These taxes provide the third largest source of revenue.

**TABLE 6-8. FY 2005 ADOT REVENUE SOURCES – STATE
(IN MILLIONS OF DOLLARS)**

Description	FY-2008 Actual
Gasoline Tax	\$492.5
Use Fuel Tax	\$207.5
Motor Carrier Fee	\$40.2
Vehicle License Tax	\$385.2
Registration	\$162.8
Other	\$56.0
Total	\$1,344.5

Source: Arizona Department of Transportation, Financial Management Services, Arizona Highway User Revenue Fund, September 2008

- **Motor Carrier Fees:** These fees, based on the weight of the vehicle, are the smallest source of funding for HURF.
- **Vehicle License Taxes (VLT):** Vehicle license taxes are linked to the value of the vehicle being taxed and are the second largest source of funds for HURF. These VLT funds are the only ones of the four major HURF revenue sources that are tied to inflation and increase as vehicle prices increase. In recent years, the VLT tax rate has been reduced to be more consistent with that of neighboring states.

Other fees include motor vehicle registration fees, border crossing fees, and other miscellaneous fees.

The revenue for HURF in 2008 was over \$1.3 billion dollars. HURF funds are allocated through ADOT and distributed as an entitlement to cities, towns, and counties based on population. Pinal County received \$251,942,354 of HURF funds in Fiscal 2008. As the population of the County increases, the proportion of HURF funds for the County are expected to increase as well. Table 6-9 lists the HURF receipts for the five most recent fiscal years.

**TABLE 6-9. ARIZONA HIGHWAY USER REVENUE FUND DISTRIBUTIONS TO
PINAL COUNTY AND THE CITY OF ELOY
FY 2004 - 2008**

Jurisdiction	Distributions				
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Total Counties in State	\$194,432,532	\$200,465,084	\$214,601,120	\$260,464,657	\$251,942,354
Pinal County	\$9,606,611	\$10,252,245	\$11,515,102	\$17,140,419	\$17,093,823
City of Eloy	\$916,576	\$999,070	\$1,080,373	\$1,075,048.	\$1,105,113

Source: Arizona Department of Transportation, Financial Management Services

The HURF is the primary source for state highway funding and HURF funds are limited to highway use by the Arizona Constitution. Monies from the HURF are intended for the improvement of the State’s highways and bridges. Once collected, the HURF revenues are distributed to ADOT, and in turn distributed as an entitlement share to cities, towns, and counties in proportion to population and to the Economic Strength Project Fund (described later in this chapter). HURF distributions may be used as debt service for revenue bond projects. Table 6-10 presents the HURF revenue forecast for FY 2006 - 2015.

**TABLE 6-10. HIGHWAY USER REVENUE FUND REVENUE FORECAST
(IN MILLIONS OF DOLLARS)**

Fiscal Year	Gasoline	Use Fuel	Motor Carrier	VLT	Registration	Other	HURF Total
2008	492.5	207.9	40.2	385.2	162.8	56.0	1,344.5
2009	498.9	210.9	41.6	408.9	168.5	58.2	1,387.0
2010	514.1	209.8	43.7	439.4	172/3	62.1	1,441.4
2011	528.7	213.9	45.4	478.6	177.6	65.1	1,509.3
2012	546.6	219.9	47.1	519.8	183.0	68.4	1,584.8
2013	562.7	226.7	49.0	567.3	189.0	71.7	1,666.4
2014	578.5	233.8	50.9	614.0	194.5	75.0	1,746.7
2015	597.9	241.2	52.8	664.6	200.2	78.3	1,835.0
2016	614.4	249.0	54.9	720.9	206.2	81.5	1,926.9
2017	629.8	256.1	56.9	774.3	212.2	85.1	2,014.4
2018	643.2	263.9	59.1	836.8	218.4	88.6	2,110.0

Source: Arizona Department of Transportation, Financial Management Services, September 2008

Local Transportation Assistance Fund (LTAF I and LTAF II)

Other state funding programs include LTAF I, which is funded by Arizona Lottery receipts other than Powerball, and LTAF II, which is funded by Powerball receipts. These funds are also distributed based on population. Larger cities, those over 300,000, must use LTAF I revenue for public transit; smaller communities may use the funds for other transportation projects. LTAF II monies must be used for transit by nearly all jurisdictions.

Local Transportation Assistance Fund. The LTAF is funded by the Arizona Lottery for use by cities and towns requesting the funds. The LTAF funds are allocated in proportion to population. Each requesting municipality is guaranteed a minimum of ten thousand dollars. Currently, \$23 million may be deposited in the LTAF from the state lottery fund each fiscal year. Cities and towns with a population of more than 300,000 persons must use LTAF funds for public transportation. In addition, up to 10 percent of funds may be used for the arts or for disabled and handicapped assistance.

The Local Transportation Assistance Fund II, or LTAF II, program, which derives funds from the state’s share of lottery “Powerball” ticket receipts, has been one of the key sources for the local matching funds for these federal funds. Since the implementation of LTAF II, the

legislature has provided that when these receipts reach a certain threshold amount in any fiscal year, the balance flows to the LTAF II program for apportioned distribution to councils of governments, county governments, and local governments. Fiscal year 2009 LTAF II distributions in Pinal County are shown in Table 6-11.

**TABLE 6-11. LTAF II DISTRIBUTION - COUNTIES AND CITIES/TOWNS
(FY 2009 ESTIMATE)**

Jurisdiction	County Level Distribution	Jurisdiction Level Distribution
Pinal County	\$589,788.76	\$288,778.16
City of Eloy		\$25,114.67

Source: Arizona Department of Transportation, Multimodal Planning Division

Arizona State Parks Heritage Fund

The Local, Regional and State Parks (LRSP) Heritage Fund provides funding assistance to local agencies for park development, outdoor recreation, and open space projects. The State Parks Board receives up to \$3.5 million each year from the Arizona Lottery. Grants are awarded on a 50/50 match basis. Matching funds can be in the form of cash, in-kind contributions, or donations. Table 6-12 lists recent grant awards for park and trail improvement in Pinal County.

**TABLE 6-12. STATE PARKS HERITAGE FUND GRANT AWARDS
IN THE STUDY AREA**

Participant	Project Title	Grant Cycle	Grant Award	Project Cost
Local, Regional and State Parks Heritage Fund Grants				
Pinal County	1891 2nd Pinal County Courthouse Roof	2005	\$100,000	\$250,000
Pinal County	Liberty Park Improvements	2003	\$17,204	\$35,843
Pinal County	Liberty Park Improvements	2003	\$17,204	\$35,843
Pinal County	Courthouse Clock Tower Renovation	2002	\$99,988	\$199,988
Trails Heritage Fund Grant				
Pinal County	Lost Goldmine Trail Renovation	2002	\$12,740	\$25,844

Source: Arizona State Parks

In past years, the City of Eloy has received grants from the Land and Water Conservation Fund (LWCF), which is also administered by Arizona State Parks.

