

# SCOTTSDALE TRANSPORTATION COMMISSION REPORT



**To:** Transportation Commission  
**From:** Madeline Clemann, Transit Supervisor  
Reed Kempton, Principal Transportation Planner  
**Subject:** Transit Program Overview  
Transportation Master Plan Update  
Transit Element Draft 1  
Goals  
Goal 1 Draft 1  
**Meeting Date:** November 15, 2012

## ITEM IN BRIEF

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**Action:** Information to the Commission

### **Purpose:**

The purpose of this briefing is to present an overview of the City's transit programs and services, and to present the Transit Element Draft 1 and Goal 1 Draft 1 for the comprehensive document.

An updated Goals list is included. Each goal has been titled and some policies have been moved to better align with the goal they support. Focusing Goal 2 on Complete Streets prompted moving several planning related policies from Goal 2 to Goal 5: Plan for the Future. A complete reorganization of the policies will be provided with the comprehensive document in December and January.

The Implementation Plan Draft 1 will be presented in December and January. Public open house meetings on the comprehensive document will begin in February 2013.

### **Background:**

The City of Scottsdale has provided public transit services since the 1970s. The first program provided rides for seniors and disabled individuals using six contracted sedan vehicles. That program cost an estimated \$70,000 annually. The City's transit program has grown over time and now consists of seven services with an estimated annual operating cost of \$11.5 million (\$7.2 million funded by the City directly and \$4.3 million funded through the Proposition 400 regional transportation sales tax), and an additional \$27 million capital program to be completed by 2015.

## **Transit Programs:**

The seven transit services consist of:

- 11 Valley Metro Bus Routes (9 Local/ 2 Express)
- 3 Trolley Circulator Routes, (3 with Free Service)
- 2 Seasonal Trolley Routes Link Visitors to Events
- Cab Connection - Personalized Taxi Vouchers
- East Valley Dial A Ride door to door service
- 7 Capital Improvement Projects
- City Employee Trip Reduction

Five employees implement the programs employing a philosophy of collaboration internally and externally, providing “trademark” customer service and striving continuously to improve transit services and facilities.

Valley Metro Bus Routes – the eleven bus routes that serve Scottsdale consist of two north south routes (72, 81) and seven east-west routes (17, 29, 41, 50, 106, 154, 170). In addition two express routes provide service into downtown Phoenix and between Tempe and Scottsdale Airpark. The five year productivity of the Valley Metro System is shown in Table 1 and illustrates the effects of the service changes that have been implemented during the past five years as cities throughout the region reduced transit services to bring costs in line with funding revenues during the economic downfall.

Scottsdale’s service was reduced by 40 percent over the four year period either directly by reductions we initiated, or by reductions other cities initiated. A fare increase was implemented in FY 09 for the first time in over ten years. (An additional fare increase is currently scheduled by RPTA to take effect in March 2013). These changes in the overall system during those years reduced the convenience of, and access to, transit service valley wide. The changes resulted in a reduction in transit ridership and the amount of fares produced as some riders switched to less costly, more accessible transportation such as carpooling and biking. System productivity decreased in FY 09 due to the fare increase and service reductions, increased in FY 10, then decreased again in FY 11 as a result of additional service reductions.

In addition to service and fare changes, the cost of service increased as new operator contracts were negotiated by various operators In FY’s 10, 11 and 12. The contract cost per mile also increased when the region agreed to include vehicle capital replacement costs to the formula beginning in FY 12. The increase in fuel prices in FY 10 again increased operating costs. The combined changes affect the system performance data (cost per mile of service, cost per passenger, and the ratio of fares to gross operating cost).

**Table 1: Valley Metro 5-Year Productivity Summary**

<b>TOTAL SCOTTSDALE SERVICE<sup>1</sup></b>	<b>FY 09</b>	<b>FY 10</b>	<b>FY 11</b>	<b>FY 12</b>	<b>FY 13</b>
Phoenix Contract	\$2,084,870	\$1,901,570	\$1,920,648	\$2,143,512	\$2,009,857
RPTA/Tempe contract	\$5,002,705	\$3,661,644	\$1,739,608	\$1,094,412	\$924,747
PTF (Prop 400) Service	\$3,959,431	\$3,214,686	\$4,078,300	\$4,034,150	\$3,514,940
<b>TOTAL FIXED ROUTE COST</b>	<b>\$11,047,006</b>	<b>\$8,777,900</b>	<b>\$7,738,556</b>	<b>\$7,272,074</b>	<b>\$6,449,544</b>
Revenue Miles	2,185,397	1,683,281	1,571,899	1,325,428	1,320,131
Boardings	2,156,876	1,699,402	1,424,148	1,643,774	1,700,220
Boardings per Mile	0.99	1.01	0.91	1.24	1.29
Fare Revenue	\$1,692,745	\$1,567,466	\$1,571,610	\$1,521,467	\$1,474,336
Cost per Mile	\$5.05	\$5.21	\$4.92	\$5.49	\$4.89
Cost per Boarding	\$5.12	\$5.17	\$5.43	\$4.42	\$3.79
Fare Recovery Ratio <sup>2</sup>	15.3%	17.9%	20.3%	20.9%	22.9%

<sup>1</sup>Trolley Circulator information not included, service costs are net of fares. Estimated costs based on contract estimates and reconciliation for RPTA service in FY 09-11.

<sup>2</sup>Fares as a percent of gross operating cost.

Service productivity for the portion operated by the RPTA appears to be increasing slightly, while the service operated by the City of Phoenix is declining. This difference is reflective of different contract costs for each provider, Scottsdale's landscape, and our status as an importer of employees from other cities. The long and narrow shape of Scottsdale makes the north-south RPTA operated routes very long and contributes to a higher operating cost due to the high mileage, as well as low fare revenues due to the limited number of ridership generators along portions of these routes (e.g., the Route 72 between Chaparral Rd. and Shea Blvd. or Route 81 on 94<sup>th</sup> Street between Shea Blvd. and Raintree Rd.). Unlike some cities whose workforce lives and works in that city, much of Scottsdale's workforce using transit travels from Tempe, Chandler, and Phoenix into our city and their fare for the trip into Scottsdale is credited to their city of origin. These factors together impact the amount of fare revenues that can be credited to Scottsdale and the overall productivity of the system.

Overall during the past three years since the rise in gas prices and the elimination of the more unproductive segments of the system in Scottsdale, productivity has increased slightly overall on the City's portion of the system. In the coming year if gas prices continue to fall and the fare is increased in March 2013, productivity may decrease slightly.

One recent effort that has been made by Valley Metro to improve customer service and attract riders is an information technology improvement made to the Valley Metro

system this year known as NextRide. This phone based system allows a rider to call or text the posted bus stop number they are waiting at. Actual arrival time for the next two vehicles is sent back to the phone. This system is not currently available for the trolley vehicles; however, in July 2013 the trolley vehicles will be added and the scheduled vehicle arrival time will be given. In July 2014, when the new vehicles are all operating, the information for trolley vehicles will be given the actual arrival time.

Scottsdale Trolley Circulator System: The Trolley circulator system has grown from a single route to a system of three all year routes and two seasonal routes. Table 2 summarizes the productivity information for the system.

**Table 2. Trolley Circulator System 5-year Productivity Summary**

<b>Trolley</b>	<b>FY 09</b>	<b>FY 10</b>	<b>FY 11</b>	<b>FY 12</b>	<b>Estimated FY 13</b>
Contract Cost	\$3,278,602	\$2,754,917	\$2,509,816	\$2,502,659	\$2,560,000
Fuel <sup>1</sup>	\$260,904	\$253,304	\$372,269	\$570,759	\$559,117
Total Service Cost	\$3,539,506	\$3,008,221	\$2,882,085	\$3,073,418	\$3,119,117
Vehicle Service Hours	51,334	41,269	54,669	54,857	57,810
Boardings	559,521	611,306	902,033	961,659	990,509
Boardings per Hour	10.9	14.8	16.5	17.5	17.1
Cost per Vehicle Service Hr.	\$63.87	\$66.76	\$45.91	\$45.62	\$44.28
Cost per Boarding	\$5.86	\$4.51	\$2.78	\$2.60	\$2.58

The increase in FY 10 productivity resulted from the change in frequency on the Downtown Route from 10 to 15 minutes, and the increase in ridership on the Miller Rd. Route, which began fare-free service under Scottsdale's contractor in FY 10. The cost per boarding for both systems has reduced over the last five years as service changes were made that improved efficiency, while contract rates remained the same. In FY 13, the service cost for the Trolley system is nearly flat and ridership is estimated to increase.

Time points for each bus stop are being developed for the Trolley system. The time points will be entered into the Valley Metro NextRide system and Google. This will make schedule time information available for riders using the NextRide system. The actual real time arrival time will be available when the new vehicles arrive with Geosynchronous Positioning Satellite (GPS) installed.

Title VI is the Civil Rights Act of 1964 and prohibits discrimination based on race, color, national origin, or Limited English Proficiency (LEP). The Act applies to all services that are federally funded. To ensure that federal agencies promote and enforce nondiscrimination as one way of achieving the overarching objective of environmental justice (fair distribution of the adverse impacts of, or burdens associated with, federal programs, policies, and activities), transit agencies receiving Federal funding for programs are required to submit Title VI reports to the FTA every three years. As a

subrecipient of Federal Transit Administration (FTA) funding for the Trolley System the City of Scottsdale submitted its first report in FY 12. The report summarized an analysis of the impacts of the route changes made during the previous three years, and examined City practices for providing information to users. Through the evaluation process, several needed improvements were identified and changes were implemented to strengthen our Trolley System.

- The following policy statement was developed for Scottsdale: “The City of Scottsdale operates its programs including the provision of transit services, without regard to race, color, national origin, age, language, religion, sex, income, or disability”.
- A process and forms for reporting acts of discrimination was developed and posted on the City website.
- A system was developed, using the City’s Call Center, to handle forms submitted to report acts of discrimination or calls regarding the need for information from non English speaking individuals.
- Stickers were posted in each vehicle with the policy statement and reference information to the Call Center and the FTA’s website.

In addition, the Trolley brochures were translated into a total of four non English languages by ASU students – Spanish, French, Russian, and Chinese. These languages were chosen after it was discovered that the Scottsdale population is composed of 350-500 households that speak each these languages and speak very little if any English. The brochures have been very well received. Staff originally printed 200 of each brochure, and we are now in the third printing. A business card was also created to hand out. The card has the city policy and contact information on one side in English, and on the other side another language.

Trip Reduction Program: This program is a federally mandated regional program managed by Maricopa County for employment sites with 50 or more employees. The City’s program covers all facilities and contains the following elements:

- 81 Employee Bus Passes
  - 16 days per month, then personal use allowed
- 2 Online Carpool Match Programs – City/Maricopa Co.
- 28 Employee Carpool/Vanpool Spaces
- 89 Employee Carpool Passes
- Van Pool Subsidy Program (1 vanpool)
  - \$45 per vanpool participant
- Flexible Work Schedules
  - Estimated 35% of workforce
- Telecommuting

## Capital Projects

The Capital Improvement Project (CIP) list for transit is composed of the following eight projects. The project and the date of presentation to the Transportation Commission is in parenthesis to the right of the project name.

Shelter/Solar Light Installation: Presented to the Commission at the 8/19/10 meeting, this project is the one ongoing project. The City has approximately 250 existing bus shelters at its 600 bus stops. In 2011 a new city standard shelter was designed by City staff. The new shelter design includes:

- Modular Seating (365 day Shade)
- Modular Components
- Recycled Metal
- Air circulation with Visibility/Security
- Completely Accessible
- Anti Graffiti Powder Coating
- Solar Lighting (for light deficient locations)

Fifteen of the shelters have been installed, some of which can be seen along Indian School Rd., Thomas Rd., and Frank Lloyd Wright Blvd. Another 15 shelters will be partially or completely installed by June 2013.

Vehicle Replacement: The City is in the process of purchasing replacement vehicles for all 21 trolleys and buses during the next two years. This item was presented to Commission at the 12/15/11 and 2/16/12 meetings. The vehicles, which are anticipated to begin delivery in late 2013, are being acquired through the Regional Transit Planning Authority (RPTA), and will have the following characteristics:

- Low Floor Design w/Wheel Chair Ramps
- Trolley Painted Exterior – All Vehicles
- Downtown Vehicles w/Trolley Interior
- Rest of Fleet w/Bus Interior
- Fuel Efficient Biodiesel/Hybrid Powertrain
- Geosynchronous Positioning Satellite (GPS)
- Vehicle Management System (VMS)
- Automatic Vehicle Annunciator (AVA)
- Automatic Passenger Counters (APC)
- Estimated Cost \$14 Million

North Scottsdale Park and Ride: This 275 space parking facility (with 170 covered spaces) is the City's first dedicated Park and Ride facility. An overview of the project was given to the Commission on 9/16/10. Updates on the construction bidding process

have also been provided. Construction is scheduled for completion in April 2013. The project characteristics include:

- Solar Panels - Electricity for Facility Use
- Cool Pavement – Pervious Concrete
- Low Water Landscaping, Storm Water Harvesting
- Easily Accessible ADA Parking and Circulation
- Recycled Materials
- Accommodates 3 Transit Routes (72, 154, 511)
- Estimated Cost \$7 Million (\$5 Million ARRA)

Mustang Park and Ride and Transit Center: This project builds elongated bus bays in the vicinity of the Mustang Library, and leases up to 250 spaces at the Shopping Center directly west of the library across 90<sup>th</sup> Street. The Transit Center part of the project will provide easily accessible ADA parking next to the transit bays incorporates the new standard shelter and low water landscaping. The Center will serve four transit routes when completed, 81, 106, 511, and 514. The program cost is estimated to be \$3.5-4 million and a project overview was presented to the Commission on 6/21/12. Design is currently 60 percent complete.

Thomas Road Streetscape: The Loloma Transit Center was closed in FY 11 and the remaining \$1.7 million FTA equity was transferred to the Thomas Rd. project. The construction bid package is now under development. The Transit, bicycle and pedestrian improvements include:

- New Transit Shelters
- Bicycle Lanes
- Improved Pedestrian Access

The project coincides with Hayden Rd./Thomas Rd. intersection improvements and was presented to Commission on 2/17/11 and 8/23/11)

ASU/Skysong Transit Center: This project makes transit improvements in the vicinity of the McDowell Rd./Scottsdale Rd. intersection. Final design is nearly complete. The improvements include:

- On Street Transit Bays Adjacent to the ASU Technology Center
- Adheres to Scottsdale Rd. Streetscape Design Elements
- Utilizes the Streetscape Shelter Design
- Includes Bicycle and Pedestrian Improvements in the General Vicinity
- \$ 1.7 – \$2 Million (Estimated)

Scottsdale Rd. Enhanced Corridor Service: The first phase of a study for this service began February 2010 as an Alternatives Analysis. The purpose of the project was to explore the potential to provide a faster, more convenient and reliable transit service for the corridor on Rural Rd./Scottsdale Rd. from the light rail starter line to Shea

Boulevard, slightly over 11 miles. Presented on 1/20/11 to the Commission, the study was to identify a preferred transit investment for implementation by 2016. A second study phase, which focuses on the type of service and amenities that can be provided with the available proposition 400 funding is just beginning and will be presented separately.

### **Total Transit Program Costs**

The City's FY 13 cost for all operational elements of the transit program is shown in Table 3 below:

**Table 3. Transit Program City Costs: FY 13 Operating and FY 13-16 Capital**

<b>Program Element</b>	<b>Cost</b>
Fixed and Express System	\$ 2,935,000
Trolley System	\$3,120,000
Cab Connection	435,000
Trip Reduction	28,000
EVDAR	278,000
Staffing	330,000
<b>Total Operating Costs</b>	<b>\$ 7,126,000</b>
Additional FY 13-16 Capital Projects	\$27,000,000

### **Upcoming Transit Events**

During the next three years, the scheduled and potential events that may occur are as follows:

- Jan. 2013 Express Route 514 Schedule Change
- Jan. 2013 Procure Trolley Operations Contract
- March 2013 Regional Fare Increase
- June 2013 Complete Construction of 15 Shelters with Solar Lighting
- July 2013 Trolley Routes Added to Google Maps, and to NextRide with Scheduled Arrival Time
- July 2014 Possible Cab Connection Smart Card Technology
- July 2015 Trolley Routes Added to with NextRide Actual Arrival Time
- FY 13 Transportation Master Plan Update Completion

### **Key Considerations:**

#### **Transportation Master Plan Update – Transit Element Draft 1**

This is the final modal element for the Transportation Commission to review prior to seeing a comprehensive document organized by goals.

The Transit Element of the Transportation Master Plan incorporates information on new projects and services as well as a plan for new services in the future for areas such as



the Airpark and priority corridors for service increases should sustainable funding sources become available. The following information at a minimum will be incorporated:

- Transit Shelter Design
- Scottsdale Rd. Enhancements
- Quieter More Accessible Transit Vehicles
- Smart Card Applications
- Regional Express Route Philosophy Change
- Park and Ride Facility Philosophy
- Neighborhood and Business Transit Coverage
- Park Once Philosophy
- Bike–Ped–Complete Streets-Transit Emphasis
- Transit IT Relationship
- New Vehicle Equipment
- Introduces HCT Transition

### **Transportation Master Plan Update – Goals**

The goals have been titled and slightly modified. The prior wording is shown in *(italics)*.

#### **Goal 1**

##### **Provide a Safe Transportation Network**

Provide a safe and secure transportation network that will reduce injuries and move towards the elimination of deaths from transportation-related causes, protect neighborhood livability, promote public health, and support the function of commercial areas.

*(Provide a safe and secure transportation network that will reduce injuries and deaths from transportation-related causes, protect neighborhood livability, promote public health, and support the function of commercial areas.)*

#### **Goal 2**

##### **Build Complete Streets**

Design, operate, and maintain Scottsdale's streets to promote safe and convenient access and travel for everyone.

*(Design and continuously improve multi-modal transportation corridors to enhance movement of people, goods, and services.)*

### **Goal 3**

#### **Protect Neighborhoods**

Protect neighborhoods from negative impacts of regional and citywide transportation networks.

*(No change)*

### **Goal 4**

#### **Increase System Efficiency**

Use Transportation Demand Management (TDM) techniques to reduce traffic congestion, improve air quality, shorten the length, and frequency of automobile trips, enhance the environment, and enrich our quality of life.

*(Reduce the length, and frequency of automobile trips to improve air quality, reduce traffic congestion, and enhance quality of life and the environment.)*

### **Goal 5**

#### **Plan for the Future**

Expand and enhance a transportation network that provides safe and inviting access to all Scottsdale destinations. Ensure that all projects are environmentally sensitive to our desert, mountains, scenic corridors, and neighborhoods while meeting the high expectations of residents, visitors, and businesses.

*(Carefully plan for future circulation expansion.)*

### **Goal 6**

#### **Keep High Values**

Maintain Scottsdale's high aesthetic values and environmental standards in the city's transportation system.

*(No change)*

### **Goal 7**

#### **Cooperate with Neighboring Communities**

Actively work with adjacent jurisdictions and quasi-governmental agencies to coordinate all planned and existing regional links for streets, transit, paths, trails, and ITS networks.

*(Actively work with adjacent jurisdictions and quasi-governmental agencies to coordinate all planned and existing regional links for streets, transit, paths, and trails.)*

## **Goal 8**

### **Enhance Neighborhood Mobility**

Work with schools and neighborhoods and promote opportunities to satisfy their different mobility needs.

*(No change)*

## **Goal 9**

### **Provide Universal Access**

Create a transportation system that complies with the Americans with Disabilities Act and provides accessibility to all users.

*Create a transportation system that complies with the 2010 ADA Standards for Accessible Design and provides accessibility to all users.*

## **Goal 10**

### **Invest Wisely**

Focus investments on improvements which add long-term value and minimize life cycle costs.

*(No change)*

## **Goal 11**

### **Manage the Right of Way**

Effectively and efficiently manage and coordinate activities that occur within the public ROW in a way that enhances safety, coordinates multiple activities, protects existing infrastructure, and preserves mobility.

*(No change)*

Attachment 1: Transit Element Draft 1

Attachment 2: Related Documents

Attachment 3: Goal 1 Draft 1

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# 1 **5 TRANSIT ELEMENT**

## 2 **1.0 INTRODUCTION**

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4 The Transit Element is one component of the City of Scottsdale's multi-modal  
5 *Transportation Master Plan*, and was developed in support of the adopted City of  
6 Scottsdale *General Plan* with public input throughout the planning process.

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8 **Goal 1**

9 **Provide a Safe Transportation Network**

10 Provide a safe and secure transportation network that will reduce injuries and move  
11 towards the elimination of deaths from transportation-related causes, protect  
12 neighborhood livability, promote public health, and support the function of commercial  
13 areas.

14 **Policy 1.10**

15 Develop advanced communication technologies by integrating Intelligent  
16 Transportation Systems (ITS) into the transportation infrastructure and vehicles to  
17 improve accuracy, timeliness, and availability of real-time travel information to the  
18 public.

19 **Performance Measures**

20 **PMTransit 1.10.1** Number and percentage of transit vehicles with signal  
21 priority technology

22 **Support**

23 Intelligent transportation systems can be defined as the integration of  
24 advanced communications technologies into the transportation infrastructure  
25 and vehicles. ITS encompass a broad range of wireless and wire line  
26 communications-based information and electronics traffic management  
27 technologies, including traffic signals, computers, integrated software  
28 systems, graphics, video walls, fiberoptic cable, closed circuit TV cameras,  
29 and vehicle detectors. ITS is used to communicate with vehicles, coordinate  
30 signals, integrate freeway and arterial operations, improve traffic progression,  
31 reduce incident clearance times, improve bus progression, and enhance  
32 special event traffic management.

33 **Related Documents**

34 S21, U28

35 **Policy 1.11**

36 Develop and implement comprehensive and proactive safety, education, and

37 enforcement programs for bicyclists, pedestrians, equestrians, motorists, and transit  
38 users.

39 **Performance Measures**

40 **PMTransit 1.11.1** Number of broadcasted programs

41 **PMTransit 1.11.2** Number of outreach activities

42 **PMTransit 1.11.3** Number of participants

43 **Support**

44 Education programs begin with the selection of a key message and the target  
45 audience. Target audiences could include children, adults, vehicle drivers,  
46 children walking to school, transit riders, or elderly persons and Parent  
47 Teacher organizations. Identifying the target audience will also help identify  
48 the appropriate means of communication, which could be media buys, printed  
49 materials, radio buys, or other means.

50 Pedestrians could be educated on how to use crosswalks, how to use a  
51 pedestrian actuated signal, the meaning of pedestrian signal indications, how  
52 to use a shared use path, and other safe walking behaviors. Bicyclists could  
53 be shown how to safely ride in traffic and use bike lanes, shared use paths,  
54 and how to share trails with equestrians. Motorists could learn how to share  
55 the road with pedestrians, bicyclists, and equestrians. Bus riders can be  
56 trained to safely enter and exit vehicles and bicyclists trained to safely load  
57 bicycles on transit vehicles.

58 Other education efforts should target city staff and elected officials, along with  
59 members of city boards and commissions, to keep them informed about  
60 recent advances and best practices in pedestrian planning and facility design.

61 **Related Documents**

62 U13, U14, U19, A8, A10

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## 65 **Goal 2**

### 66 **Build Complete Streets**

67 Design, operate, and maintain Scottsdale's streets to promote safe and convenient  
68 access and travel for everyone.

#### 69 **Policy 2.1**

70 Include facilities for equestrians, pedestrians, bicyclists, motorists, and transit users  
71 on all streets where those users are an expected component of the traffic mix.

#### 72 **Performance Measures**

73 **PMTransit 2.1.1** Number of miles of complete streets

74 **PMTransit 2.1.2** Percentage of arterial streets considered “complete”

75 **PMTransit 2.1.3** Percentage of collector streets considered “complete”

#### 76 **Support**

77 A complete street provides comfortable, safe, and convenient access for all  
78 users. Pedestrians, bicyclists, motorists, and transit riders of all ages and  
79 abilities are able to safely move along and across a complete street. The  
80 complete streets policy ensures that the entire ROW is designed and  
81 operated to enable safe access for all users.

82 Scottsdale recognizes that there is a need for flexibility as all streets are  
83 different and user needs will be balanced. All road projects should result in a  
84 complete street appropriate to local context and needs. This policy will apply  
85 to both new and retrofit projects, including design, planning, maintenance,  
86 and operations for the entire ROW.

87 Components that may be found on a complete street include:

- 88 • Sidewalks, paths, and trails
- 89 • Bike lanes
- 90 • Frequent crosswalks
- 91 • Wide shoulders
- 92 • Medians
- 93 • Bus pullouts

- 94 • Special bus lanes
- 95 • Raised crosswalks
- 96 • Audible pedestrian signals
- 97 • Sidewalk bulb-outs
- 98 • Shade
- 99 • Transit shelters and lighting

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101 **Insert map showing complete streets**

102 **Related Documents**

103 S39, M12, N2, S65, U6

104 **Policy 2.2**

105 Provide continuous and integrated systems of mobility and access between  
106 employment, mixed-use centers, schools and residential development by  
107 coordinated planning between city and private development.

108 **Performance Measures**

109 **PMTransit 2.2.1** Review and evaluate development plans for multimodal  
110 transportation options

111 **Support**

112 Good site design for transit operations will enhance safe and convenient  
113 access for pedestrian and bicycle transit users, and help increase transit  
114 vehicle travel time. Important considerations for pedestrian friendly site design  
115 include:

- 116 • Connections to neighborhoods and surrounding areas.
- 117 • Easy-to-identify building entrances.
- 118 • Building fronts located along streets rather than set back behind  
119 parking lots.
- 120 • Convenient and safe access to transit and adjacent sidewalks.
- 121 • Accessible routes of travel to and from the site, as well as throughout  
122 the site.

123 **Related Documents**



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I2, U11, W1

**Policy 2.3**

Ensure that intermodal connections are functional, convenient, and uninterrupted for movement between different transportation modes.

**Performance Measures**

**PMTransit 2.3.1** Identify intermodal connections needing improvement

**PMTransit 2.3.2** Number of intermodal connections improved

**Support**

All trips begin and end with walking, even for those who use a vehicle for the majority of their trip. The locations where pedestrians transition from walking to another mode of transportation should be functional, convenient, and provide uninterrupted routes of travel.

**Parking Lots**

- Pedestrian access points should be clearly identified with striping, delineation of walking zones, and provision of walkway medians and islands.
- Drop-off and pick-up zones should be clearly identified and separate from the flow of vehicles (W2).
- Landscaping and shade
- Well lit pedestrian routes

**Transit Stations, Park and Ride facilities, and Bus Stops**

- Accessible sidewalks
- Accessible transit vehicles
- Clear accessible route unimpeded by furniture, bike racks, etc.
- Well-lit shelters and seating
- Trash receptacles
- Real-time passenger information
- Drop-off zone (Kiss & Ride)

**Bicycle storage areas**

- Secure bike racks

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- Clear accessible route unimpeded by racks or bicycles

**Related Documents**

F2, P1, W2

**Policy 2.4**

Recognize the diversity of neighborhoods throughout the city and their different mobility and access needs.

**Performance Measures**

**PMTransit 2.4.1** Identify neighborhoods and determine their internal and external modal connections.

**PMTransit 2.4.2** Percentage of neighborhoods connected to the citywide street network by paved streets

**PMTransit 2.4.3** Percentage of neighborhoods connected to the citywide sidewalk network by sidewalks

**PMTransit 2.4.4** Percentage of neighborhoods connected to the citywide trail network by unpaved trails

**PMTransit 2.4.5** Percentage of neighborhoods connected to the citywide pathway network by paved paths

**PMTransit 2.4.6** Percentage of neighborhoods within walking distance of a bus or trolley route

**Support**

The City of Scottsdale has a long history of using area-based plans to provide policy and program direction for certain areas of the city. The city's first comprehensive General Plan was completed in 1961, and several other policy plan processes followed in the 1980s.

Quality design and application of facility and amenity standards will create comfortable and attractive pedestrian spaces and will reinforce Scottsdale's community character and vision. In areas where many pedestrians are expected, wide sidewalks, street furnishings, and shade structures should be provided. In areas where fewer pedestrians are expected, a basic sidewalk character should be preserved to provide for mobility. In some rural areas, an

184 unpaved trail could function as a sidewalk.

185 Scottsdale's typical roadway cross sections reflect the geographic character  
186 types of rural, suburban, and urban. Refer to the Streets Element for cross  
187 section details.

188 A study by the Mineta Transportation Institute (M25) provided three important  
189 points about how far people were willing to walk to access transit facilities.

- 190 • Pedestrians walk considerably farther to access rail stations than  
191 commonly assumed with an average distance of 0.47 miles.
- 192 • Pedestrians believe that their primary consideration in choosing a route  
193 is minimizing time and distance.
- 194 • Secondary factors influencing route choice are safety, attractiveness of  
195 the route, sidewalk quality, and the absence of long waits at traffic  
196 lights.

197 Use of Multiple Transportation Modes

198 The choice of mode is not necessarily an exclusive one. People typically  
199 use multiple modes of transportation. An AARP study (A1) showed that  
200 people were basically grouped into four clusters: drivers only, ride sharers  
201 only, drivers who walk, and ride sharers who walk. Seventy-two percent of  
202 respondents over 75 years exclusively use one mode of transportation.  
203 More than half of older respondents only drive, and about one in five only  
204 ride share. However, slightly more than one in four (28%) respondents  
205 walk as well as drive or ride share. One in five older respondents drives  
206 and walks, and another one in 12 both ride shares and walks.

207 Respondents who depend solely on ride sharing have the least mobility;  
208 on average, non walking ride sharers have 2.4 outings per week. Other  
209 respondents have more than three outings per week on average: ride  
210 sharers-walkers (3.2 outings); drivers (3.3 outings), and drivers who also  
211 walk (3.5 outings). As age increases, the percentage of respondents who  
212 only drive declines substantially. However, the percentage of older  
213 respondents who drive and walk declines slightly. With increasing age,

214 there is a noticeable decline in driving with a concomitant increase in ride  
215 sharing

216 **Related Documents**

217 A1, M25 S4, S5, S6, S7, S8, S9, S11, S12, S22, S24, S26, S27, S28, S29,  
218 S30, S33, S36, S37, S38, S39

219 **Policy 2.6**

220 In maturing neighborhoods explore retrofiting of aging infrastructure, redesign of  
221 streets, and connections for non motorized traffic and transit to augment livability  
222 and safety.

223 **Performance Measures**

224 **PMTransit 2.6.1** Number and location of streets needing improvements

225 **PMTransit 2.6.2** Annual increase in infrastructure retrofits

226 **Support**

227 Many of Scottsdale’s neighborhoods were approved and constructed prior to  
228 the Americans with Disabilities Act of 1990 (ADA). Over the years, there were  
229 a number of design guidelines and best practices documents generated by  
230 the United States Access Board leading up to the approval of the *2010 ADA*  
231 *Standards for Accessible Design* by the Department of Justice (U3).

232 As neighborhoods mature, their infrastructure should be evaluated for  
233 compliance with the ADA. This evaluation should include a review of curb  
234 ramps, sidewalk widths, and accessible routes to neighborhood destinations  
235 and local transit services.

236 **Related Documents**

237 S35, U3,

238 **Policy 2.8**

239 Recognize and support the Scottsdale Airport as an integral mode of transportation.

240 **Performance Measures**

241 **PMTransit 2.8.1** Number of transit routes within walking distance of  
242 employment buildings

243 **PMTransit 2.8.2** Number of transit boardings and de boardings in the  
244 area

245 **Support**

246 Scottsdale Airpark was established in 1966 and developed to its current  
247 success through 40 years of supporting land use programs and policies  
248 implemented by the City of Scottsdale. The Greater Scottsdale Airpark is not  
249 only a destination for employees, but visitors, shoppers, and local residents  
250 as well. Currently the airport/airpark area is the second largest employment  
251 center in the valley. The diversity of travelers to/from this area requires a  
252 complete, integrated circulation network connecting local and regional  
253 destinations. A successful circulation system will fulfill the needs of  
254 pedestrians and bicyclists, make transit a highly desirable and efficient mode  
255 of travel, and continue to provide excellent access to and from the Loop 101  
256 Freeway system.

257 The goals identified in the 2011 Mobility Chapter of the 2011 Greater Airpark  
258 Character Area Plan include (S69):

- 259 • Strengthen transit in the Greater Airpark as the primary means of  
260 reducing vehicular traffic congestion, minimizing parking constraints,  
261 promoting environmental stewardship, and, as a result, improving  
262 regional air quality.
- 263 • Holistically manage the supply of existing and future parking in the  
264 Greater Airpark.
- 265 • Improve vehicular traffic circulation in the Greater Airpark.
- 266 • Minimize the impacts of Greater Airpark vehicular traffic on adjacent  
267 residential neighborhoods.
- 268 • Maintain and enhance use of the Greater Airpark trail and path system.
- 269 • Enhance pedestrian and bicyclist access and activity for Greater  
270 Airpark residents, visitors, and employees.
- 271 • Promote sustainable transportation options that meet the needs of the  
272 current and future Greater Airpark community.

273

274 **Related Documents**

275 S28, S69

276 **Policy 2.9**

277 Provide appropriate pedestrian facilities on all roadways with transit routes.

278 **Performance Measures**

279 **PMTransit 2.9.1** Percent of bus stops that are shaded

280 **PMTransit 2.9.2** Percent of bus stops that do not meet ADA requirements.

281 **Support**

282 Historic transportation data demonstrate that while the number of people who  
283 use walking as their sole mode of transportation to work is declining, this  
284 decline is more than compensated for by the number of people using public  
285 transportation. Pedestrians often arrive to transit stops by walking, and are  
286 pedestrians again after de-boarding the transit vehicle. More pedestrians will  
287 be encouraged to use transit by providing a more extensive range of  
288 amenities near transit stops.