OTHER FUNDING SOURCES

Public Transit

Significant federal sources of funding grants are overseen and managed by the FTA; these funds are administered in Arizona by the Multimodal Planning Division of ADOT. FTA funding levels are part of SAFETEA-LU. The federal transit laws are contained in Title 49 of the United States Code (USC), Chapter 53. The key transit grant provisions applicable to the City of Eloy are covered in the following sections of Chapter 53 of the USC:

- Section 5310: Formula Grants for Special Needs of Elderly Individuals and Individuals with Disabilities
- Section 5311: Formula Grants for Rural and Small Urban Public Transportation
- Section 5313: State Planning and Research Programs

ADOT has recently adopted a policy providing that, on a case-by-case basis, a private sector non-profit agency may be the recipient of Section 5311 funds. Previously, public agencies were the only agencies considered for these grants. Hence, more management options exist for the operation of Section 5311 supported transit services.

Surface Transportation Program Flexible Funding

Since 2000, the State Transportation Board has made available 6.5 million annually in STP “flexible funds” statewide for qualified transit capital projects such as vehicles and transit facilities. These funds, created within the federal TEA-21 program and continued under SAFETEA-LU, are regarded as “flexible” in that the monies may be used for either highway or transit purposes. Funding originates with the Federal Highway Administration and is administered by ADOT.

Additional sources of revenue available for transit services include the following:

- Welfare to Work Act
- Older American Act Title III funds, Department of Economic Security
- Division of Developmental Disability funds
- Transportation funding through Medicaid administered through the Arizona Health Care Cost Containment System
- Head Start, Behavioral Health Funding
- Transit fares

Economic Strength Projects Fund

Local governments are eligible sponsors and co-sponsors of transportation projects financed by the Arizona Economic Strength Projects fund. This fund is sponsored by the Arizona Department of Commerce and funded by HURF. Local grant recipients must match at least 10 percent of the project cost. The fund finances selected road projects that support economic development objectives.

Governor's Office of Highway Safety

Federal funds are allocated to finance state and local government highway safety projects. These program funds, in the form of reimbursable contracts, are administered by the Governor's Office of Highway Safety. Funds are provided under the National Highway Safety Act and funded through grants from the FHWA and the National Highway Traffic Safety Administration (NHSTA). The safety priority areas are listed below:

NHSTA Priority Program areas:

- Police traffic services
- Impaired driving
- Traffic records
- Pedestrian/bicycle safety
- Emergency medical services
- Occupant protection
- Motorcycle safety

FHWA Priority Program areas:

- Corridor safety improvement programs
- Safety studies of specific safety problems
- Outreach programs
- Rural and local technical assistance programs
- Pedestrian and bicycle safety
- Safety management systems

Pedestrian/Bicyclist Funding

Revenue sources for bicycle facilities primarily for transportation are available from the following sources:

- Federal funds are available to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the NHS.
- Federal Lands Highway Funds are available to construct bicycle facilities and pedestrian walkways in connection with roads, highways, and parkways.
- Surface Transportation Program Funds are available to construct pedestrian walkways and bicycle transportation facilities, and modifications to make existing sidewalks accessible for mobility-limited persons.

Other funds for bicycle and pedestrian facilities include:

- National Recreational Trails Fund, which provides funds for recreational programs for bicyclists and pedestrians.
- Scenic Byways Program can fund bicycle facilities along highways.

- Federal Transit Funds can be used to provide bicycle and pedestrian access to transit facilities including shelters and bicycle parking facilities.
- Additional funding is available through the new “Safe Routes to Schools” program explained in the previous section.

Another potential funding source for trails is the Heritage Fund. The Arizona State Parks Board Heritage Fund legislation stipulated the use of Arizona Lottery Fund revenues for trails. Eligible projects are trail land acquisition, design, engineering, development and renovation activities, and trail support facilities.

Community Development Block Grants

Community Development Block Grant (CDBG) are funds provided by the Federal Office of Housing and Urban Development. The CDBG funds can be used in the construction of capital improvement projects such as sewer, streets, water and wastewater treatment plants, housing, and parks that benefit low to medium income groups. Projects that alleviate slums or address an urgent need such as circumstances caused by a natural disaster can also use CDBG funds. For a transportation improvement to be eligible for CDBG funding, the project must be located in a census tract or block group with at least 51 percent of the population in the low and moderate-income group.

Regional and Local Funds

Several potential sources of additional funding exist at the local level. State law provides for the enacting of transportation excise taxes, which are subject to voter approval. Other local funds could be collected through sales tax increases.

Pinal County Excise Tax

Pinal County voters authorized the 2007 Pinal County transportation Excise Tax replacing a previous tax expiring on December 31, 2006. The revenues raised from the tax shall be used for the following transportation purposes:

1. Highway and street purposes including roadway construction, reconstruction, maintenance, repair and roadside construction of county, city or town roads, streets, and bridges.
2. Payment of principal and interest on highway and street bonds.
3. Multimodal transportation systems including single and multi-use trails, sidewalks and curbs, and pedestrian pathways.
4. Regional transportation studies.
5. Cooperative transportation projects and studies between the federal government and its agencies, the State government and its agencies, and the incorporated cities and towns within the County.

The anticipated revenue from the excise tax is approximately \$952 million over 20 years. The tax currently generates approximately \$10 million per year and is distributed according to a population based formula:

1. Distribution to incorporated cities and towns is calculated by multiplying the total revenue by the factor of incorporated population/total population
2. Distribution to unincorporated areas is calculated by multiplying the total revenue by the factor of unincorporated population/total population
3. Distribution to individual city or town: distribution to incorporated cities and towns multiplied by the factor of individual city/total incorporated population
4. Distribution to Supervisory district is calculated by multiplying the distribution to unincorporated areas by the factor of supervisory district population/total rural population

Private Contributions

Developers may be required to help pay for the cost of transportation improvements necessitated by their developments. This requires a Traffic Impact Analysis to demonstrate that substantial additional traffic will be generated by the development. Several institutional mechanisms are available, including cost sharing agreements, impact fees and special assessments. In cases where right-of-way needed for a roadway is privately owned, right-of-way dedications can be made a condition of new development prior to the issuance of the necessary permits.

Table 6-13 summarizes the different types of developer exactions that are commonly employed in peer agencies nationwide.

Pinal County Development Impact Fees

Pinal County adopted an impact fee ordinance in October 2006 with an effective date of January 18, 2007. The County was divided into seven impact fee regions that will collect monies to develop, construct, or purchase projects that are needed as the result of new growth. The fees may not be used on already existing infrastructure. Impact fees were authorized for the purposes of parks, public safety, and streets.

The streets component may include arterial streets, support facilities, and support vehicles and equipment. There is a fee schedule, which will be reviewed and may be adjusted bi-annually, for each of the seven regions, and there is an appeals process for developers if they feel they have any disputes with the fees.