289 **Related Documents**

290 A2, U3

291

292 **Goal 3**

293 **Protect Neighborhoods**

294 Protect neighborhoods from negative impacts of regional and citywide transportation  
295 networks.

296 **Policy 3.1**

297 Manage access to and from regional corridors to protect the mobility of these  
298 corridors; and design citywide networks to balance access with mobility to further  
299 protect neighborhoods from regional or citywide traffic.

300 **Performance Measure**

301 **PM 3.1.1** Number of neighborhoods reviewed to determine if access  
302 management techniques could improve existing conditions

303 **PM 3.1.2** Number of access management projects in design and  
304 construction

305 **PM 3.1.3** Provide quiet transit vehicles that can infiltrate neighborhoods  
306 with reduced vehicle noise

307 **Support**

308 Access management seeks to limit and consolidate access along major  
309 roadways while providing access to businesses and residential developments  
310 along the roadway.

311 Benefits of access management include the following:

- 312 • Improved safety for drivers accessing properties or traveling in a  
313 through-travel lane
- 314 • Reduction of traffic congestion and delay
- 315 • Improved safety for pedestrians and bicyclists

316 The older the transit fleet becomes, the more neighborhood noise complaints  
317 transit staff receives. Newer vehicles using alternative fuels such as CNG,  
318 Electric, or Electric Hybrid run quieter than engines using only diesel.

319 **Related Documents**

320 B5, S35, S39, S40

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**Policy 3.2**

Design neighborhood street layouts that reduce speeding and noise, provide distributed opportunities for local travel, and create an environment where the neighborhood can flourish.

**Performance Measure**

**PM 3.2.1** Number of development plans reviewed to ensure that local street designs comply with all appropriate guidelines and strive to create great neighborhoods.

**PM 3.2.2** Maintain appropriate Transit vehicle speed in neighborhoods

**Support**

A neighborhood street is more than a transportation facility that allows occupants automobile access to their homes. It provides a visual setting, a pedestrian and bicycle circulation system, a meeting place for residents, and may even be used as a play area by children.

The following principles are identified in *Residential Streets (A13)*:

- Street planning should relate to overall community planning.
- Traffic in residential areas should be kept to a minimum to reduce noise, congestion, and hazards to pedestrians.
- The street is an important component of overall residential community design. Properly scaled and designed streets can create more attractive communities and can contribute to a clearly defined sense of place.
- Street design standards should permit flexibility in community design. They should allow street alignments to follow natural contours and preserve natural features or to respond to other design objectives such as the creation of more intimate urban- or village-scaled streetscapes.
- The amount of paved area should be kept to a minimum to reduce construction and maintenance costs, storm water runoff, and heat buildup.



- 351 • Streets can serve social functions such as meeting places and centers  
352 of community activity. Children often use low-traffic streets as play  
353 areas.
- 354 • Different streets have different functions and need to be designed  
355 accordingly.
- 356 • Transit speed in neighborhoods can be monitored and measured.

357 **Related Documents**

358 A13, A39

359 **Policy 3.3**

360 Partner with neighborhoods to develop solutions that alleviate negative effects of  
361 regional and citywide transportation networks.

362 **Performance Measures**

363 **PM 3.3.1** Number of neighborhoods with traffic calming devices

364 **PM 3.3.2** Number of neighborhoods applied for the NTMP process

365 **PM 3.3.3** Number of neighborhoods approved for NTMP process

366 **Support**

367 The City of Scottsdale Neighborhood Traffic Management Program (NTMP)  
368 uses education, enforcement, and engineering to try to improve neighborhood  
369 quality of life by improving driver compliance with traffic laws in  
370 neighborhoods. It provides an opportunity for broad-based citizen  
371 participation to develop safe, effective strategies to effectively address  
372 neighborhood concerns.

373 The goals of the NTMP include:

- 374 • Minimize the negative impacts of traffic in neighborhoods through the  
375 ongoing monitoring and improvement of the overall transportation  
376 system.
- 377 • Work to ensure that proposed land uses, and their associated travel  
378 demands, do not negatively impact surrounding/adjacent residential  
379 neighborhoods.

- 380 • Protect Scottsdale’s residential neighborhoods from "unwanted"
- 381 vehicle traffic - defined as either:
  - 382 ○ Excessive vehicle travel speeds
  - 383 ○ Vehicles with an origin and destination outside the
  - 384 neighborhood
- 385 • Excessive vehicle traffic volumes.
- 386 • Increase the access, safety, comfort, and quality of life of
- 387 nonmotorized travelers such as pedestrians and bicyclists on and
- 388 adjacent to neighborhood streets.
- 389 • Balance reduction of travel speeds and traffic volumes, with
- 390 maintenance of short emergency vehicle response times.
- 391 • Resolve the traffic concerns of a neighborhood without negatively
- 392 affecting other citizens and neighborhoods.
- 393 • Provide the opportunity for broad-based citizen participation as an
- 394 essential element in the development of a safe, effective Neighborhood
- 395 Traffic Management Program.
- 396 • Provide prompt initial response to each request, open and regular
- 397 communication with the neighborhood as to project status, and
- 398 expeditious resolution of neighborhood concerns.

### 399 **Related Documents**

400 S35

### 401 **Policy 3.4**

402 Provide dedicated open space and buffering in roadway design to protect  
403 neighborhoods.

### 404 **Performance Measures**

405 **PM 3.4.1** Miles of roadways with existing scenic corridor and buffered  
406 roadway easements.

407 **PM 3.4.2** Number of roadway projects on scenic or buffered corridors

408 **PM 3.4.3** Number of development plans reviewed for compliance with  
409 required open space, buffered areas, and scenic corridors

410 **Support**

411 Throughout Scottsdale, roadways have been designated scenic roadways  
412 through the *General Plan* since 1976, and have been further defined through  
413 *Scenic Corridor Design Guidelines* adopted by the Development Review  
414 Board in 2003. The *General Plan* Open Space and Recreation Element  
415 designates Scenic Corridors and Buffered Roadways.

416 The scenic corridors were developed:

- 417 • To preserve or restore the natural desert setting along the roadway
- 418 • To buffer the landowners from adverse affects of adjacent roadway  
419 traffic
- 420 • To provide travelers with views of nearby mountains, washes and other  
421 natural features
- 422 • For connectivity of pedestrian, equestrian and bicycle ways buffered  
423 from traffic by a desert setting
- 424 • To support our economic tourism industry's image by providing  
425 passages displaying our lush Sonoran Desert

426 Existing Scenic Corridors are:

- 427 • Scottsdale Road (north of the CAP Canal)
- 428 • Pima Road (north of the Loop 101 Freeway)
- 429 • Dynamite Boulevard
- 430 • Shea Boulevard
- 431 • Carefree Highway
- 432 • Cave Creek Road

433 Existing Buffered Roadways include:

- 434 • Via Linda
- 435 • Frank Lloyd Wright Boulevard
- 436 • Hayden Road through the Airpark
- 437 • Thompson Peak Parkway
- 438 • Happy Valley Road
- 439 • Lone Mountain Road
- 440 • Desert Mountain Parkway

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- Bell Road

**Related Documents**

S10, S20, S44, S56

**Policy 3.5**

Preserve reasonable emergency access through neighborhoods, balancing the potential for neighborhood street restriction including, but not limited to, traffic calming, street narrowing, and speed humps, with emergency accessibility.

**Performance Measures**

**PM 3.5.1** Number of NTMP projects unable to be completed due to concerns of emergency personnel.

**PM 3.5.2** Number of development projects reviewed to ensure access for emergency services

**Support**

The overriding goal of traffic calming should be to improve pedestrian and bicycle safety without severely limiting vehicle travel or significantly affecting emergency response. The objective is not to block vehicle traffic, but to slow it down and keep it flowing more smoothly, especially through intersections.

Focus on solutions with minimal impacts on emergency response. (L5)

Never view traffic calming as a piecemeal response to each successive complaint. It should always be comprehensive, considering the safety issues and solutions throughout a neighborhood or corridor. Traffic calming programs must always include all affected parties, including residents, emergency responders, motorists, and non motorized users of the street.

**Related Documents**

C2, L5, L6, L7, S39

**Policy 3.6**

Work to ensure that proposed land uses and their associated travel demands do not

469 negatively impact surrounding/adjacent residential neighborhoods.

470 **Performance Measure**

471 **PM 3.6.1** Number of development projects reviewed for potential negative  
472 impacts to surrounding or adjacent residential neighborhoods.

473 **PM 3.6.2** Number of Transportation Impact and Mitigation Analysis  
474 documents reviewed for each impact category.

475 **Support**

476 A traffic impact analysis is a study which assesses the effects that a particular  
477 development's traffic will have on the transportation network in the  
478 community. These studies vary in their range of detail and complexity  
479 depending on the type, size, and location of the development. Traffic impact  
480 studies should accompany developments which have the potential to impact  
481 the transportation network. They are important in assisting public agencies in  
482 making land use decisions. These studies can be used to help evaluate  
483 whether the development is appropriate for a site and what type of  
484 transportation improvements may be necessary. (E1)

485 Traffic impact studies help communities to:

- 486 • Forecast additional traffic associated with new development, based on  
487 accepted practices.
- 488 • Determine the improvements that are necessary to accommodate the  
489 new development.
- 490 • Assist communities in land use decision making.
- 491 • Assist in allocating scarce resources to areas which need  
492 improvements.
- 493 • Identify potential problems with the proposed development which may  
494 influence the developer's decision to pursue it.
- 495 • Allow the community to assess the impacts that a proposed  
496 development may have.
- 497 • Help to ensure safe and reasonable traffic conditions on streets after  
498 the development is complete.

- Reduce the negative impacts created by developments by helping to ensure that the transportation network can accommodate the development.
- Provide direction to community decision makers and developers of expected impacts.
- Protect the substantial community investment in the street system.

All proposed projects will fall into one of three categories for purposes of transportation impact and mitigation analysis based upon their impact to the city's transportation system.

- Insignificant traffic impacts
- Localized impacts
- Significant impacts

### **Related Documents**

E1, S39

### **Policy 3.7**

Utilize the Roadway Noise Mitigation Policy to address and manage noise in areas associated with major roadway corridor improvements.

### **Performance Measure**

**PM 3.7.1** Number of projects evaluated for noise mitigation

**PM 3.7.2** Number of projects resulting in noise mitigation

### **Support**

The City of Scottsdale Roadway Noise Abatement Policy was adopted by City Council on April 5, 2011. It comes from a perspective that the city will work to do no harm to the livability of its neighborhoods when completing roadway capital projects. The city may mitigate noise increases as a result of any roadway corridor improvement project that is intended to increase motorized vehicular capacity, other than regular pavement maintenance or roadway overlay activities.

Roadway corridor improvements include:

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- Addition of travel lanes
- Addition of turn lanes at three or more intersections
- Realignment that moves the roadway closer to noise sensitive uses
- Access management devices that limit existing turning movements in the corridor by twenty percent (20%) or more.

A noise study will be completed for these roadway projects to determine if noise mitigation is warranted and what type of noise mitigation is most appropriate. The City of Scottsdale will use guidelines in the document to determine the need, feasibility, and reasonability of noise abatement or reduction measures. The city will not mitigate for noise from commercial or industrial uses.

**Related Documents**

S70

**Policy 3.8**

Install noise-dampening surfaces on all major and minor arterials located in noise-sensitive land use areas when these roadways are widened or when resurfacings are undertaken.

**Performance Measure**

**PM 3.8.1** Miles of arterial streets using rubberized asphalt or other noise dampening technology

**Support**

Rubberized asphalt is currently the most effective roadway surfacing material for reducing traffic noise. It has been used for more than 20 years to resurface highways and city streets in Arizona when pavement surfaces reach their normal life expectancy. While it helps reduce the disposal of used tires, it has also been recognized for its reduction of traffic noise. Noise readings have shown the rubberized asphalt generally reduces tire noise by an average of four decibels.

**Related Documents**

A15

558 **Goal 4**

559 **Increase System Efficiency**

560 Use Transportation Demand Management (TDM) techniques to reduce traffic  
561 congestion, improve air quality, shorten the length and frequency of automobile trips,  
562 enhance the environment, encourage more efficient use of existing parking facilities,  
563 reduce parking demand, shift travel to non-SOV modes, and enrich our quality of life.

564 **Policy 4.1**

565 Improve personal security for people walking, bicycling, or using transit facilities.

566 **Performance Measures**

567 **PMTransit 4.1.1** Evaluate crime statistics and their relationship with  
568 transportation facilities

569 **PMTransit 4.1.2** Work with Public Safety officials to develop solutions,  
570 including but not limited to infrastructure, that help  
571 mitigate safety concerns

572 **Support**

573 Personal security refers to freedom from risk of assault, theft, and vandalism.  
574 Such risks can discourage walking, cycling, and transit travel. These  
575 problems can be addressed through various programs and design strategies  
576 that increase security. These can include Neighborhood Watch and  
577 community policing programs, special police patrols (including police on foot  
578 and bicycles), pedestrian escorts, and monitoring of pedestrian, bicycle,  
579 transit, and park & ride facilities. (L10)

580 **Related Documents**

581 E2, L10, V6

582 **Policy 4.2**

583 Expand the use of flextime, compressed work weeks, and staggered shifts.

584 **Performance Measures**

585 **PMTransit 4.2.1** Number of city employees using alternative work hours to  
586 meet fixed route transit schedules



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**Support**

Alternative work schedules are typically implemented as part of a trip reduction program. Employers work with managers and employees to develop suitable policies and practices. Informal Alternative Work Scheduling is common at many worksites, so an official policy may simply formalize and support existing practices.

**Related Documents**

M18, M29, M30, V4, V6

**Policy 4.4**

Integrate bicycling with public transit.

**Performance Measures**

- PMTransit 4.4.1** Number of two and three bike racks on transit buses.
- PMTransit 4.4.2** Number of bike racks on trolley vehicles.
- PMTransit 4.4.3** Number and percentage of bus stops with bicycle parking facilities.

**Support**

Bicycling integrates well with public transit. Transit is most effective for moderate- and long-distance trips on busy corridors, while cycling is effective for shorter-distance trips with multiple stops. Combining transit and cycling can provide a high level of mobility comparable to automobile travel.

A transit stop normally draws riders within a 10-minute (a half-mile) walking distance. At a modest riding speed a cyclists can travel three or four times that distance in the same time, increasing the transit catchment area about ten-fold. Bicycle access tends to be particularly important in suburban areas where densities are moderate and destinations are dispersed (B6) Several strategies for integrating cycling and transit are described below.

**Bikes on Transit**

Transit vehicles can carry bicycles, with bike racks mounted on buses or by carrying them inside (often only during off-peak periods). This

616 allows a bicycle to be used at both ends of the journey, and helps  
617 cyclists who experience a mechanical failure, unexpected bad weather,  
618 or sudden illness. It also allows cyclists to pass major barriers, such as  
619 rivers, freeways, or canals. The Phoenix Transit System was the first  
620 in the nation to install front mounted bike racks on all buses. To date  
621 most transit agencies accommodate bikes using racks on the front of  
622 the vehicle for two or three bicycles (depending on the vehicle design).  
623 As bicycle use has increased over time some agencies are now  
624 equipping transit buses with racks also on the rear of the vehicle.

#### 625 Bicycle Storage at Transit Stops

626 It is important to provide good bicycle parking at transit stops and  
627 transportation terminals. Commuters who leave high-quality bicycles at  
628 a transit stop all day require a high level of security and are willing to  
629 pay for it, although simpler bike racks may be adequate for many  
630 cyclists, so a mix of lockers and racks may be appropriate.

#### 631 Bicycle Access to Transit Stations

632 Bicycle access to transit can be improved by providing paths, bike  
633 lanes, and road improvements that make it easier to ride to transit  
634 stations and terminals. Maps that illustrate the best cycling routes  
635 between terminals and common destinations are also helpful.

#### 636 Bikes on Taxis

637 Taxi improvements may include special provisions to accommodate  
638 bicycles, providing cyclists with an important fallback option when they  
639 have medical or mechanical problems.

#### 640 Bike Sharing System

641 Bike sharing systems are automated bicycle rental systems designed  
642 to provide efficient mobility for short, utilitarian, urban trips. They often  
643 have stations at public transit stations.

644 The implementation of bike sharing systems is a fairly new concept to  
645 US cities. The largest and most successful is Washington DC /

646 Arlington County's Capital Bikeshare, which provides over 1,670 bikes  
647 at more than 175 stations. Nice Ride, based out of Minneapolis,  
648 Minnesota, is the second largest bike sharing system in the US  
649 providing 1,300 bikes at 145 stations. The majority of the bike share  
650 systems in use today have been funded through grants, public taxes,  
651 subsidies, and corporate sponsorships.