TABLE 6-13. TYPES OF EXACTIONS AND POTENTIAL BENEFITS

Exaction Category	Examples	Potential Benefits
Infrastructure Exaction	<ul style="list-style-type: none"> - Dedication of land for park - Construction of roads to serve new housing development - School construction 	<ul style="list-style-type: none"> - Recreational amenity for residents - New development pays own way; city funds freed up to maintain existing roadways - Expands capacity to serve new residents, reducing potential overcrowding at existing schools
Impact Fees	<ul style="list-style-type: none"> - Funding for affordable housing, childcare, schools, and other needs. 	<ul style="list-style-type: none"> - Resources obtained to offset social and economic impacts of new development
Community Benefits	<ul style="list-style-type: none"> - Development agreement 	<ul style="list-style-type: none"> - Developer commits to local hiring and living wage jobs. - Developer constructs affordable housing off site. - Developer pays for traffic mitigation/traffic calming measures. - Developer funds job training programs.

Source: www.policylink.org/EDTK/Exactions/#2

The impact fee ordinance states that the impact fee areas are those identified as sub-regions designated in the CIP for New Growth and Development Fee Study, dated May 24, 2006 as may be amended or updated (Pinal County Ordinance 101806-DF). The Streets CIP includes the geographic distribution of the impact fee areas and the fee schedule. The Streets CIP also includes the list of arterial streets (from the SATS) envisioned by the County to be constructed over the next 5 years. Finally, the Streets CIP includes the calculations of the demand for streets, street support facilities, and support vehicles and equipment, and the rationale for allocating the impact fees to development in each of the seven regions.

REVENUE ESTIMATES

In 2008, ADOT adopted a new Statewide Transportation Investment Strategy (STIS), based on the findings and recommendations of regional transportation framework studies that have been conducted throughout the state. The recommended goals of the strategy are:

- Achieving multimodal balance (e.g. an appropriate balance among modes of transportation)
- Supporting smart growth and sustainable land use
- Tribal community involvement
- Supporting economic development and business community involvement
- Environmental and conservation community involvement

- Statewide collaboration with Councils of Governments (COGs), Metropolitan Planning Organizations (MPOs) and tribal governments
(Arizona Department of Transportation, Statewide Transportation Investment Strategy, June 2008)

Table 6-14 summarizes the STIS projects that may be conducted or implemented within or near the Eloy planning area, or that may impact the future mobility of the Eloy area.

TABLE 6-14. TRANSPORTATION INVESTMENT STRATEGY IN ELOY AREA

Project/ Program	Project/Program Description	Estimated Cost
Strategic Highway Projects		
Potential PPP Projects		
	Val Vista Freeway from SR 303L to N-S Corridor	\$228,500,000
	Pinal County N-S Corridor from US 60 to I-10	\$360,000,000
	Strategic Highway Projects in Eloy Area Total	\$588,500,000
Strategic Rail and Transit Projects and Programs		
Public Transit Projects and Programs		
	Connecting Communities Bus Transit Program	\$20,000,000
	Enhancing Public Transportation Programs	\$43,688,087
	Transit Serving Elderly, Persons with Disabilities and Tribal Populations in Rural Areas	\$12,374,176
	Statewide Vanpool and Rideshare Programs	\$17,583,200
	Transit/Rail Planning, Marketing and Other Related Programs	\$1,406,656
High Speed Intercity Rail/Commuter Rail/Light Rail		
	High Speed Urban-Urban Rail Connections Commuter Rail in Urban Corridors	\$1,600,000,000
	Strategic Rail and Transit Projects and Program Total	\$1,695,052,119
Local Mobility Projects and Programs		
	Pinal County	\$188,654,077
	Eloy	\$11,754,051
Transportation Enhancement and Walkable/Bikeable Communities		
	Pinal County	\$31,558,388
	Eloy	\$3,104,630

Source: Arizona Department of Transportation, Statewide Transportation Investment Strategy, Pinal County Transportation Investment Strategy, June 2008.

PPP – Public Private Partnership

The two strategic highway projects that may traverse or border the Eloy planning area are the potential construction of a North-South freeway connecting US 60 and I-10, as discussed in Chapter 5, and the potential construction of a “Val Vista” freeway connecting SR 303-L to the North-South freeway. Both of these are proposed to be Public-Private Partnership (PPP) projects.

Note that the Statewide Transportation Investment Strategy, including the Pinal County and Eloy area projects, assumes the provision of additional future sources of funding as the current infrastructure funding stream—from the HURF and other sources—has been identified by the framework studies as inadequate.

ADOT’s Five-year Transportation Facilities Construction Program

Table 6-15 lists ADOT’s *Five-year Transportation Facilities Construction Program* allocations for the five-year period covering Fiscal Years 2010 through 2014. For this period, ADOT has allocated approximately \$1.1 billion for highway system preservation, \$1.0 billion for system improvements, and \$608 million for system management for a total of \$2.48 billion.

TABLE 6-15. ADOT FIVE-YEAR TRANSPORTATION FACILITIES CONSTRUCTION PROGRAM RESOURCE ALLOCATIONS (IN THOUSANDS OF DOLLARS)

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total
System Preservation	233,803	200,538	191,959	225,487	223,959	1,075,746
System Management	82,273	74,373	73,173	79,773	77,273	608,038
System Improvements	313,561	145,847	58,583	247,314	256,926	1,022,231
Total Resource Allocations	629,637	420,758	323,715	552,574	558,258	2,484,942

Source: Arizona Department of Transportation, *Five-year Transportation Facilities Construction Program 2010-2014*

APPENDIX A. ACCESS MANAGEMENT TOOLKIT

ACCESS MANAGEMENT TOOLKIT

This appendix presents land use and development strategies and technical tools that can be used for access management.

LAND USE AND DEVELOPMENT STRATEGIES

The following describes tools for planning, design, and regulatory tools for managing land use and development.

Acquisition of Access Rights

Property ownership is accompanied by a bundle of rights. Some of these rights can be separated and sold or acquired separately from the remaining property interest. The right of access to an abutting roadway, for example, may be acquired through negotiation, purchase, or the power of eminent domain. The clear benefit of this method to a regulating agency is that the access restriction is recorded with the deed of the land and therefore runs with the land, allowing the agency to clearly retain the right of access control. This technique has been most frequently used along freeways, but is increasingly applied to arterial roadways and bypasses. Access rights should be acquired before development occurs, when the cost of the land is still low.

Dedications and Exactions

Local governments can require monetary payments or contributions of land by an applicant as a condition of development approval. Usually such exactions are determined through open-ended negotiations between the local government and the developer. In the case of subdivision regulations, dedications are required from the developer for site related improvements. Voluntary and informal measures also can be effective if it is successfully communicated that dedicated rights-of-way will contribute to the success of a development.

Interim Use Allowances

Interim use allowances restrict structural improvements within transportation rights-of-way and allow for modest structural investments, such as nurseries and storage yards. These types of allowances ensure the owner of the potential for some economic use of the property until the property is acquired as right-of-way for a transportation project.

Purchase of Development Rights

Development rights can be separated from other property rights or from the remainder of the property and purchased, donated, sold, or condemned for public purpose. The property owner from which the rights are purchased is compensated for maintaining the property in an undeveloped state.