### 652 **Related Documents**

653 B6, V6 C3, N6

### 654 **Policy 4.11**

655 Evaluate the use of commuter financial incentives to encourage the use of  
656 alternative commute modes.

### 657 **Performance Measure**

658 **PMTransit 4.11.1** Number of City employees participating in Bus Card Plus  
659 Program

660 **PMTransit 4.11.2** Number of City vanpools

661 **PMTransit 4.12.2** Number of City carpool participants

### 662 **Support**

663 Commuter Financial Incentives include the following:

#### 664 Employee Parking Pricing

665 Companies could charge for parking at their parking lots or eliminate  
666 existing subsidies for off-site employee parking

#### 667 Parking Cash Out

668 Commuters who are offered subsidized parking are also offered the  
669 cash equivalent if they use alternative travel modes (S72).

#### 670 Travel allowances

671 A financial payment provided to employees instead of parking  
672 subsidies. Commuters can use this money to pay for parking or for  
673 another travel mode.

#### 674 Transit and rideshare benefits

675 Provide free or discounted transit fares to employees.

676 Company travel reimbursement policies

677 Reimburse bicycle or transit mileage for business trips when these  
678 modes are comparable in speed to driving, rather than only  
679 reimbursing automobile mileage.

680 Commuter financial incentives can be prorated according to how much  
681 employees use alternative modes. For example, employees who drive twice a  
682 week would receive 60% of the full Parking Cash Out allowance.

### 683 **Related Documents**

684 S72, V6

### 685 **Policy 4.12**

686 Manage parking so that it contributes to sustainable transportation practices,  
687 increases land use efficiencies, and provides convenient modal choices.

### 688 **Performance Measures**

689 **PMTransit 4.12.1** Number of Park & Ride lots and spaces by route

690 **PMTransit 4.12.2** Institute paid parking in downtown Scottsdale;

### 691 **Support**

692 Parking management can contribute to sustainable transportation practices  
693 as well as land use efficiencies and can make modal choice more convenient.

- 694 • Develop thresholds for the inclusion of parking structures versus  
695 parking lots and the design and aesthetics of each type of facility.
- 696 • Recognize that city funding for the construction of public parking  
697 garages will be considered as a business support function and not a  
698 transportation enhancement.
- 699 • Include incentives for carpool/park and ride spaces in City Ordinance.

### 700 **Related Documents**

701 S39

702

703 **Policy 4.16**

704 Use information technologies to improve transportation system efficiency.

705 **Performance Measures**

706 **PMTransit 4.16.1** Number and percentage of transit vehicles with real-time  
707 information technology on board

708 **PMTransit 4.16.2** Number and percentage of bus stops with real-time travel  
709 information available for users

710 **Support**

711 Transit priority treatments are intended to increase the speed and reliability of  
712 the existing transit system through modest capital improvements. Transit  
713 priority treatments include:

714 **Transit Signal Priority**

715 Transit signal priority is a technology that allows buses to communicate with  
716 an approaching traffic signal via a transponder to provide additional green  
717 light time for the bus. Transit signal priority can be used to increase the speed  
718 and reliability of transit in high demand corridors.

719 **Queue Jumps**

720 Queue jumps allow buses, or other forms of transit, to bypass known  
721 congestion points by giving transit exclusive ROW. It can be combined with  
722 transit signal priority to give green light time to transit prior to general purpose  
723 traffic.

724 **Business Access and Transit Lanes**

725 Business access and transit lanes are restricted lanes that are reserved for  
726 transit as well as autos making turns to access businesses. Business access  
727 and transit lanes usually exist in the right curb lane but can also be designed  
728 to exist in the left median lane.

729 **HOV Priority**

730 HOV Priority refers to strategies that give priority to High Occupant Vehicles  
731 including transit buses, vanpools, and carpools. HOV priority is a major  
732 component of many regional TDM programs. The Arizona Department of

733 Transportation allows 2+ vehicle occupants, motorcycles, or alternate fueled  
734 vehicles to use HOV lanes during morning and afternoon commuting hours.

735 HOV Priority includes:

- 736 • The use of HOV lanes during peak commuting hours.
- 737 • High Occupancy Toll (HOT) lanes. These are HOV lanes that also  
738 allow low occupancy vehicles if they pay a toll.
- 739 • Busways or special lanes dedicated to transit buses
- 740 • Queue-jumping lanes (other vehicles must wait in line to enter a  
741 highway or intersection, but HOVs enter directly).
- 742 • Intersection controls that give priority to HOVs. For example, a traffic  
743 light might be set to stay green for several extra seconds if that allows  
744 a bus to avoid stopping (currently used by emergency vehicles in  
745 Scottsdale).
- 746 • Streetscape changes to favor High Occupant Vehicles, such as  
747 improved bus stops and bus pullouts.
- 748 • Preferred parking spaces or parking fee discounts provided to  
749 rideshare vehicles.
- 750 • Special benefits to HOV riders, often included in Commute Trip  
751 Reduction programs.

## 752 **Related Documents**

753 S21, U28, V6

## 754 **Policy 4.17**

755 Encourage the use of alternate travel modes during special events.

### 756 **Performance Measures**

757 **PMTransit 4.17.1** Number of events accessible by fixed route transit

758 **PMTransit 4.17.2** Number of events using special shuttles

759 **PMTransit 4.17.3** Number of people using special shuttles to access events

### 760 **Support**

761 Special Event Transportation Demand Management encourages the use of  
762 alternative travel modes to occasional events that draw large crowds; such as

763 festivals, games, and fairs; or when construction projects or disasters create  
764 temporary transportation problems. This can reduce traffic and parking  
765 problems, improve safety and security, reduce stress, and improve  
766 transportation options, particularly for non drivers.

767 Special Event TDM includes many specific strategies to improve  
768 transportation options, manage transportation resources, and communicate  
769 with the traveling public. These can include:

- 770 • Special transit, shuttle, and ridesharing services. In some cases it may  
771 be appropriate to incorporate the cost of transit service or a special  
772 shuttle bus into event admission fees, so participants can use these  
773 services at no extra cost.
- 774 • Use marketing to promote transportation options before the event  
775 takes place to help people make early decisions on which route to  
776 take, where to park, and how to reach the event.
- 777 • Priority to emergency, service, freight and High Occupant vehicles in  
778 traffic and parking.
- 779 • Produce a Multi-Modal Access Guide, which concisely describes how  
780 to reach an event, highlighting efficient modes such as bicycling,  
781 ridesharing, and transit. This information can be incorporated into  
782 event invitations and publicity.

783 **Related Documents**

784 V6

785 **Policy 4.18**

786 Emphasize live, work, and leisure relationships in land use decisions that reduce per  
787 capita automotive trips and integrate alternative modes including, but not limited to,  
788 pedestrian paths, equestrian trails, cyclist routes, and transit.

789 **Performance Measures**

790 **PMTransit 4.18.1** Number of development plans reviewed

791 **PMTransit 4.18.2** Number of city projects reviewed

792 **Support**

793 Transportation and land use planning decisions interact. Transportation  
794 planning decisions affect land use development, and land use conditions  
795 affect transportation activity. These relationships are complex, with various  
796 interactive effects.

797 Land use patterns affect accessibility, people's ability to reach desired  
798 services and activities, which affects mobility, the amount, and type of travel  
799 activity (L9). Different land use patterns have different accessibility features.  
800 Urban areas have more accessible land use and more diverse transportation  
801 systems, but slower and more costly automobile travel. Suburban and rural  
802 areas have less accessible land use and fewer travel options but driving is  
803 faster and cheaper per mile. These factors can significantly affect travel  
804 activity. Central location residents typically drive 20-40% less and walk, cycle,  
805 and use public transit two to four times more than they would at a suburban  
806 location, and they drive 20-40% less than they would in a rural location.  
807 However, there are many variations among these categories. Suburban and  
808 rural villages can incorporate features such as sidewalks, bike lanes, and land  
809 use mixing that increase accessibility and transportation diversity. As a result,  
810 there are many degrees of accessibility and multimodalism. (L8)

### 811 **Related Documents**

812 L8, L9

### 813 **Policy 4.19**

814 Support the formation of Transportation Management Associations (TMA) in areas of  
815 the city which have the need and capacity for utilizing this tool. Assist interested  
816 citizens with technical support and start-up grants from city, regional, or state funds.

### 817 **Performance Measure**

818 **PMTransit 4.19.1** Number of active TMAs in Scottsdale

819 **PMTransit 4.19.2** Number of transit passes issued through TMA's

### 820 **Support**

821 Transportation Management Associations (TMAs) are nonprofit, member-  
822 controlled organizations that provide transportation services in a particular



823 area, such as a commercial district, mall, medical center, or industrial park.  
824 They are generally public-private partnerships, consisting primarily of area  
825 businesses with local government support. Currently, the Scottsdale Zoning  
826 Ordinance does not incentivize or support the formation of TMA's, and private  
827 business employee transit use and TMA activity is monitored by County  
828 government. Scottsdale could choose to be more involved in TMA formation if  
829 the zoning ordinance were to be changed to incentivize it as is the case in  
830 other communities.

831 TMAs provide an institutional framework for TDM Programs and services.  
832 They are usually more cost effective than programs managed by individual  
833 businesses. TMAs allow small employers to provide Commute Trip Reduction  
834 services comparable to those offered by large companies. They avoid  
835 problems that may be associated with government-run TDM programs, since  
836 they are controlled by members.

837 Transportation Management Associations can provide a variety of services  
838 that encourage more efficient use of transportation and parking resources.  
839 Those may include:

- 840 • Access Management
- 841 • Commute Trip Reduction
- 842 • Commuter Financial Incentives
- 843 • Flextime Support
- 844 • Freight Transportation Management
- 845 • Guaranteed Ride Home Services
- 846 • Marketing and Promotion
- 847 • Parking Management and Brokerage
- 848 • Pedestrian and Bicycle Planning
- 849 • Rideshare Matching and Vanpool Coordination
- 850 • Shared Parking Coordination
- 851 • Shuttle Services
- 852 • Special Event Transportation Management

- 853 • Telework Support
- 854 • Tourist Transportation Management
- 855 • Transit Improvements
- 856 • Transportation Access Guides
- 857 • Wayfinding and Multimodal Navigation Tools

858 Transportation Management Associations can support efforts to create more  
859 accessible and resource efficient land use patterns. TMAs can provide  
860 parking management and brokerage services that result in more efficient use  
861 of parking resources. This can reduce the need to expand parking capacity,  
862 reduce the total amount of land that must be paved in an area, and allow for  
863 more compact development. For example, a church may allow its parking  
864 spaces to be used by a nearby restaurant on Saturday nights in exchange for  
865 use of the restaurant's parking on Sunday mornings. This results in more  
866 efficient use of parking resources, and allows employers with successful  
867 Commute Trip Reduction programs to recoup their costs by leasing excess  
868 parking spaces.

869 Transportation Management Associations can increase transportation  
870 options, provide financial savings to businesses and employees, reduce traffic  
871 congestion and parking problems, and reduce pollution emissions. They are  
872 an important strategy for creating more efficient land use patterns. These  
873 benefits can be large because traffic and parking costs tend to be particularly  
874 high in commercial and industrial areas where most TMAs exist. Parking and  
875 road facility savings often repay TMA operating costs.

876 Scottsdale contains several areas that might benefit from a district-specific  
877 approach to transportation demand management through the use of TMAs.  
878 These include the airpark, healthcare campuses, and Downtown where there  
879 is a combination of residential, employment, retail, and entertainment uses.

880 Using grant funding for staff resources, one of the region's first TMAs was  
881 formed in the late 1980s to serve Scottsdale area businesses. More recently,  
882 TMAs throughout the metropolitan area were staffed by the Regional Public

883 Transportation Authority’s (RPTA) regional Rideshare staff. Although typically  
884 city-assisted, TMAs could be formed as independent non profit corporations.  
885 Other organizations or entities, such as chambers of commerce or local  
886 business groups, could serve as parent organizations for a TMA. Often, TMA  
887 membership is open to any interested party in a given district or area, but  
888 usually includes major employers.

889 The goals of a TMA should be relevant to the problems of the district, such as  
890 maintaining or improving employee access, improving mode choice and mode  
891 split among commuters, or reducing demand for parking. Typically, the goals  
892 of the TMA would be to reduce congestion, improve employee  
893 recruitment/retention, and alleviate parking issues through strategies that  
894 reduce reliance on SOV travel. A TMA could provide informational materials  
895 and public information events, support localized shuttle service, organize car  
896 pools, provide bike-to-work and walk-to-work incentives, rideshare incentives,  
897 transit pass subsidies, and regional/local advocacy.

#### 898 **Related Documents**

899 V6

#### 900 **Policy 4.20**

901 Create and maintain a comprehensive facilities inventory by developing a GIS  
902 database for existing streets, transit facilities, sidewalks, paths, trails, and related  
903 features.

#### 904 **Performance Measure**

905 **PMTransit 4.20.1** Update existing conditions maps for all transportation  
906 facilities on a regular schedule.

#### 907 **Support**

908 Knowing what facilities are in place is an important component of any  
909 planning activity. The inventory and associated database must include  
910 enough details to provide an accurate reflection of existing conditions. The  
911 inventory will be used to identify gaps in the system, substandard facilities,

912 and safety concerns. The information will be used to help develop CIP  
913 projects. The data will help predict future conditions of the system.

#### 914 **Related Documents**

915 S71

#### 916 **Policy 4.26**

917 Develop a transit circulator network that improves transit accessibility from  
918 neighborhoods and businesses to fixed route transit.

#### 919 **Performance Measures**

920 **PMTransit 4.26.1** Analyze business and neighborhood connections to  
921 fixed route transit

922 **PMTransit 4.26.2** Document underserved areas for future new routes

#### 923 **Support**

924 The City's Trolley System provides a network that connects neighborhoods  
925 and businesses to the fixed route transit system. The City is a net importer of  
926 employees, meaning Scottsdale businesses rely on transit and vehicle  
927 infrastructure to provide employees methods of transport jobs. The Trolley  
928 system provides a valuable transportation source for connecting residents to  
929 jobs in Scottsdale as well as employees traveling by regional fixed route  
930 transit into the city to jobs not located along the fixed routes.

#### 931 **Related Documents**

#### 932 **Policy 4.27**

933 Improve transit stops with seating, shade, bicycle storage, lighting, and more  
934 detailed route information.

#### 935 **Performance Measures**

936 **PMTransit 4.27.1** Number of transit stops with partial and complete  
937 passenger amenities

938 **PMTransit 4.27.2** Number of transit stops with adequate pedestrian lighting

#### 939 **Support**

940 Providing transit stops with adequate passenger amenities can oftentimes be  
941

942 the deciding factor in personal transit mode choice. Transit stops with  
943 appropriate amenities portray a positive image to riders, add to the  
944 convenience of using public transit, heighten the perception of safety, and  
945 add a level of attractiveness to the system as a whole, which reaches the end  
946 goal of increasing ridership. The City of Scottsdale uses a standard bus  
947 shelter kit that includes a bus shelter, seating, trash receptacle, bicycle rack,  
948 and signage. Other amenities, including the provision of vertical shade  
949 elements should also be considered as technology and funding becomes  
950 available. The City has implemented, with great success, a large number of  
951 these bus shelter kits over the past few years. In addition, bus shelters that  
952 have unique features or design (often artist designed) have been used in  
953 certain areas of the City, such as Downtown and Shea Boulevard. Bus  
954 shelters in the City of Scottsdale are located based on bus frequency,  
955 ridership, bus operational requirements, pedestrian safety, passenger  
956 comfort, and right-of-way availability. Maintenance at stops (such as shelter  
957 cleaning or trash disposal) should be provided commensurate with the level of  
958 activity occurring at the stop. It is recommended that the location of future bus  
959 shelters consider the following:

- 960 • Bus shelters be prioritized for the highest ridership bus stop locations,  
961 which are often along the highest ridership bus routes at the one-mile  
962 arterial intersections;
- 963 • South facing bus shelters are a higher priority than north facing bus  
964 shelters.
- 965 • Scottsdale is a narrow city with transit connections primarily oriented to  
966 the west for east/west bus routes;
- 967 • Shade is at a premium in the late afternoon. Creating shade in the  
968 afternoon is of more importance than the morning, especially for  
969 north/south bus shelters.
- 970 • The existing bus shelter kit does lack in the provision of shade for  
971 north/south bus routes in the afternoon;

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- Shade and passenger comfort needs to be the highest priority in the design of future bus shelters. Many of the artist designed bus shelters fall short in these areas; careful design considerations must be given to shade and passenger comfort, as well as ADA requirements for all bus shelters, including those not using the standard bus shelter design.
  - Enhanced bus shelters need to be considered for the Route 72 along Scottsdale Road given existing and future service and ridership
- In Scottsdale’s climate where temperatures exceed 90 degrees part of the year, providing passengers with shelters while they wait can increase and improve ridership. Trash bins at transit stops help manage litter and decrease visual blight while bicycle storage adds to the convenience of using transit. Well lit stops increase the rider’s perception of a safe environment and detailed route information advertises the availability of the transit service.

986 **Related Documents**

987 C4

988 **Policy 4.28**

989 Provide connections to local and regional destinations through a mix of transit  
990 services that may include, but are not limited to, fixed route and express bus service,  
991 neighborhood circulators, paratransit, and HCT.