Transfer of Development Rights

Instead of purchasing development rights through the governmental agency, the rights are transferred from one area of the parcel to another through the establishment of a sending and receiving area. The sending area is usually established around an area in need of protection from development and can include future transportation right-of-way. The receiving area might be an area with higher intensity uses than prescribed in the underlying zoning.

Land Development Regulation

Access management can be implemented successfully in areas where local jurisdictions participate in managing development through comprehensive planning, land development regulation, and development review (Listokin and Walker, 1989 in Land Development and Subdivision Regulation that Support Access Management). Local plans and ordinances provide a policy foundation for managing access, which is carried out through development review and permitting actions. The information contained in general and land use plans, for example, provides the overall guidance on how to balance mobility with access. A community's transportation plan, on the other hand, describes a community's future roadway network based on anticipated development patterns. Based on the anticipated future development and the future functional classification of the roadways, access management categories can be established. These categories provide guidance in regard to the application of access management strategies and help identify the type and number of access points required along a highway.

Overall, the comprehensive planning process will:

- Promote orderly and efficient development
- Protect property values
- Preserve community character, natural resources, and environment
- Promote economic development
- Increase the public awareness of the forces of community change

Flexible or Cluster Zoning

Flexible zoning is another way of achieving access control. Planned unit developments often incorporate flexible zoning concepts for the purpose of clustering denser development in one portion of a development and leaving open space in another portion. Planned Unit Development incorporates flexible zoning in order to achieve the same gross densities while avoiding encroachment of development into future rights-of-way. Access points can be few in number, yet designed to optimally serve the more densely developed areas. In order to promote creative site design, land-use and lot dimensional zoning are relaxed.

Overlay Zones

Overlay zoning can add special requirements onto an existing zoning district. With overlay zoning, standards can be tailored by priority or intensity of access, safety, and congestion problems of a corridor.

Subdivision Regulations and Site Plan Review

Subdivision regulations provide guidance on the division or subdivision of land into lots, blocks, and public ways. These regulations complement the underlying zoning. The subdivision plat review can require documentation of all access points and the internal circulation system. Access and design standards can require such items as traffic signals, medians, and on-site circulation.

The subdivision review process should result in an affirmative response to questions such as:

- Is the road system designed to meet the projected traffic demand and does the road network consist of a hierarchy of roads designed according to function?
- Is access properly placed in relation to sight distance, driveway spacing, and other related considerations?
- Do units front on residential access streets rather than major roadways?
- Does the project avoid areas unsuitable for development?
- Does the pedestrian path system link buildings with parking areas, entrances to the development, open space, and recreational and other community facilities?
- Have utilities been properly placed?

The site plan review process for large-scale uses on individual property parcels (such as large commercial developments) can include procedures similar to a subdivision review process.

Zoning Regulation

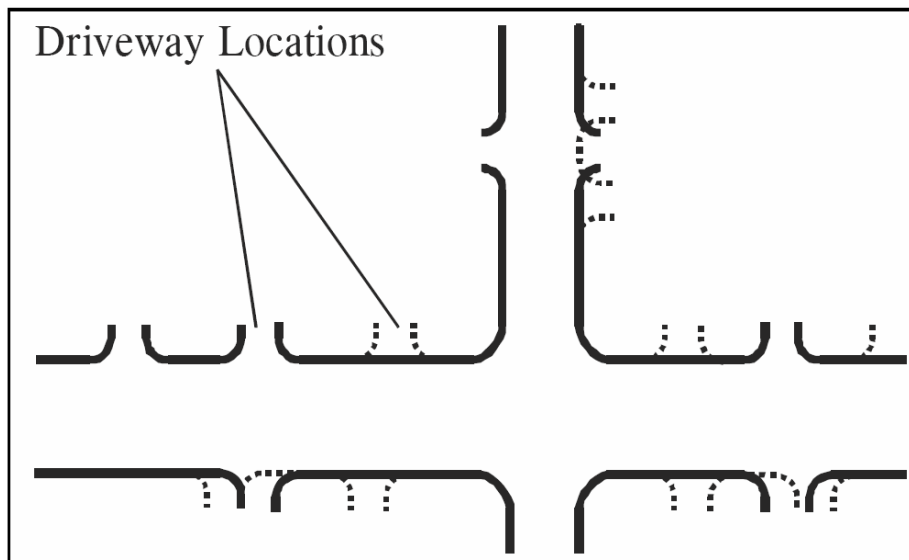
Zoning regulations provide information on the type of land use or development that can occur within each defined parcel. Zoning regulations work in conjunction with land use plans and subdivision regulations. Some types of lot configurations encourage inadequate spacing between access points. Zoning regulation can help reorient lots in order to access local streets instead of the main highway, as well as to ensure adequate spacing between access points. Controlling lot dimensions can have impacts on driveway spacing, on-site circulation, and driveway lengths.

TECHNICAL TOOLS

Driveway Consolidation

Driveways are consolidated in order to limit the number of access points along a roadway and to provide adequate access spacing (Figure A-1). Retrofit strategies include:

FIGURE A-1. DRIVEWAY TREATMENTS



- Selectively relocate or reconstruct substandard driveways.
- Negotiate driveway closure, reconstruction, or relocation during roadway resurfacing or improvement projects.
- Require improvement of access during redevelopment or expansion of an existing use, including joint and cross access with abutting properties.
- Negotiate redesign of driveway access during sidewalk maintenance, reconstruction, or additions.
- Consolidate access when adjacent properties come under common ownership.

- Improve the traffic signal system through longer, more uniform intervals with advance traffic monitoring and control capabilities.
- Use raised medians or other traffic barriers at hazardous intersections, or along certain roadway segments to control mid-block turning movements and improve safety.
- Develop special corridor overlay zoning districts that are tailored to the circumstances of build-up areas.

Joint Driveway/Cross-Access

Joint Driveway/Cross-Access provides for a unified on-site circulation plan serving several properties on a commercial corridor. Cross access connects adjacent parcels and allows for circulation between the parcels without using the arterial street system. In the case that lot frontage is inadequate, joint access/cross access can achieve adequate driveway spacing. The method requires that joint-use driveways and cross access easements need to be established between the adjacent properties. Additionally building sites must reflect the circulation system. The jurisdiction with the zoning authority would need to adopt cross access standards.

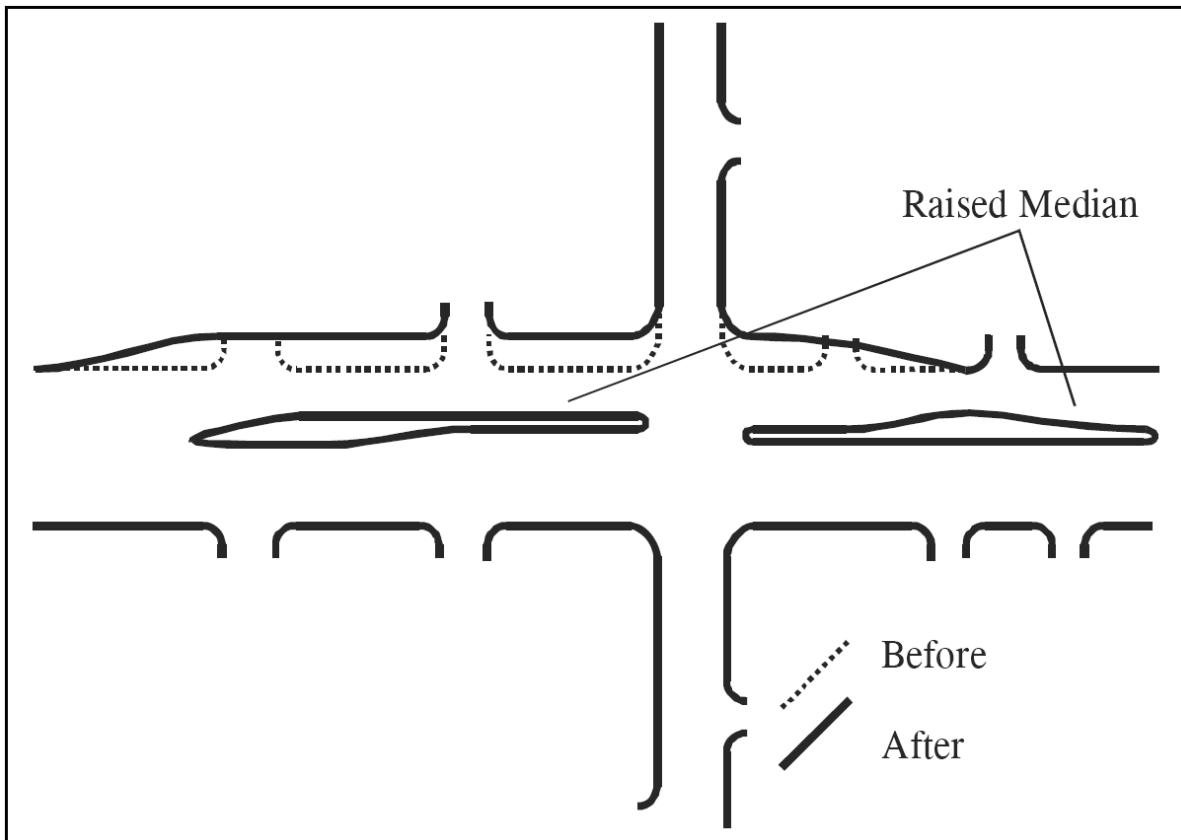
Raised Medians at Intersections

Raised medians at intersections, as shown in Figure A-2, provide a center barrier to prevent certain turning movements, such as left turn-in only/no left turn-out which allows greater access to the adjacent property and leaves right turns unrestricted. Right-in and right-out driveways are also commonly used. The overall advantage of raised medians at intersections is the ability to define allowed movements while eliminating undesirable ones.

Full Raised Medians

Medians are effective for the control and management of left turns and crossing movements and may be located at intersection approaches, or along the full length of a road between intersections. See Figure A-2 for illustration. A variety of designs allows for full or restricted turning movements. The presence or absence of a median barrier has a substantial effect on the safety and operations of major roadways. The main advantage of a raised median is that it reduces conflict points by restricting turn movements to right-in and right-out movements. In addition, it provides a means of controlling highway crossings to specific locations where sight distance and vehicle storage can be provided. A sufficiently wide median can provide shelter for vehicles or pedestrians crossing the roadway. The disadvantage of a raised median is that through the limitations of crossing movements, the number of U-turns will most likely increase which might lead to an increase in rear-end crashes.

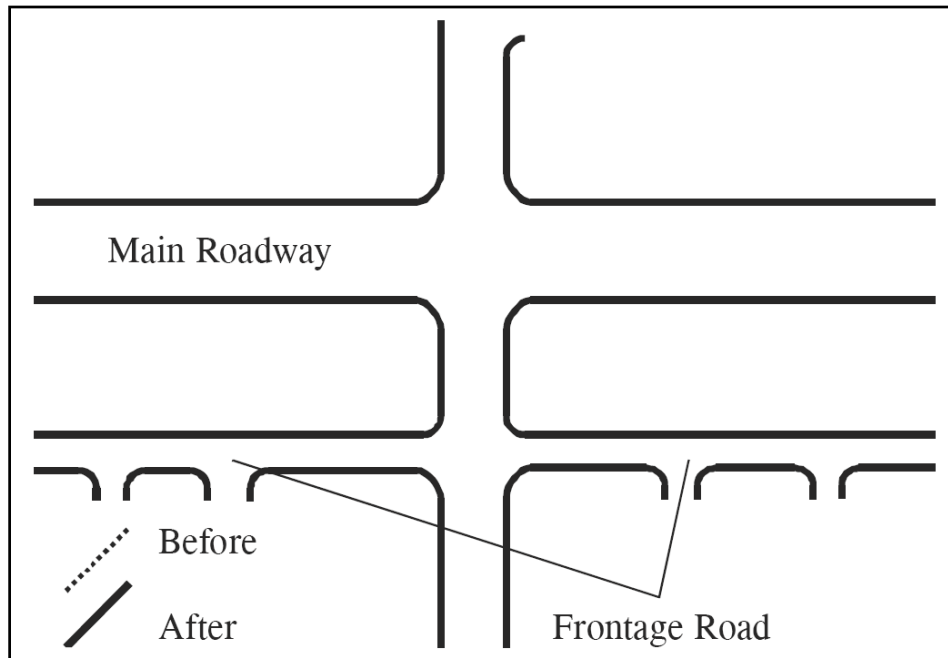
FIGURE A-2. RAISED MEDIAN AT INTERSECTIONS



Alternative Access Ways

The long-term planning objective for major corridors is to develop a system of side streets, parallel roads, and traffic control features to support existing and planned development. Main components of such a system are frontage or reverse access roads, which together with interparcel connections provide alternative routes for short local trips, thereby helping to reduce local traffic on the arterial. Frontage roads are typically constructed adjacent to the main corridor highway, but outside the highway right-of-way, providing access to properties fronting the highway. This allows funneling of local traffic to a common point gaining access to the highway. An example is shown in Figure A-3. Reverse access roads or backage roads are also paralleling the highway, but are off-set from the right-of-way to provide site access at the back of the property rather than the highway side. Both concepts help to provide access to local properties while preserving the safety and capacity of the highway. One issue to consider is the provision for adequate separation between the highway and frontage road, especially in areas where cross streets intersect with the highway at at-grade intersections. If not properly designed, traffic might backup into the intersection of the backage road and cross street.

FIGURE A-3. FRONTAGE ROAD



APPLICATION OF RETROFIT TO EXISTING CORRIDORS

Access management can be applied to existing, developed corridors as a "retrofit" process, or to future or currently undeveloped corridors as an adopted comprehensive/sub-area plan. Introducing access management techniques into corridors that currently are developed is sometimes difficult and controversial. Unique solutions often need to be used in this reactive process to achieve corridor objectives. Most likely, the consolidation or removal of existing access will be sought in conjunction with roadway reconstruction or urban redevelopment projects.