992 **Performance Measures**

993 **PMTransit 4.28.1** Number of transfer points between circulator, fixed,  
994 express and HCT routes

995 **PMTransit 4.28.2** Number of paratransit and cab connection riders that  
996 transfer to circulator, fixed, express, and HCT routes

997 **Support**

998 A complete transit system employs a variety of alternative modes and options  
999 for the user. It is not uncommon for a transit user to transfer from one mode to  
1000 another: express to local or circulator. Transfers within a 15 minute wait are  
1001 best, but service frequency from mode to mode and route to route may not

1002 result in usable transfers. As service frequency improves Valleywide, transfer  
1003 time will be reduced and ridership will grow.

1004 Passengers value their time, and long wait time for a transit vehicle can  
1005 become very frustrating for users, and adds to their total trip time, especially if  
1006 the wait for the next bus is over 15 minutes. National transit ridership studies  
1007 indicate reducing the time between buses, frequency, is key to improving  
1008 transit ridership.

1009 Service frequency verses service coverage is an issue that balances the  
1010 trade-offs between providing higher quality service on a fewer number of  
1011 streets (more frequency) versus lower quality service on a wider range of  
1012 streets (greater coverage). Most of the existing transit service in Scottsdale is  
1013 located on major arterials, with the highest concentration found in the  
1014 southern and central portions of the City where the highest population and  
1015 land use densities are located.

1016 It is the approach of this Transit Element to focus on providing frequency  
1017 before coverage. The reasoning is as follows:

- 1018 • Frequency has the opportunity to create more total ridership than  
1019 coverage.
- 1020 • Frequency has the opportunity to attract more new riders than  
1021 coverage.
- 1022 • Frequency can be more cost-effective than coverage creating  
1023 potentially less capital investment. There is no funding source that is  
1024 exclusively dedicated for transit in Scottsdale so transit improvement s  
1025 need to be as cost-effective as possible.
- 1026 • Scottsdale's north/south configuration and unique geography create  
1027 obvious transit corridors that need frequency improvements. These  
1028 same geographic features provide barriers to improving coverage  
1029 elsewhere.
- 1030 • Frequency facilitates transfers better than coverage. It is easier to  
1031 transfer between bus routes if they are operating at a higher frequency.

1032 **Related Documents**

1033 T4

1034 **Policy 4.32**

1035 Provide transit service that is user-friendly and attractive to daily users and  
1036 occasional users, such as visitors.

1037 **Performance Measures**

1038 **PMTransit 4.32.1** Provide transit information at public offices, libraries,  
1039 senior and neighborhood centers, the Convention and  
1040 Visitors Bureau, the City website, and the regional Valley  
1041 Metro website.

1042 **PMTransit 4.32.2** Provide maps and brochures on circulator vehicles,  
1043 including brochures in multiple languages.

1044 **Support**

1045 Passengers need to feel that transit services are user friendly and attractive.  
1046 In addition to land use planning, safety, accessibility, and connectivity, readily  
1047 available system information is key to making a system user friendly and  
1048 achieving ridership increases.

1049 **Related Documents**

1050 F7

1051 **Policy 4.34**

1052 Actively market transit services and educate consumers to increase ridership and  
1053 fare revenues.

1054 **Performance Measures**

1055 **PMTransit 4.34.1** Increase Transit Marketing

1056 **Support**

1057 Marketing transit service to increase awareness and increase ridership is  
1058 highly advocated by the Federal Transit Administration. Use of federal funding  
1059 for transit marketing is allowed and encouraged. Marketing efforts range  
1060 from broad public information campaigns to programs tailored to individual



1061 markets or services. Many transit agencies use marketing to inform the public  
1062 of fare changes, schedule/frequency adjustments and informational  
1063 improvements including the addition of new technology, A good example of a  
1064 successful marketing program was the 2002 Olympics. During planning of the  
1065 Winter Olympics in 2002, it was determined that the event would caused an  
1066 overall increase in economic activity in and around Salt Lake City and  
1067 increased congestion. A marketing campaign was initiated to encourage local  
1068 residents to use transit rather than driving. increase in UTA's ridership in 2002  
1069 was attributed to the marketing effort despite the economic recession that  
1070 occurring in 2001–02.

1071 **Related Documents**

1072 T5  
1073  
1074

## Goal 5

### Plan for the Future

Expand and enhance a transportation network that provides safe and inviting access to all Scottsdale destinations. Ensure that all projects are environmentally sensitive to our desert, mountains, scenic corridors, and neighborhoods while meeting the high expectations of residents, visitors, and businesses.

#### **Policy 5.3**

Maintain expansion options for existing and potential network needs in order to efficiently serve the community's future mobility needs.

#### **Performance Measures**

**PMTransit 5.3.1** Review all abandonment requests for potential loss of access for transportation facilities

**PMTransit 5.3.2** Review all release of easement requests for potential loss of access for transportation facilities

**PMTransit 5.3.3** Review all development projects to ensure that appropriate transportation facilities are constructed and sufficient right-of-way or easements are provided for future facilities

**PMTransit 5.3.4** Percentage of planned corridors with ROW in place for future facilities

**PMTransit 5.3.5** Percentage of existing corridors with ROW in place for future facilities

#### **Support**

When acquiring public rights-of-way for street improvement or expansion projects, include the area necessary to provide for all transportation facilities. Do not abandon rights-of-way or release easements that could be used for future access.

During the development process:

- Acquire the right-of-way necessary for buildout of roadway, including bicycle facilities, paths, trails and transit facilities based on the future

1104 functional classification of the roadway system.

1105 **Related Documents**

1106 S39, S69

1107 **Policy 5.9**

1108 Improve and expand the transit system.

1109 **Performance Measures**

1110 **PMTransit 5.9.1** Percent of population and employment within 0.4 miles of  
1111 transit

1112 **PMTransit 5.9.2** Households within five miles of park-and-ride lots or major  
1113 transit centers

1114 **PMTransit 5.9.3** Share of population with good transit-job accessibility  
1115 (100,000+ jobs within 45 minutes).

1116 **PMTransit 5.9.4** Number of households within a 30-minute transit ride of  
1117 major employment centers.

1118 **PMTransit 5.9.5** Percentage of work and education trips accessible in less  
1119 than 30 minutes transit travel time.

1120 **PMTransit 5.9.6** Percentage of workforce that can reach their workplace by  
1121 transit within one hour with no more than one transfer.

1122 **PMTransit 5.9.7** Number of boardings on fixed route, express bus, and  
1123 shuttles.

1124 **PMTransit 5.9.8** Number of bicycle boardings on fixed route, express bus,  
1125 and shuttles.

1126 **Support**

1127 Transit accessibility reflects the relative convenience of transit as a mode  
1128 choice. It can be measured in terms of distance to transit stops or travel time  
1129 on transit. Metrics typically emphasize the availability of transit where people  
1130 live, where people work, and on routes that connect the two. (U26)

- 1131
- 1132 • Measuring the distance to transit stops captures the amount of jobs,  
1133 population, trip origins, or trip destinations within a certain radius of a  
transit stop. The radius often represents a reasonable distance that

1134 people are willing to walk to and from transit stops, typically between ¼  
1135 mile and ½ mile.

- 1136 ● Measuring the travel time for destinations accessible by transit helps  
1137 determine the likelihood that people will choose transit over other  
1138 modes. This metric incorporates the relationships of various land uses  
1139 and the performance of the transit system.

## 1140 **Related Documents**

1141

### 1142 **Policy 5.13**

1143 To promote sustainability, consider the least impactful solutions for corridor capacity  
1144 first. The priority for improvements to corridors reaching the target volume thresholds  
1145 is:

- 1146 1. Improve use of existing facilities through the efficient implementation of  
1147 cost effective signing, striping, intersection control, and sight distance  
1148 improvements
- 1149 2. Improve access to, and amenities at, transit stops,
- 1150 3. Upgrade pedestrian facilities to at least minimum standards
- 1151 4. Upgrade bicycle facilities to at least minimum standards
- 1152 5. Consider expanding existing transit service or adding new transit  
1153 service if none is currently available
- 1154 6. Install ITS equipment, and integrate with transit service
- 1155 7. Increase access management
- 1156 8. Add right-turn deceleration lanes to commercial and/or multi-family  
1157 driveways
- 1158 9. Add turn lanes or roundabouts, where appropriate, at intersections
- 1159 10. Add travel lanes

### 1160 **Performance Measures**

1161 **PMTransit 5.13.1** Number of transit improvements

1162 **PMTransit 5.13.2** Number of route adjustments to maximize service

1163 **Support**

1164 Sustainable transportation meets the access needs of the current  
1165 population while protecting the environment, reducing dependence on  
1166 nonrenewable fuels, and accommodating planned, responsible growth.  
1167 Planning for sustainable transportation involves developing policies that  
1168 are appropriate for a given area, whether it is an urban area with good  
1169 public transit or a rural area more dependent on motor vehicles.

1170 Strategies for increasing transportation sustainability include demand  
1171 management, operations management, pricing policies, vehicle  
1172 technology improvements, clean fuels, and integrated land use and  
1173 transportation planning.

1174 **Related Documents**

1175 F2, I4, M4, M11, S21

1176 **Policy 5.16**

1177 During each five year capital improvement program budget, dedicate a minimum of  
1178 one-third of available funding to projects that primarily serve transit, bicycle, and  
1179 pedestrian system enhancements.

1180 **Performance Measure**

1181 **PMTransit 5.16.1** Percentage of funding dedicated during each five-year  
1182 capital improvement program for projects that primarily  
1183 serve transit users

1184 **Support**

1185 Creating targets for transportation mode splits and/or annual VMT are  
1186 methods used throughout the nation to promote and support transportation  
1187 options. For Scottsdale, a mode split for its most active areas (e.g.,  
1188 Downtown, Scottsdale Road/Loop 101) could approach 25 percent by 2030.  
1189 Strategies for achieving this mode split include: improving bicycle, pedestrian,  
1190 fixed-route transit and local circulator transit facilities and services; and  
1191 working within the *General Plan* Land Use Element to promote live, work,  
1192 play, and pedestrian-oriented development types.

1193 Effective strategies for improving mode split is to direct a larger percentage of  
1194 available funding to projects that primarily serve trails

### 1195 **Related Documents**

1196 F1, L4

### 1197 **Policy 5.18**

1198 As technology changes over time, explore opportunities for alternative modes of  
1199 transportation.

### 1200 **Performance Measures**

1201 **PMTransit 5.18.1** Broaden the number of transit alternative modes

### 1202 **Support**

1203 A variety of transit technologies, which range from demand response service  
1204 to HCT, are included as transit improvement options.

- 1205 • Limited Stop/Express Bus

1206 Express buses operate as commuter service during the peak-hour  
1207 and usually connect outlying areas with major activity centers. The  
1208 routes typically serve park-and-ride lots and may parallel fixed route  
1209 service with fewer stops. Vehicles may include additional amenities  
1210 geared toward commuter travel, such as reading lights, and  
1211 reclining seats.

- 1212 • Bus Rapid Transit (BRT)

1213 BRT is a form of higher capacity bus service which combines the  
1214 advantages of rail transit with the flexibility of buses. It uses a  
1215 dedicated or shared guideway to provide limited stop service in  
1216 medium to heavy travel demand corridors. Traffic signal priority is  
1217 typically given to BRT vehicles as they operate in designated bus or  
1218 HOV lanes.

- 1219 • Light Rail Transit (LRT)

1220 LRT is electrically powered, high capacity transit service operating  
1221 on a fixed guideway. It typically operates on two sets of tracks  
1222 within exclusive or shared ROW and serves stations located

1223 approximately every mile. LRT emphasizes speed and travel time  
1224 savings and can operate using multiple vehicles linked together to  
1225 accommodate large passenger volumes.

- Modern Streetcar

1227 Modern streetcar is also electrically powered, HCT service that  
1228 operates on a fixed-guideway. However, modern streetcar systems  
1229 typically operate at street level in mixed traffic in existing urban  
1230 environments. Modern streetcar is usually operated using a single  
1231 vehicle and can operate safely in high traffic and/or high pedestrian  
1232 activity areas to link neighborhoods with activity centers. Modern  
1233 streetcar is distinguished from LRT by smaller, lighter vehicles  
1234 requiring less infrastructure and lower construction costs.

- Electric buses running on batteries
- Fueling technologies

### 1237 Related Documents

1238  
1239

## Goal 6

### Keep High Values

Maintain Scottsdale's high aesthetic values and environmental standards in the city's transportation system.

#### **Policy 6.2**

Sensitively integrate infrastructure along street rights-of-way within the local setting.

#### **Performance Measures**

**PMTransit 6.2.1** Number of bus stops that incorporate environmentally friendly and context sensitive designs

**PMTransit 6.2.2** Percentage of bus stops that incorporate environmentally friendly and context sensitive designs

#### **Support**

Scottsdale has long supported environmentally sensitive streetscapes and has numerous plans documenting these efforts. In 2007, the Federal Highway Administration in a joint paper with American Association of State Highway and Transportation Officials, defined context sensitive solutions to be those treatments that:

- Are in harmony with the community and preserve the environmental, scenic, aesthetic, historic, and natural resource values of the area.
- Are safe for all users
- Solve problems that are agreed upon by a full range of stakeholders, thereby adding lasting value to the community, the environment, and the transportation system.
- Demonstrate effective and efficient use of resources (people, time, and budget) among all parties.

#### **Related Documents**

A5, S56



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**Policy 6.3**

Promote the use of alternative fuels and provide preferred parking for low-emitting and fuel-efficient vehicles.

**Performance Measures**

**PMTransit 6.3.1** Percentage of fuel-efficient transit vehicles

**PMTransit 6.3.2** Percentage alternative fueled transit vehicles

**Support**

A wide range of options are available for light-duty vehicles to reduce greenhouse emissions. Compressed natural gas (CNG) and liquid natural gas (LNG) or propane provides alternative fuel options for light-duty personal and fleet vehicles. In addition, due to the expansion of plug-in electric vehicle technology, hybrid or electric vehicles entering the market are providing more sustainable forms of transportation. Add Diesel Electric hybrid. Broaden support segment.

**Related Documents**

A18, F4

**Policy 6.5**

Promote consistent accessibility and wayfinding elements to be used throughout regional systems.

**Performance Measures**

**PMTransit 6.5.1** Maintain a wayfinding program that helps people find transit stops, especially in the Downtown area where tourists congregate and circulator routes operate

**Support**

People are the single most important component in developing a wayfinding strategy. By identifying user patterns and destinations, wayfinding users understand how the street system operates and how to move through spaces and get directed via signage to their destinations.

**Related Documents**

1298 S24

1299 **Policy 6.7**

1300 Incorporate environmentally sensitive materials and technologies in transportation  
1301 projects/improvements and facilities, including the use of solar technology and  
1302 recycled materials.

1303 **Performance Measures**

1304 **PMTransit 6.7.1** Number of bus stops constructed with environmentally  
1305 sensitive materials

1306 **PMTransit 6.7.2** Number of bus stops using solar technology (Do not  
1307 include summertime solar heating)

1308 **Support**

- 1309 • Continually evaluate new technologies as they become available
- 1310 • Evaluate the use of solar lighting for transit facilities

1311 **Related Documents**

1312 S39

1313 **Policy 6.9**

1314 Dedicate up to two percent of the total eligible costs of all transportation  
1315 improvement projects to the selection, acquisition, fabrication, installation, and  
1316 maintenance of public art.

1317 **Performance Measures**

1318 **PMTransit 6.9.1** Number of transportation improvement projects  
1319 incorporating public art

1320 **PMTransit 6.9.2** Total dollars spent on public art for transportation projects

1321 **PMTransit 6.9.3** Percentage of costs dedicated to public art for streets and  
1322 transit

1323 **Support**

1324 Scottsdale has a long history of dedication and commitment to the arts. Some  
1325 of the city's first settlers were artists, craftsmen, architects, art collectors,  
1326 educators, and others who believed that art should be part of the fabric of the

1327 community. The municipal art collection was formally established in 1967 and  
1328 now includes more than 1,950 total objects (704 municipal and 1250 museum  
1329 pieces). During the past 25 years Scottsdale Public Art (SPA) has  
1330 transformed our 184-square mile city into an interactive outdoor gallery. Many  
1331 of the outdoor installations were completed as a component of a  
1332 transportation project.

1333 **Related Documents**

1334 S63

1335 **Policy 6.13**

1336 Minimize visual and environmental impacts on historic, archaeological, traditional  
1337 cultural places, parklands, and other sensitive uses.

1338 **Performance Measure**

1339 **PMTransit 6.13.1** Number of visual impacts avoided using Environmentally  
1340 Sensitive Lands Ordinance (ESLO)

1341 **Support**

1342 The Environmentally Sensitive Lands Ordinance (ESLO) is a set of zoning  
1343 regulations adopted by the City Council in 1991 (amended in 2001, 2003 and  
1344 2004) to guide development throughout the 134 square miles of desert and  
1345 mountain areas of Scottsdale. These areas are located north and east of the  
1346 Central Arizona Project canal.

1347 **Related Documents**

1348 S39, S73

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1351 **Goal 7**

1352 **Cooperate with Neighboring Communities**

1353 Actively work with adjacent jurisdictions and quasi-governmental agencies to coordinate  
1354 all planned and existing regional links for streets, transit, paths, and trails.

1355 **Policy 7.1**

1356 Reduce transit mobility delays and hindrances during project construction and  
1357 events by working with local and regional agencies.

1358 **Performance Measures**

1359 **PMTransit 7.7.1** Staff time spent participating in local and regional project  
1360 and event coordination and review activities

1361 **Support**

1362 The coordination in the design, planning and implementation for regional and  
1363 local projects and events is important to maintain continuous and useful  
1364 transit links between Scottsdale and its neighbors. Agencies are typically  
1365 notified early in the design phase of projects and events so their concerns  
1366 and related issues can be addressed. Continued coordination takes place  
1367 until the project/event is implemented.

1368 **Related Documents**

1369 A2, A7, A8, A14, M5, M14, M21, M32, M33, P6

1370 **Policy 7.2**

1371 Implement regional transportation plans with adjacent jurisdictions.

1372 **Performance Measures**

1373 **PMTransit 7.2.3** Staff time spent participating in current planning activities  
1374 of joint regional transit projects in Scottsdale

1375 **Support**

1376 Scottsdale works closely with adjacent jurisdictions and the Maricopa  
1377 Association of Governments to implement regional transportation projects  
1378 related to the street network.

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**Related Documents**

A7, A8, F3, M3, M5, M9, M10, M14, M16, M17, M19, M20, M21, M22, M23, M35, P3, P5, P6, P7, P8, P9, S1, S2, T1, U2

**Policy 7.3**

Support an active partnership between Scottsdale citizens, government, and businesses in the development and implementation of transportation and technology solutions.

**Performance Measures**

- PMTransit 7.3.1** Number of partnership agreements
- PMTransit 7.3.2** Number of bus shelters provided by businesses.
- PMTransit 7.3.3** Number of easements for bus stops provided by businesses.

**Support**

Partnerships are critical in the city’s effort to implement transportation and technology solutions. Businesses could help support special shuttles during events, spring training, and high tourist periods.

**Related Documents**

A5, S21, S35, S39, S55, S56, S71

**Policy 7.6**

Develop and implement a form of HCT along Scottsdale Road that connects to the central Phoenix/East Valley LRT system.

**Performance Measures**

- PMTransit 7.6.1** Number of miles of HCT on Scottsdale Rd.

**Support**

The City in cooperation with the Regional Public Transit Authority (RPTA) is in the process of conceptualizing enhancements to Scottsdale Rd. which eventually will transition into a BRT route. The Scottsdale Rd./Rural Rd. Alternatives Analysis study conducted in 2010, studied alignment options between the Frank Lloyd Wright Blvd. and the Tempe Transportation Center.

1408 Later work was initiated on further study for a section between the new North  
1409 Scottsdale Park and Ride and the Tempe rail station at University. Work  
1410 continues to define the service criteria with an implementation date of 2016.

1411 **Related Documents**

1411  
1412

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1413 **Goal 8**

1414 **Enhance Neighborhood Mobility**

1415 **Policy 8.2**

1416 Facilitate pedestrian linkages to transit at schools by providing public transportation  
1417 stops within ¼ mile of all schools along an existing transit route.

1418 **Performance Measures**

1419 **PMTransit 8.2.1** Number of schools with transit stops within one-quarter mile

1420 **Support**

1421 Schools along transit routes will each have a safe bus stop, nearside or  
1422 farside of the school building and as close as possible; but, not in the school  
1423 zone in front of the building. (Buses are not allowed to stop in a school zone  
1424 per Arizona State law).

1425 **Related Documents**

1426 A17

1427 **Insert map showing all schools and bus routes in Scottsdale**

1428

1429 **Goal 9**

1430 **Provide Universal Access**

1431 Create a transportation system that complies with the Americans with Disabilities Act  
1432 and provides accessibility to all users.

1433 **Policy 9.1**

1434 Consider the needs of the entire community and the special needs of children, the  
1435 elderly, and people with impaired mobility in the planning and design of the  
1436 transportation system.

1437 **Performance Measures**

1438 **PMTransit 9.1.1** Number of requests for ADA transportation facilities.

1439 **PMTransit 9.1.2** Percentage of requests for ADA transportation facilities  
1440 that were successfully completed.

1441 **Support**

- 1442 • All Scottsdale transportation projects shall be constructed to meet the  
1443 requirements of the ADA.
- 1444 • Refuge islands should be considered for roadway locations where  
1445 children, pedestrians with disabilities, elderly pedestrians or other slower-  
1446 moving pedestrians (including tourists) cross regularly.
- 1447 • Adjust signal timing to increase the time pedestrians have to cross the  
1448 street in areas with a large population of persons with disabilities, children,  
1449 persons who are elderly, or tourists.
- 1450 • Additional shade should be provided in areas with more elderly persons,  
1451 more children, or more persons with disabilities.

1452 **Related Documents**

1453 U3

1454 **Policy 9.2**

1455 Develop multimodal access guides, which include maps and other information on  
1456 access by people with disabilities to a particular destination, including availability of  
1457 transit and taxi services, and the quality of walking conditions.

1458 **Performance Measures**



1459 **PMTransit 9.2.1** Number of access guides developed

1460 **Support**

1461 *A Multi-Modal Access Guide* is a document that provides concise, customized  
1462 information on how to access a particular destination by various travel modes,  
1463 with special consideration of efficient modes such as walking, cycling and  
1464 public transport. Such a guide typically includes:\*

- 1465 • A map of the area, showing the destination, major roads, nearby  
1466 landmarks, the closest rail station or bus stops, and recommended  
1467 cycling and walking routes.
- 1468 • Information about transit service frequency, fares, first and last runs,  
1469 and public transportation schedules if possible; plus phone numbers  
1470 and web addresses for transit service providers and taxi companies.  
1471 Special transit schedule information can be provided for special events  
1472 that start and end at specified times.
- 1473 • Information on how long it takes to walk from transit stations,  
1474 downtown area and other reference locations to your site. (e.g., “We  
1475 are twenty minutes by bus from the airport, and five minutes by bike  
1476 from downtown”).
- 1477 • Information on how to reach the destination from major transportation  
1478 terminals (bus and train stations, airports, etc.). For example, a Guide  
1479 might include information on airport shuttle services and transit access.
- 1480 • Access arrangements for people with disabilities on public transport  
1481 routes and at train stations
- 1482 • Availability of bicycle facilities, including secure bike parking, showers  
1483 and changing facilities.
- 1484 • Automobile parking availability and price.

1485 ***Related Documents:***

1486 V6

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**Policy 9.3**

Update Scottsdale’s ADA Transition Plan for transportation facilities.

**Performance Measures**

- PMTransit 9.3.1** Identify facilities that limit access for persons with disabilities
- PMTransit 9.3.2** Number of curb ramps adjacent to bus stops retrofitted based on curb ramp schedule
- PMTransit 9.3.3** Number of upgraded detectable warning signs

**Support**

Local governments must design and construct all new facilities to be readily accessible and useable by individuals with disabilities. Improvements must meet American Disability Act Accessibility Guidelines (ADAAG) standards including curb ramps with detectable warnings as well as unobstructed sidewalks with accessible slope and width. In addition, local governments must retrofit nonconforming curb ramps and detectable warnings to the maximum extent feasible when a roadway is altered (e.g. reconstruction, widening, or resurfacing).

**Related Documents:**

U3

**Policy 9.4**

Continue to offer efficient and effective paratransit services for senior and disabled citizens

**Performance Measures**

- PMTransit 9.4.1** Keep number of complaints per boarding less than one percent
- PMTransit 9.4.2** Mean time complaint resolution at two business days or less

**Support**

Paratransit is directed at two specific markets: seniors and persons with disabilities. Mobility training is a personalized training service provided to

1519 seniors and persons with disabilities. This training matches an instructor with  
1520 similar physical abilities to the user and the training is accomplished on the  
1521 bus routes the consumer is most likely to use. In addition, Valley Metro  
1522 provides group travel training through senior centers on routes leading to the  
1523 senior centers. Continued mobility training in all forms encourages citizens to  
1524 utilize the fixed route system.

1525 Paratransit is a demand responsive transit service that does not follow a fixed  
1526 route. There are three types of paratransit service in the City of Scottsdale.  
1527 The East Valley Dial-a-Ride provides service for those unable to access  
1528 regular transit service (passengers with disabilities and seniors). ADA  
1529 requires that complementary paratransit service be provided in all areas  
1530 within ¼ mile of fixed route transit service. East Valley Dial-a-Ride provides  
1531 ADA and non-ADA service in Scottsdale everyday day (including holidays)  
1532 from 4 a.m. to 1 a.m.

1533 Five East Valley cities (Chandler, Gilbert, Mesa, Tempe, and Scottsdale)  
1534 partnered twelve years ago to form EVDAR and contract with the Regional  
1535 Public Transit Authority (RPTA) to provide the EVDAR service. In FY 12, the  
1536 participating East Valley cities researched less costly alternative methods of  
1537 delivering the same, or higher, level of dial a ride service. The Regional Public  
1538 Transit Authority (RPTA) released an RFP based on a modified broker model  
1539 where one company provides oversight, a call center, and a portion of the  
1540 service. A contract with Total Transit (TT) was signed to provide 50 percent of  
1541 the service and operate the call center beginning July 1, 2012. In addition,  
1542 Total Transit developed sub contracts with nonprofit agencies (5 percent of  
1543 service) and other transportation providers (45% of service). The vehicles  
1544 used are owned by service providers instead of the RPTA. Fuel efficient taxi  
1545 vehicles are used to provide the majority of the service, with larger wheel  
1546 chair lift equipped vans used when client needs require.

1547 Implemented in November 2000, the City of Scottsdale's Cab Connection  
1548 program is an alternative to Dial-a-Ride for some users. This program offers

1549 more flexibility and greater independence. The program offers a set amount  
1550 of vouchers per month per user (currently 16). Vouchers are subsidized by  
1551 the City of Scottsdale at the rate of 80% up to a maximum of \$10.00. The  
1552 Cab Connection program compared to EVDAR remains less expensive for  
1553 the City to provide

1554 **Related Documents**

1555 S58  
1556

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1557 **Goal 10**

1558 **Invest Wisely**

1559 Focus investments on improvements which add long-term value and minimize life cycle  
1560 costs.

1561 **Policy 10.2**

1562 Through the annual budget process, prioritize sufficient funding to repair and replace  
1563 aging infrastructure.

1564 **Performance Measures**

1565 **PMTransit 10.2.1** Number of bus shelter improvements

1566 **PMTransit 10.2.2** Number of bus shelter replacements

1567 **Support**

1568 Scottsdale is a capable steward of public assets and funds, a city that  
1569 anticipates trends with provisions to address future challenges, manages  
1570 resources competently, and delivers high quality public services. Scottsdale's  
1571 citizens expect that public agencies will invest in the transportation system in  
1572 ways that support the community's goals and values.

1573 **Related Documents**

1574 S45

1575 **Policy 10.3**

1576 Optimize the mobility of people, goods, and information for the expected buildout of  
1577 the city.

1578 **Performance Measures**

1579 **PMTransit 10.3.1** Miles of new "Complete Streets" added to system

1580 **PMTransit 10.3.2** Miles of transit routes in city

1581 **Support**

1582 Implement the city's "Complete Streets" policy to provide multiple modes of  
1583 transportation throughout the city's transportation network; and for the city to  
1584 provide connectivity between origins, destinations and various transportation  
1585 modes.

1586 **Related Documents**

1587 F4, S39

1588 **Policy 10.4**

1589 Encourage partnerships between the city and other entities.

1590 **Performance Measures**

1591 **PMTransit 10.4.1** Amount of grant funds acquired for transit facilities

1592 **PMTransit 10.4.2** Participation in state and regional studies

1593 **PMTransit 10.4.3** Number of joint partnership projects with other agencies

1594 **Support**

- 1595 • Partner with other public agencies to share regional project costs
- 1596 • Participate in development agreements to share costs with private organizations such as homeowners associations, developers, and
- 1597 businesses.
- 1598 • Apply for Federal, state, and regional funding to reduce local costs
- 1599 • Work with MAG to maximize funding opportunities for Scottsdale projects
- 1600

1601 **Related Documents**

1602 A16

1603 **Policy 10.5**

1604 Minimize capital, operating, and maintenance costs for transit while providing as  
1605 much service as possible.

1606 **Performance Measures**

1607 **PMTransit 10.5.1** Develop a transit asset management plan

1608 **Support**

1609 As a statutory regulation mandated by federal legislation known as Moving  
1610 Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), the National Transit Asset  
1611 Management System regulation will:

- 1612 • Define “state of good repair”
- 1613 • Set objective standards for measuring the conditions of capital assets  
1614 (including equipment, facilities, infrastructure, and rolling stock)

- 1615                   • Establish performance measures for state of good repair, under which  
1616                   FTA grantees will be required to set targets

1617                   The city of Scottsdale will be required to develop a transit asset management  
1618                   plan (TAMP) that must include capital asset inventories, condition  
1619                   assessments, and investment prioritization.

1620                   **Related Documents**

1621                   U24

1622                   **Policy 10.6**

1623                   Identify maintenance responsibility for existing trails, paths, streets, and other  
1624                   transportation-related facilities.

1625                   **Performance Measures**

1626                   **PMTransit 10.6.1** Continue weekly upkeep of 600 bus stops citywide

1627                   **PMTransit 10.6.2** Number of times a bus stop is cleaned as well as time  
1628                   spent per bus stop

1629                   **Support**

1630                   An affective transit system is dependent on long-term upkeep and a regular  
1631                   cycle of transit infrastructure maintenance. Well-documented maintenance  
1632                   standards, evaluation schedules, and maintenance cycles will improve the  
1633                   level of service for transit riders citywide. On a weekly cycle, the city  
1634                   currently maintains 600 bus stops that include 250 bus shelters citywide.

1635                   **Related Documents**

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1640 **Goal 11**

1641 **Manage the Right of Way**

1642 Effectively and efficiently manage and coordinate activities that occur within the public  
1643 ROW in a way that enhances safety, coordinates multiple activities, protects existing  
1644 infrastructure, and preserves mobility.

1645 **Policy 11.2**

1646 Review construction and barricade plans that impact transportation uses of the  
1647 ROW.

1648 **Performance Measures**

1649 **PMTransit 11.2.1** Staff time to review barricade plans

1650 **PMTransit 11.2.2** Staff time to review construction plans

1651 **Support**

1652 Make sure impacts to ROW that include all modes of travel are included in  
1653 construction and barricade plans.

1654 **Related Documents**

1655 S39, S55

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## Related Documents

- A1 American Association of Retired Persons. AARP Public Policy Institute. (2002). *Understanding Senior Transportation: Report and Analysis of a Survey of Consumers Age 50+*.  
<http://www.tsc.berkeley.edu/newsletter/Aug02/aarpreport.pdf>
- A2 American Association of State Highway and Transportation Officials. (July 2004). *Guide for the Planning, Design, and Operation of Pedestrian Facilities*.
- A3 American Association of State Highway and Transportation Officials. (2012). *Guide for the Development of Bicycle Facilities*.
- A4 American Association of State Highway and Transportation Officials. (2011). *A Policy on Geometric Design of Highways and Streets, 6<sup>th</sup> Edition*.
- A5 American Association of State Highway and Transportation Officials. U. S. Department of Transportation, Federal Highway Administration. (March 2007). *Results of Joint AASHTO/FHWA CSS Strategic Planning Process*. Center for Transportation and the Environment. North Carolina State University.  
[http://contextsensitivesolutions.org/content/reading/results\\_of\\_joint\\_aashto\\_fhwa\\_co//resources/portlandsummary\\_final\\_050107.pdf](http://contextsensitivesolutions.org/content/reading/results_of_joint_aashto_fhwa_co//resources/portlandsummary_final_050107.pdf)
- A6 Arizona Department of Transportation. (June 2012). *ADOT Bicycle Safety Action Plan: Final Report*.  
[http://www.azdot.gov/mpd/systems\\_planning/PDF/BSAP/Final.pdf](http://www.azdot.gov/mpd/systems_planning/PDF/BSAP/Final.pdf)
- A7 Arizona Department of Transportation. (November 2011). *What Moves You Arizona: A Transportation Plan for 2035; Arizona's Long-Range Transportation Plan*. <http://www.whatmovesyourarizona.gov>
- A8 Arizona Department of Transportation. (August 2003). *Statewide Bicycle & Pedestrian Plan*. <http://www.azbikeped.org/statewide-bicycle-pedestrian.html>