Access management is easier to preplan as part of a proactive comprehensive planning process, which carefully integrates land use and access elements of an adopted sub-area plan. It is primarily on the urban fringes and beyond where it is possible to coordinate transportation system improvements with land development in order to protect the functional integrity of the roadway.

The "retrofit" program to manage access to an existing roadway is often difficult. Restraints, such as the unavailability of land are making certain access management techniques impossible. In addition, property rights need to be respected and the resulting legal, social, and political aspects of access management need to be thoroughly understood by the implementing agency and all stakeholders. The Access Management Guidelines for the City of Tucson identify the following conditions possibly warranting an access management retrofit program:

- Safety: increased congestion and crashes along a given section of road exists which can be attributed to random or inadequate access.
- Major Reconstruction: Major reconstruction or design plans make access management and control essential.
- Street expansion: Improvements make it practical to reorient access to a cross street and remove (or reduce) arterial access.
- Coordinating Driveways: Planned new driveways on one side of the street lead to coordination of existing driveways on the other side.

The following Tables A-1 through A-4 outline retrofit techniques identified in the City of Tucson Transportation Access Management Guidelines.

TABLE A-1. RETROFIT TECHNIQUES — CATEGORY A: LIMIT NUMBER OF CONFLICT POINTS

No.	Description
A-1	Install median barrier with no direct left-turn access
A-2	Install raised median divider with left-turn deceleration lanes
A-3	Install one-way operations on the roadway
A-4	Install traffic signal at high-volume driveways
A-5	Channelize median openings to prevent left-turn ingress and/or egress maneuvers
A-6	Widen right through-lane to limit right-turn encroachment onto the adjacent lane to the left
A-7	Install channelizing islands to prevent left-turn deceleration lane vehicles from returning to the through lanes
A-8	Install physical barrier to prevent uncontrolled access along property frontages
A-9	Install median channelization to control the merge of left-turn egress vehicles
A-10	Offset opposing driveways
A-11	Locate driveway opposite a three-leg intersection or driveway and install traffic-signals where warranted
A-12	Install two one-way driveways in lieu of one two-way driveway
A-13	Install two two-way driveways with limited turns in lieu of one standard two-way driveway
A-14	Install two one-way drives in lieu of two driveways
A-15	Install two-way driveways with limited turns in lieu of two standard two-way driveways
A-16	Install driveway channelizing island to prevent left-turn maneuvers
A-17	Install driveway channelizing island to prevent driveway encroachment conflicts
A-18	Install channelizing island to prevent right-turn deceleration lane vehicles from returning to the through lanes
A-19	Install channelizing island to control the merge area of right-turn egress vehicles
A-20	Regulate the maximum width of driveways

Source: Transportation Access Management Guidelines for the City of Tucson, Arizona, March 17, 2003

TABLE A-2. RETROFIT TECHNIQUES — CATEGORY B: SEPARATE BASIC CONFLICT AREAS

No.	Description
B-1*	Regulate minimum spacing of driveways
B-2	Regulate minimum corner clearance
B-3	Regulate minimum property clearance
B-4*	Optimize driveway spacing in the permit authorization stage
B-5*	Regulate maximum number of driveways per property frontage
B-6	Consolidate access for adjacent properties
B-7	Require roadway damages for extra driveways
B-8	Purchase abutting properties
B-9	Deny access to small frontage
B-10	Consolidate existing access whenever separate parcels are assembled under one purpose, plan, entity or usage
B-11*	Designate the number of driveways regardless of future subdivision of that property
B-12	Require access on collector street (when available) in lieu of additional drive on arterial

*not directly applicable for retrofit

Source: Transportation Access Management Guidelines for the City of Tucson, Arizona, March 17, 2003

TABLE A-3. RETROFIT TECHNIQUES — CATEGORY C: LIMIT SPEED ADJUSTMENT PROBLEMS

No.	Description
C-1	Install traffic signals to slow roadway speeds and meter traffic for larger gaps
C-2	Restrict parking on the roadway next to driveways to increase driveway turning speeds
C-3	Install visual cues of the driveway
C-4	Improve driveway sight distance
C-5	Regulate minimum sight distance
C-6*	Optimize sight distance in the permit authorization stage
C-7	Increase the effective approach width of the driveway (horizontal geometrics)
C-8	Improve the driveway profile (vertical geometrics)
C-9	Require driveway paving
C-10	Regulate driveway construction (performance bond) and maintenance
C-11	Install right-turn acceleration lane
C-12	Install channelizing islands to prevent driveway vehicles from backing onto the arterial
C-13	Install channelizing islands to move ingress merge point laterally away from the arterial
C-14	Move sidewalk-driveway crossing laterally away from the arterial

* =not directly applicable for retrofit

Source: Transportation Access Management Guidelines for the City of Tucson, Arizona, March 17, 2003