- A9 Arizona Revised Statutes Title 49 §3-8. *Travel Reduction Programs*.  
<http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49>
- A10 Association of Pedestrian and Bicycle Professionals (2009). *Bicycle Parking Guidelines*. Association of Pedestrian and Bicycle Professionals (www.apbp.org), Bicycle Information Center  
<http://www.bicyclinginfo.org/engineering/parking.cfm>
- A11 Alphand, F., U. Noelle, and B. Guichet. (1991) *Roundabouts and Road Safety: State of the Art in France, In Intersections without Traffic Signals II*. Springer-Verlag, Germany (W. Brilon, ed.), pp. 107–125.
- A12 Arizona Revised Statutes Title 48 §28-703. *Alteration of speed limits by local authority*. <http://www.azleg.gov/ars/28/00703.htm>
- A13 American Society of Civil Engineers, National Association of Home Builders, and ULI - the Urban Land Institute. (1990). *Residential Streets*.
- A14 Arizona Revised Statutes Title 28 §101-41. Definitions: Pedestrian  
<http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=28>
- A15 Arizona Department of Transportation. (na). What is Rubberized Asphalt?  
[http://www.azdot.gov/quietroads/what\\_is\\_rubberized\\_asphalt.asp](http://www.azdot.gov/quietroads/what_is_rubberized_asphalt.asp)
- A16 American Planning Association. (April 2010). Policy Guide on Surface Transportation.  
<http://www.planning.org/policy/guides/adopted/surfacetransportation.htm>
- A17 Arizona Department of Transportation. (October 2006). *Traffic Safety for School Areas Guidelines*. 30-012  
[http://www.azdot.gov/highways/traffic/Standards/School\\_Safety/SchoolSafety\\_120106.pdf](http://www.azdot.gov/highways/traffic/Standards/School_Safety/SchoolSafety_120106.pdf)
- A18 Arizona Department of Environmental Quality. (May 2012). *State Implementation Plan*.  
<http://www.azdeq.gov/function/forms/docs.html#sip>

- A19 American Institute of Graphic Arts, AIGA . (2005), *Symbol Signs*, American Institute of Graphic Arts ([www.aiga.org/content.cfm?ContentAlias=symbolsigns](http://www.aiga.org/content.cfm?ContentAlias=symbolsigns)).
- B1 Browning, R. (1999), End-Of-The-Trip Facility Design Program, Oregon Department of Environmental Quality ([www.deq.state.or.us](http://www.deq.state.or.us)); available at the Victoria Transport Policy Institute ([www.vtpi.org/tdm/tdm85.htm](http://www.vtpi.org/tdm/tdm85.htm)).
- B2 Brilon, W. and B. Stuwe. (1993). *Capacity and Design of Traffic Circles in Germany*. In Transportation Research Record 1398. Washington, D.C.: Transportation Research Board, National Research Council.
- B3 Brown, M. (1995). *TRL State of the Art Review—The Design of Roundabouts*. London: HMSO.
- B4 Bishop, K. (1989). American Planning Association, Planning Advisory Reports. *Designing Urban Corridors*. Chicago.
- B5 Ben-Joseph, E. (na). *Residential Street Standards & Neighborhood Traffic Control: A Survey of Cities' Practices and Public Officials' Attitudes*. Institute of Urban and Regional Planning, University of California at Berkeley. <http://web.mit.edu/ejb/www/Official%20final.pdf>
- B6 Bracher, T. (2000), "Demand Characteristics & Co-operation Strategies for the Bicycle & Railway Transport Chain," *World Transport Policy and Practice*, Vol. 6, No. 4 ([www.ecoplan.org/wtpp](http://www.ecoplan.org/wtpp)), pp. 18-24.
- B7 Bureau of Transportation Statistics (BTS). (1992), *Summary of Travel Trends; 1990 National Personal Transportation Survey*, Bureau of Transportation Statistics, USDOT ([www.fhwa.dot.gov/ohim/nptspage.htm](http://www.fhwa.dot.gov/ohim/nptspage.htm)).
- B8 Burden, Dan. (May 2009) *22 Benefits of Street Trees*. Walkable Communities. May, 2006. 25 Aug 2009. <http://www.walkable.org/assets/downloads/22%20Benefits%20of%20Urban%20Street%20Trees.pdf>
- B9 Bicycle Cellar. Tempe, Arizona's cycling commuter support station. <http://www.thebicyclecellar.com/>

- B10 DeMaio, P. (2009). *Bike-sharing: History, Impacts, Models of Provision, and Future*. Journal of Public Transportation, Vol. 12, No. 4.
- B11 Bergh, C.; Retting, R.A.; and Myers, E.J. 2005. Continued reliance on traffic signals: the cost of missed opportunities to improve traffic flow and safety at urban intersections. Arlington, VA: Insurance Institute for Highway Safety.
- B12 Brilon, W.; Stuwe, B.; and Drews, O. 1993. Sicherheit und Leistungsfähigkeit von Kreisverkehrsplätzen. FE Nr 77359/91. Bochum, Germany: Lehrstuhl für Verkehrswesen, Ruhr-Universität Bochum. Cited by: Elvik R. Effects on road safety of converting intersections to roundabouts: a review of evidence from non-US studies. *Transportation Research Record* 1847:1-10.
- B13 Brude, U. and Larsson, J. 2000. What roundabout design provides the highest possible safety? *Nordic Road & Transport Research* 2:17-21.
- C1 Cortright, J. (2009), *Walking the Walk: How Walkability Raises Home Values in U.S. Cities*, CEOs for Cities ([www.ceosforcities.org](http://www.ceosforcities.org)); at [www.ceosforcities.org/files/WalkingTheWalk\\_CEOsforCities1.pdf](http://www.ceosforcities.org/files/WalkingTheWalk_CEOsforCities1.pdf).
- C2 Congress for the New Urbanism. (May 2009). *Saving Lives, Time, Money: Building Better Streets*. CNU Report. Chicago. [http://www.cnu.org/sites/www.cnu.org/files/CNUEmergency%20Response\\_FINAL.pdf](http://www.cnu.org/sites/www.cnu.org/files/CNUEmergency%20Response_FINAL.pdf)
- C3 Cambridge Systematics, Inc. 2011. *Crashes vs. Congestion: What's the Cost to Society?* Washington D.C.: AAA Foundation. [http://www.camsys.com/pubs/2011\\_AAA\\_CrashvCongUpd.pdf](http://www.camsys.com/pubs/2011_AAA_CrashvCongUpd.pdf)
- C4 Cambridge Systematics, Inc., PB Consult, Inc., and Texas Transportation Institute. 2006. *Performance Measures and Targets for Transportation Asset Management*, NCHRP Report 551, Washington D.C.: National Academy Press. [http://www.trb.org/publications/nchrp/nchrp\\_rpt\\_551.pdf](http://www.trb.org/publications/nchrp/nchrp_rpt_551.pdf)

- C5 Cambridge Systematics, Inc. 2000. *A Guidebook for Performance-Based Transportation Planning*, NCHRP Report 446, Washington D.C.: National Academy Press.  
<http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=901>
- D1 Dumbaugh, Eric. (2005). "Safe Streets, Livable Streets." *Journal of the American Planning Association*, Volume 71-3 (pp 283-300).
- E1 Edwards, M. (2000). *Community Guide to Development Impact Analysis*. Madison, WI: Wisconsin Land Use Research Program.  
[http://www.lic.wisc.edu/shapingdane/facilitation/all\\_resources/impacts/analysis\\_traffic.htm](http://www.lic.wisc.edu/shapingdane/facilitation/all_resources/impacts/analysis_traffic.htm)
- E2 Ellin, N. (1997). *Architecture of Fear*. Princeton Architectural Press. New York.
- E3 Eisenman, S.; Josselyn, J.; List, G.; Persaud, B.; Lyon, C.; Robinson, B.; Blogg, M.; Waltman, E.; and Troutbeck, R. 2004. *Operational and safety performance of modern roundabouts and other intersection types*. Final Report, SPR Project C-01-47. Albany, NY: New York State Department of Transportation.
- F1 FIA – UNEP (2011), *Share the Road: Investment in Walking and Cycling Road Infrastructure*, FIA Foundation for Automobiles and Society and the United Nations Environmental Program (<http://www.unep.org>);  
<http://www.unep.org/transport/sharetheroad/PDF/SharetheRoadReportweb.pdf>
- F2 Florida Department of Transportation Transit Office. (June 2010). *Guidelines for Enhancing Intermodal Connections at Florida Transit Stations*.  
<http://www.dot.state.fl.us/transit/Pages/EnhancingIntermodalConnections.pdf>
- F3 Fountain Hills. (May 2010). *Town of Fountain Hills Strategic Plan*.

<http://www.fh.az.gov/strategic-plan.aspx>

- F4 International Council for Local Environmental Initiatives. (2001). *Sustainable Transportation Options for Protecting the Climate: A Guide for Local Governments*.  
[http://www.iclei.org/documents/Global/Progams/CCP/Sust\\_Trans\\_Options.pdf](http://www.iclei.org/documents/Global/Progams/CCP/Sust_Trans_Options.pdf)
- F5 Flannery, A. and T.K. Datta. (1996). *Modern Roundabouts and Traffic Crash Experience in the United States*. In Transportation Research Record 1553. Washington, D.C.: Transportation Research Board, National Research Council.
- F6 Future Cars.com. <http://www.futurecars.com/articles/electric-vehicles/future-of-electric-cars>
- G1 Garder, P. (1998). *The Modern Roundabouts: The Sensible Alternative for Maine*. Maine Department of Transportation, Bureau of Planning, Research and Community Services, Transportation Research Division.
- I1 Institute of Transportation Engineers. (March 1998). *Design and Safety of Pedestrian Facilities*.  
<http://www.ite.org/emodules/scriptcontent/Orders/ProductDetail.cfm?pc=R P-026A>
- I2 Institute of Transportation Engineers. (2006). *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*.  
<http://ite.org/bookstore/rp036.pdf>
- I3 Institute of Transportation Engineers. (July 2007). *Road Diet Handbook: Setting Trends for Livable Streets*.
- I4 Intelligent Transportation Society of America. (May 2005). *Transit Signal Priority (TSP): A Planning and Implementation Handbook*.  
<http://www.fta.dot.gov/documents/TSPHandbook10-20-05.pdf>
- I5 Institute of Electrical and Electronics Engineers. (2012). *Driverless cars by 2040*. [http://www.ieee.org/about/news/2012/5september\\_2\\_2012.html](http://www.ieee.org/about/news/2012/5september_2_2012.html)

- I6 Isebrands, H. 2009. Crash analysis of roundabouts and high-speed rural intersections. *Transportation Research Record* 2096:1-7.
- K1 Kansas City (Missouri), City Planning and Development Department. (December 2002). *Kansas City Walkability Plan*.  
<http://www.kcmo.org/CKCMO/Depts/CityPlanningandDevelopment/AdoptedPlans/OtherPlans/WALKABILITY>
- K2 Kittleson and Associates. Roundabout Inventory Database. <http://roundabout.kittelson.com/Roundabouts>.
- L1 (LA1) Los Angeles, Department of City Planning. *Off-street Parking and Driveways*.  
[http://www.urbandesignla.com/walkability/Offstreet\\_Parking.pdf](http://www.urbandesignla.com/walkability/Offstreet_Parking.pdf)
- L2 League of American Bicyclists. *Bicycle Friendly Community Program*.  
[http://www.bikeleague.org/programs/bicyclefriendlyamerica/index\\_about.php](http://www.bikeleague.org/programs/bicyclefriendlyamerica/index_about.php)
- L3 League of American Bicyclists. (Fall 2011). *Bicycle Friendly Community Application, Scottsdale, AZ*.
- L4 Litman, T. (2011), *Evaluating Non-Motorized Transport Benefits and Costs*, Victoria Transport Policy Institute ([www.vtpi.org](http://www.vtpi.org)); at [www.vtpi.org/nmt-tdm.pdf](http://www.vtpi.org/nmt-tdm.pdf); originally published as “Quantifying Bicycling Benefits for Achieving TDM Objectives,” *Transportation Research Record* 1441, Transportation Research Board ([www.trb.org](http://www.trb.org)), 1994, pp. 134-140.
- L5 Local Government Commission. (na). *Traffic Calming and Emergency Response*. LGC. Sacramento, CA.  
[http://www.lgc.org/freepub/docs/community\\_design/fact\\_sheets/er\\_traffic\\_calming.pdf](http://www.lgc.org/freepub/docs/community_design/fact_sheets/er_traffic_calming.pdf)
- L6 Local Government Commission. (na). *Street Design and Emergency Response*. LGC. Sacramento, CA.  
[http://www.lgc.org/freepub/docs/community\\_design/fact\\_sheets/er\\_street\\_design.pdf](http://www.lgc.org/freepub/docs/community_design/fact_sheets/er_street_design.pdf)

- L7 Local Government Commission. (na). *Emergency Response and Traditional Neighborhood Street Design*. LGC. Sacramento, CA.  
[http://www.lgc.org/freepub/docs/community\\_design/fact\\_sheets/er\\_street\\_design.pdf](http://www.lgc.org/freepub/docs/community_design/fact_sheets/er_street_design.pdf)
- L8 Litman, T. (July 2012). *Land Use Impacts on Transport, How Land Use Factors Affect Travel Behavior*. Victoria Transport Policy Institute. Victoria, Canada. [www.vtpi.org/landtravel.pdf](http://www.vtpi.org/landtravel.pdf)
- L9 Litman, T. (2003), "Measuring Transportation: Traffic, Mobility and Accessibility," *ITE Journal* ([www.ite.org](http://www.ite.org)), Vol. 73, No. 10, October, pp. 28-32, at [www.vtpi.org/measure.pdf](http://www.vtpi.org/measure.pdf).
- L10 Loukaitou-Sideris, A (2009), *How to Ease Women's Fear of Transportation Environments: Case Studies and Best Practices*, Mineta Transportation Institute (<http://transweb.sjsu.edu>); at <http://www.transweb.sjsu.edu/project/2611.html>
- L11 League of American Bicyclists. (Fall 2011). *Bicycle Friendly Community Application Feedback*, Scottsdale, AZ.
- M1 Mandavilli, S.; Retting, R.A. and McCartt, A.T. 2008. Crash patterns and potential engineering countermeasures at Maryland roundabouts. *Traffic Injury Prevention* 10:44-50. **Review this document.**
- M2 Maricopa Association of Governments. (April 1997). *Design Concepts for the Papago Trail*. [www.azmag.gov/addons/MAG/download.asp?ID=6814](http://www.azmag.gov/addons/MAG/download.asp?ID=6814)
- M3 Maricopa Association of Governments. (December 1999). *Pedestrian Plan 2000*. [www.azmag.gov/addons/MAG/download.asp?ID=6821](http://www.azmag.gov/addons/MAG/download.asp?ID=6821)
- M4 Maricopa Association of Governments. (November 2000). *MAG ITS Strategic Plan Update*.  
[www.azmag.gov/addons/MAG/download.asp?ID=5662](http://www.azmag.gov/addons/MAG/download.asp?ID=5662)
- M5 Maricopa Association of Governments. (February 2001). *Regional Off-street System Plan*.  
<http://www.azmag.gov/addons/MAG/download.asp?ID=11247>



- M6 Maricopa Association of Governments. (January 2004). *MAG Regional Concept of Transportation Operations: Guidelines for Regional Transportation Operations*.  
[www.azmag.gov/addons/MAG/download.asp?ID=7414](http://www.azmag.gov/addons/MAG/download.asp?ID=7414)
- M7 Maricopa Association of Governments. (April 2005). *Pedestrian Policies and Design Guidelines*.  
[www.azmag.gov/addons/MAG/download.asp?ID=6391](http://www.azmag.gov/addons/MAG/download.asp?ID=6391)
- M8 Maricopa Association of Governments. (October 2005). *MAG Strategic Transportation Safety Plan*.  
[www.azmag.gov/Documents/pdf/cms.../strategic\\_safety\\_plan226438.pdf](http://www.azmag.gov/Documents/pdf/cms.../strategic_safety_plan226438.pdf)
- M9 Maricopa Association of Governments. (2007). *Regional Bikeway Master Plan*. [www.azmag.gov/bike/pdf/MAG\\_2007-Regional-Bikeway-Master-Plan.pdf](http://www.azmag.gov/bike/pdf/MAG_2007-Regional-Bikeway-Master-Plan.pdf)
- M10 Maricopa Association of Governments. (January 2010). *MAG Regional Transit Framework*. <http://www.bqaz.org/frameFinalReport.asp?mS=m12>
- M11 Maricopa Association of Governments. (June 2010). *MAG Regional ITS Architecture*. [http://www.azmag.gov/Documents/ITS\\_2010-07-06\\_MAG-Regional-ITS-Architecture-Final-Report.pdf](http://www.azmag.gov/Documents/ITS_2010-07-06_MAG-Regional-ITS-Architecture-Final-Report.pdf)
- M12 Maricopa Association of Governments. (2011). *Complete Streets Guide*.  
<http://www.azmag.gov/addons/MAG/download.asp?ID=9182>
- M13 Maricopa Association of Governments. (September 2011). *Private Probe Vehicle Data for Real-Time Applications*.  
[www.azmag.gov/addons/MAG/download.asp?ID=10557](http://www.azmag.gov/addons/MAG/download.asp?ID=10557)
- M14 Maricopa Association of Governments. (July 2010). *Regional Transportation Plan 2010 Update*.  
[http://www.azmag.gov/Documents/RTP\\_2010-Annual-Report\\_Final\\_v17.pdf](http://www.azmag.gov/Documents/RTP_2010-Annual-Report_Final_v17.pdf)
- M15 Maricopa Association of Governments. (n.d.). *Human Services Coordination Transportation Plan – FY2013 Plan Update*.