TABLE A-4. RETROFIT TECHNIQUES — CATEGORY D: REMOVE TURNING VEHICLES FROM THROUGH LANES

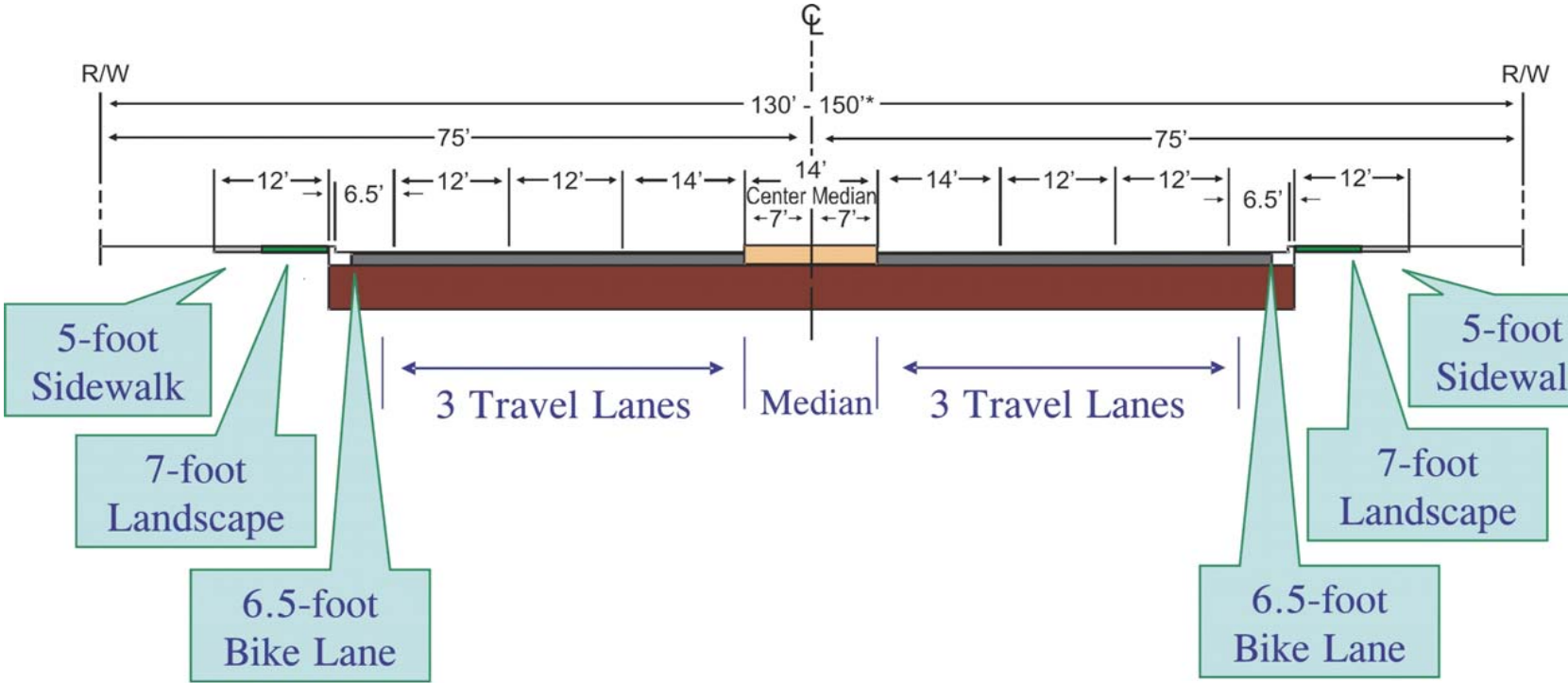
No.	Description
D-1	Install two-way left-turn lane
D-2	Install continuous left-turn lane
D-3	Install alternating left-turn lane
D-4	Install isolated median and deceleration lane to shadow and store left-turning vehicles
D-5	Install left-turn deceleration lane in lieu of right-angle crossover
D-6	Install median storage for left-turn egress vehicles
D-7	Increase storage capacity of existing left-turn deceleration lane
D-8	Increase the turning speed of right-angle median crossovers by increasing the effective approach width
D-9	Install continuous right-turn lane
D-10	Construct a local service road
D-11*	Construct a bypass road
D-12*	Reroute through traffic
D-13	Install supplementary one-way right-turn driveways to divided roadway (non-capacity warrant)
D-14	Install supplementary access to street when warranted
D-15	Install additional driveway when total driveway demand exceeds capacity
D-16	Install right-turn deceleration lanes
D-17	Install additional exit lane on driveway
D-18	Encourage connections between adjacent properties (even when each has arterial access)
D-19	Require two-way driveway operation where internal circulation is not available
D-20	Require adequate internal design and circulation plan

* = not directly applicable for retrofit

Source: Transportation Access Management Guidelines for the City of Tucson, Arizona, March 17, 2003

APPENDIX B.
CITY OF ELOY ROADWAY CROSS-SECTIONS

**FIGURE B-1. TYPICAL SECTION, REGIONALLY SIGNIFICANT ROUTE
PINAL COUNTY STANDARD**



1. Additional right-of-way may be required at intersections to provide additional turning lanes and pedestrian refuge space in the median.
2. Sidewalk and landscape widths will transition to local jurisdiction standards.

* Right-of-way widths of 130' to 140' will accommodate a modified divided six-lane cross section.

Source: Pinal County Regionally Significant Routes Plan for Safety and Mobility Final Report, Lima & Associates, 2008

FIGURE B-2. URBAN MAJOR ARTERIAL ROADWAY CROSS-SECTION

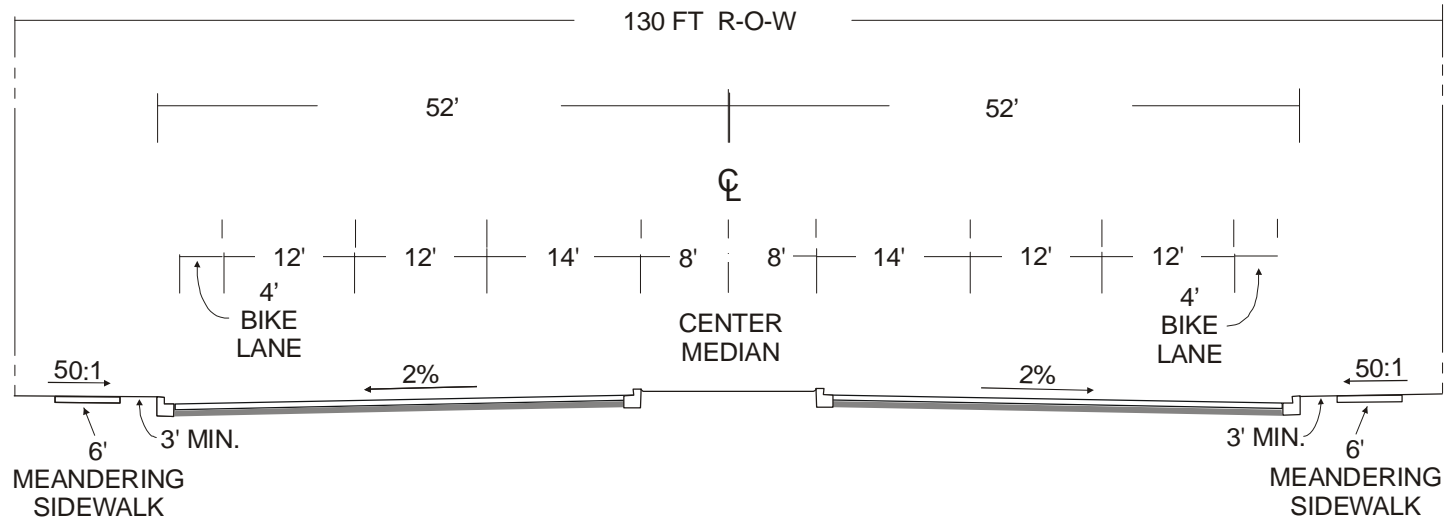


FIGURE B-3. URBAN MINOR ARTERIAL ROADWAY CROSS-SECTION

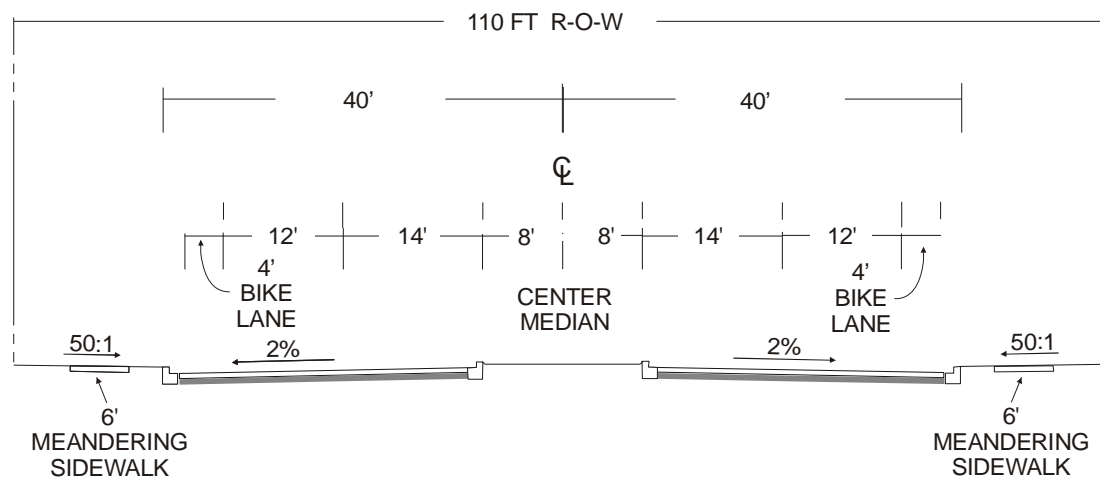


FIGURE B-4. COLLECTOR ROADWAY CROSS-SECTION

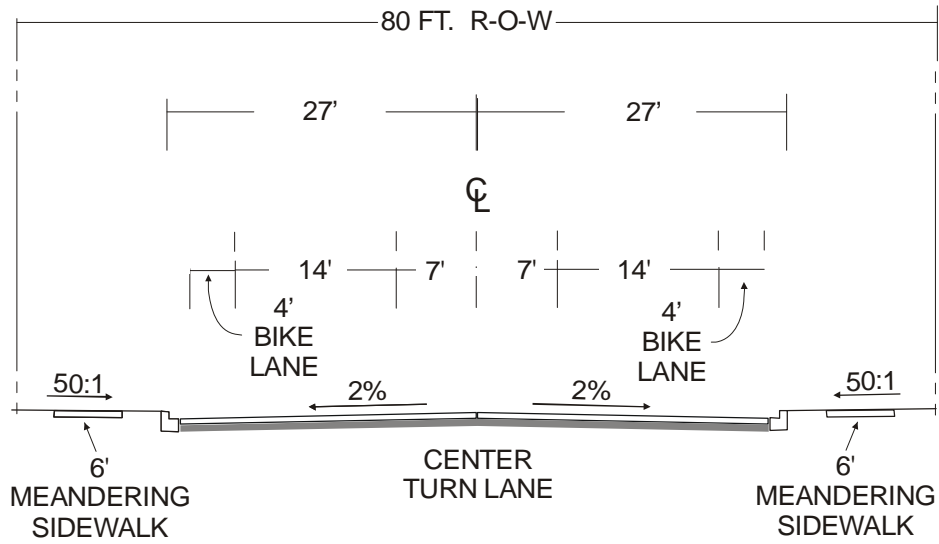


FIGURE B-5A. COLLECTOR ROADWAY CROSS-SECTION WITH CENTER TURN LANE

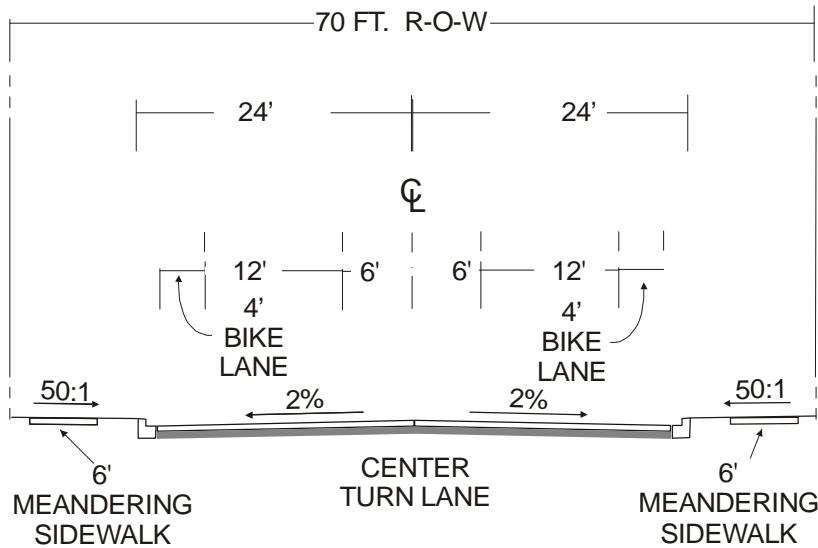


FIGURE B-5B. COLLECTOR ROADWAY CROSS-SECTION WITH RAISED CENTER MEDIAN

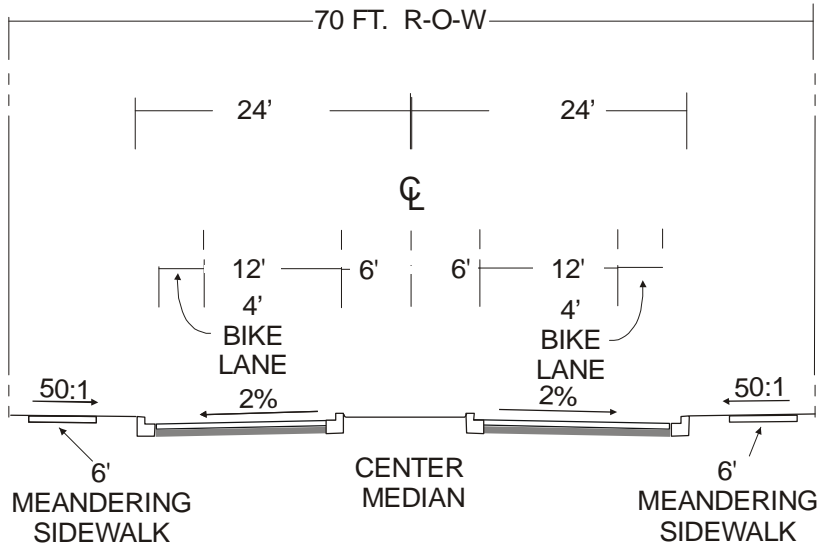
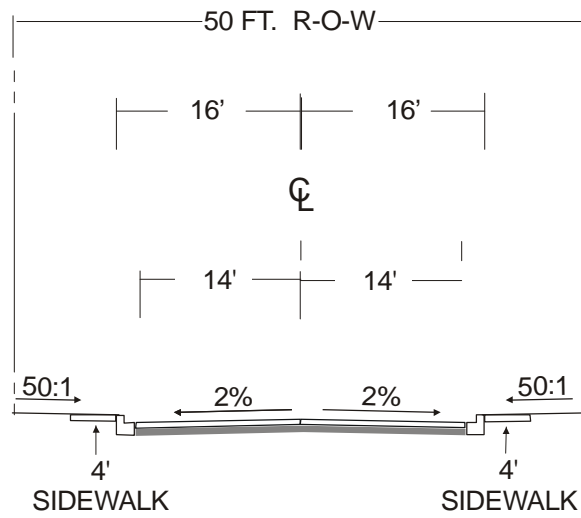


FIGURE B-6. LOCAL ROADWAY CROSS-SECTION



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