[http://www.azmag.gov/Documents/EaPWD\\_2012-05-01\\_Final-FY2013-Human-Services-Coordination-Transportation-Plan.pdf](http://www.azmag.gov/Documents/EaPWD_2012-05-01_Final-FY2013-Human-Services-Coordination-Transportation-Plan.pdf)

- M16 Maricopa Association of Governments. (in process). *Sustainable Transportation & Land Use Integration Study*.  
<http://www.bqaz.org/sustainOverview.asp?mS=m16>
- M17 Maricopa Association of Governments. (in process). *Central Phoenix Regional Framework Study* (in process).  
<http://www.bqaz.org/phxFramework.asp>
- M18 Maricopa County. (July 1997). *Maricopa County Trip Reduction Ordinance, Ordinance No. P-7*.  
[http://www.maricopa.gov/eq/divisions/trip\\_reduction/docs/pdf/1997ord.pdf](http://www.maricopa.gov/eq/divisions/trip_reduction/docs/pdf/1997ord.pdf)
- M19 Maricopa County. (August 2004). *Maricopa County Trail System Plan*.  
<http://www.maricopa.gov/parks/MaricopaTrail/>
- M20 Maricopa County Department of Transportation. (May 1999). *Bicycle System Plan*. [www.mcdot.maricopa.gov/bicycle/Docs/bikeplan.PDF](http://www.mcdot.maricopa.gov/bicycle/Docs/bikeplan.PDF)
- M21 Maricopa County Department of Transportation in cooperation with U.S. Bureau of Reclamation; State of Arizona; and the cities of Mesa, Peoria, Phoenix, and Scottsdale. (April 2004). *Feasibility Study for a Multiuse Path along the Central Arizona Project Aqueduct System*.
- M22 Maricopa County Department of Transportation. (August 2008). *Carefree Highway Access Management & Corridor Improvement Study: I-17 to Scottsdale Road*.
- M23 Maricopa County Department of Transportation. (June 2011). *Major Streets and Routes Plan*. [http://www.mcdot.maricopa.gov/technical/eng-manuals/2011-June\\_MCDOT-MSRP.pdf](http://www.mcdot.maricopa.gov/technical/eng-manuals/2011-June_MCDOT-MSRP.pdf)
- M24 Metropolitan Area Planning Council, Boston. *Creating a "Park Once" District: Less Driving, More Walking*.  
<http://www.mapc.org/resources/parking-toolkit/parking-issues-questions/create-park-once-district>

- M25 Mineta Transportation Institute. (June 2007). *How Far, By Which Route, and Why? A Spatial Analysis of Pedestrian Preference*. MTI 06-06.  
Schlossberg, Marc, & Agrawal, A. W.  
<http://transweb.sjsu.edu/mtiportal/research/publications/documents/06-06/MTI-06-06.pdf>
- M26 Maycock, G., and R.D. Hall. (1984). *Crashes at four-arm roundabouts. TRRL Laboratory Report LR 1120*. Crowthorne, England: Transport and Road Research Laboratory.
- M27 Millis, John. Instantaneous Matter Transport: Could we one day be saying “Beam me up Scotty”? About.com Space / Astronomy.  
<http://space.about.com/od/Space-and-Astronomy-Star-Trek/a/Instantaneous-Matter-Transport.htm>
- M28 Magnetic Levitation Technology. <http://www.maglev.net/>
- M29 Maricopa County. (na). *Maricopa County Trip Reduction Program*.  
[http://www.maricopa.gov/aq/divisions/trip\\_reduction/Default.aspx](http://www.maricopa.gov/aq/divisions/trip_reduction/Default.aspx)
- M30 Maricopa County. (2011). *Maricopa County Trip Reduction Program Annual Report 2011*.  
[http://www.maricopa.gov/aq/divisions/trip\\_reduction/docs/pdf/2011AnnualReport.pdf](http://www.maricopa.gov/aq/divisions/trip_reduction/docs/pdf/2011AnnualReport.pdf)
- M31 Muhlhausen, J. (2005), *Wayfinding Is Not Signage: Signage Plays An Important Part Of Wayfinding – But There's More*,  
([www.signweb.com/ada/cont/wayfinding0800.html](http://www.signweb.com/ada/cont/wayfinding0800.html)).
- M32 Maricopa Association of Governments. (July 2010). *Transportation Improvement Program*  
[http://www.azmag.gov/Documents/1\\_TIP\\_2010-07-28\\_FINAL-Transportation-Improvement-Program-FY2011-FY2015\\_v2.pdf](http://www.azmag.gov/Documents/1_TIP_2010-07-28_FINAL-Transportation-Improvement-Program-FY2011-FY2015_v2.pdf)
- M33 Maricopa Associations of Governments. (September 2011). *Arterial Life Cycle Program*.

<http://www.azmag.gov/Projects/Project.asp?CMSID2=1065&MID=Transportation#>

- M34 Michigan Department of Transportation. (2012). *Review of National Association of City Transportation Officials (NACTO) Bicycle Facilities*. [http://www.michigan.gov/documents/mdot/MDOT\\_Research\\_Report\\_RC1572\\_Part5\\_387512\\_7.pdf](http://www.michigan.gov/documents/mdot/MDOT_Research_Report_RC1572_Part5_387512_7.pdf)
- M35 Maricopa Associations of Governments. (November 2003). *Regional Transportation Plan*. <http://www.azmag.gov/Documents/pdf/cms.resource/RTP-Final-11-25-03.pdf>
- M36 Michigan Department of Transportation, (2012). *Pedestrian and Bicycle Crash Data Analysis: 2005 -2010*.
- M37 Mandavilli, S.; McCartt, A.; and Retting, R.A. 2009. Crash patterns and potential engineering countermeasures at Maryland roundabouts. *Traffic Injury Prevention* 10:44-50.
- M38 Mandavilli, S.; Russell, E.R.; and Rys, M. 2004. Modern roundabouts in United States: an efficient intersection alternative for reducing vehicular emissions. Poster presentation at the 83rd Annual Meeting of the Transportation Research Board, Washington DC.
- M39 Mayhew, D.R.; Simpson, H.M.; and Ferguson, S.A. 2006. Collisions involving senior drivers: high-risk conditions and locations. *Traffic Injury Prevention* 7:117-24.
- N1 National Association of City Transportation Officials. (2012). *Urban Bikeway Design Guide, Second Edition*. <http://nacto.org/cities-for-cycling/design-guide/>
- N2 National Complete Streets Coalition and American Planning Association. (2010). *Complete Streets: Best Policy and Implementation Best Practices*. <http://www.planning.org/apastore/search/Default.aspx?p=4060>

- N3 Nelson, A. (2012), *Your Wheels, On The Bus: Allowing Strollers On Transit—A Mom’s Report*, Sightline Institute ([www.sightline.org](http://www.sightline.org)); at <http://daily.sightline.org/2012/01/10/your-wheels-on-the-bus>.
- N4 Nabors, D. et al. (2007), *Pedestrian Road Safety Audit Guidelines and Prompt Lists*, Pedestrian and Bicycle Information Center ([www.pedbikeinfo.org](http://www.pedbikeinfo.org)), Federal Highway Administration Office of Safety; at <http://drusilla.hsra.unc.edu/cms/downloads/PedRSA%20-%20FINAL%20-%20high-quality.pdf>.
- N5 National Center for Safe Routes to School. (November 2011). *How Children Get to School. School Travel Patterns for 1969 – 2009*. [http://www.saferoutesinfo.org/sites/default/files/resources/NHTS\\_school\\_travel\\_report\\_2011\\_0.pdf](http://www.saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf)
- N6 National Complete Streets Coalition. (2010), *Implementing Complete Streets 4: Sustainable Complete Streets*. <http://www.smartgrowthamerica.org/documents/cs/factsheets/cs-greenstreets.pdf>
- N7 Niittymäki, J. and Höglund P.G. 1999. Estimating vehicle emissions and air pollution related to driving patterns and traffic calming. Presented at the Urban Transport Systems Conference, Lund, Sweden.
- P1 Pedestrian and Bicycle Information Center. *PBIC Case Study, Intermodal Transportation Planning and Development: A Closer look at linking transit to bicycling and walking*. <http://katana.hsra.unc.edu/cms/downloads/PLA.IntermodalTransportationPlanningandDevelopment.pdf>
- P2 Pedestrian and Bicycle Information Center. (February 2007). *Safe Routes to School Guide, Introduction to Safe Routes to School: the Health, Safety and Transportation Nexus*. Support from the National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Centers for Disease Control and Prevention (CDC) and Institute of

- Transportation Engineers (ITE). [http://guide.saferoutesinfo.org/pdf/SRTS-Guide\\_Introduction.pdf](http://guide.saferoutesinfo.org/pdf/SRTS-Guide_Introduction.pdf)
- P3 Paradise Valley. (March 2012). *Town of Paradise Valley General Plan: Mobility Element*. <http://www.ci.paradise-valley.az.us/DocumentCenter/Home/View/2654>
- P4 Partnership for Prevention (April 2008. Updated April 2009). *Places for Physical Activity: Facilitating Development of a Community Trail and Promoting Its Use to Increase Physical Activity Among Youth and Adults—An Action Guide*. *The Community Health Promotion Handbook: Action Guides to Improve Community Health*. Washington, DC: Partnership for Prevention;
- P5 Phoenix. (2002). *General Plan 2002, Bicycling*. [http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web\\_content/pdd\\_pz\\_pdf\\_00162.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web_content/pdd_pz_pdf_00162.pdf)
- P6 Phoenix. (2002). *General Plan 2002, Circulation*. [http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web\\_content/pdd\\_pz\\_pdf\\_00160.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web_content/pdd_pz_pdf_00160.pdf)
- P7 Phoenix. (2002). *General Plan 2002, Open Space*. [http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web\\_content/pdd\\_pz\\_pdf\\_00168.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web_content/pdd_pz_pdf_00168.pdf)
- P8 Phoenix. (2002). *General Plan 2002, Recreation*. [http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web\\_content/pdd\\_pz\\_pdf\\_00169.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web_content/pdd_pz_pdf_00169.pdf)
- P9 Phoenix. (2002). *General Plan 2002, Street Classification Map*. [http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web\\_content/pdd\\_pz\\_pdf\\_00175.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/document/s/web_content/pdd_pz_pdf_00175.pdf)
- P10 Pedestrian and Bicycle Information Center. (2012). *Intermodal Transportation Planning and Development: A closer look at linking transit to bicycling and walking*.

<http://katana.hsrc.unc.edu/cms/downloads/PLA.IntermodalTransportationPlanningandDevelopment.pdf>

- P11 Phoenix. (2009). *Tree and Shade Master Plan*.  
[http://phoenix.gov/webcms/groups/internet/@inter/@dept/@parks/documents/web\\_content/071957.pdf](http://phoenix.gov/webcms/groups/internet/@inter/@dept/@parks/documents/web_content/071957.pdf)
- P12 Persaud, B.N.; Retting, R.A.; Garder, P.E.; and Lord, D. 2001. Safety effect of roundabout conversions in the United States: empirical Bayes observational before-after study. *Transportation Research Record* 1751:1-8.
- R1 Regional Public Transportation Authority. (2007). *RPTA Freeway Express Bus/BRT Operating Plan*.  
[www.valleymetro.org/images/uploads/projects/Express\\_Bus\\_study\\_.pdf](http://www.valleymetro.org/images/uploads/projects/Express_Bus_study_.pdf)
- R2 Regional Public Transportation Authority. (April 2008). *RPTA Park-and-Ride Reprioritization Study*.  
[http://www.valleymetro.org/images/uploads/projects/PR\\_Final\\_Report-04-11-08.pdf](http://www.valleymetro.org/images/uploads/projects/PR_Final_Report-04-11-08.pdf)
- R3 Regional Public Transportation Authority (September 2009). *RPTA Comprehensive Arterial Bus Rapid Transit Planning Study*.  
[http://www.valleymetro.org/images/uploads/projects/Final\\_Comprehensive\\_BRT\\_Report.pdf](http://www.valleymetro.org/images/uploads/projects/Final_Comprehensive_BRT_Report.pdf)
- R4 Retting, R.A.; Persaud, B.N.; Garder, P.E. and Lord, D. 2001. *Crash and injury reduction following installation of roundabouts in the United States*. *American Journal of Public Health* 91:628-31. **Review this document.**
- R5 Rosales, J. (September 2006). *Road Diet Handbook: Setting Trends for Livable Streets*; New York, NY: Parsons Brinckerhoff.
- R6 Rubenstein, Harvey M. (1996). *A Guide to Site Planning and Landscape Construction*; Rubenstein; Part 1, Chapter 4: Land Use and Circulation. New York, NY. John Wiley & Sons, Inc.
- R7 Regional Transportation Authority (September 2012). *City of Tucson Grant*

Road Improvement Plan. <http://www.grantrroad.info/>  
[www.grantrroad.info/pdf/tool\\_factsheets.pdf](http://www.grantrroad.info/pdf/tool_factsheets.pdf)

- R8 Rodegerdts, L.; Bansen, J.; Tiesler, C.; Knudsen, J.; Myers, E.; Johnson, M.; Moule, M.; Persaud, B.; Lyon, C.; Hallmark, S.; Isebrands, H.; Crown, R.; Guichet, B.; and O'Brien, A. 2010. *Roundabouts: an informational guide. National Cooperative Highway Research Program Report no. 672.* Washington, DC: Transportation Research Board.
- R9 Rodegerdts, L.; Blogg, M.; Wemple, E.; Myers, E.; Kyte, M.; Dixon, M.; List, G.; Flannery, A.; Troutbeck, R.; Brilon, W.; Wu, N.; Persaud, B.; Lyon, C.; Harkey, D.; and Carter, D. 2007. *Roundabouts in the United States. National Cooperative Highway Research Program Report no. 572.* Washington, DC: Transportation Research Board.
- R10 Retting, R.A.; Luttrell, G.; and Russell, E.R. 2002. Public opinion and traffic flow impacts of newly installed modern roundabouts in the United States. *ITE Journal* 72:30-32,37.
- R11 Retting, R.A.; Mandavilli, S.; Russell, E.R.; and McCartt, A.T. 2006. Roundabouts, traffic flow and public opinion. *Traffic Engineering and Control* 47:268-72.
- R12 Russell, E.R.; Mandavilli, S.; and Rys, M.J. 2004. Operational performance of Kansas roundabouts: phase II. Report no. K-TRAN KSU-02-04, Final Report 01-04. Manhattan, KS: Department of Civil Engineering, Kansas State University.
- R13 Retting, R.A.; Kyrychenko, S.Y.; and McCartt, A.T. 2007. Long-term trends in public opinion following construction of roundabouts. *Transportation Research Record* 2019:219-24.
- S1 Salt River Pima-Maricopa Indian Community. (December 2006). *General Plan, Transportation / Circulation Element.* <http://www.srpmic-nsn.gov/economic/zodu/pdf/GeneralPlan.pdf>
- S2 Salt River Pima-Maricopa Indian Community. (September 2010). *Long*



*Range Transportation Plan.*

[http://mpd.azdot.gov/mpd/systems\\_planning/PDF/PARA/srpmic/Final\\_Report.pdf](http://mpd.azdot.gov/mpd/systems_planning/PDF/PARA/srpmic/Final_Report.pdf)

- S3 Scottsdale. (1985). *Indian Bend Wash: A Scottsdale, Arizona success story of one of the nation's most outstanding flood-control projects. Acclaimed as an engineering wonder of the world. Library of Congress Catalog Card Number 84-72971.*  
<http://www.scottsdaleaz.gov/Assets/Public+Website/parks/IndianBendWashBook.pdf>
- S4 Scottsdale. (1992). *Cactus Corridor Area Plan.*  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_cactus](http://www.scottsdaleaz.gov/planning/policycards/pc_cactus)
- S5 Scottsdale. (1994). *Shea Boulevard Streetscape Design Guidelines.*  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_shea](http://www.scottsdaleaz.gov/planning/policycards/pc_shea)
- S6 Scottsdale. (1994). *Via Linda Streetscape Design Guidelines.*  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_vialinda](http://www.scottsdaleaz.gov/planning/policycards/pc_vialinda)
- S7 Scottsdale. (1999). *Desert Foothills Character Area Plan.*  
<http://www.scottsdaleaz.gov/planning/policycards/dsrtfthls>
- S8 Scottsdale. (2000). *Dynamite Foothills Character Area Plan.*  
<http://www.scottsdaleaz.gov/planning/policycards/dynfthls>
- S9 Scottsdale. (2000). *McDowell Sonoran Preserve Ordinance.*  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_preserveordinance](http://www.scottsdaleaz.gov/planning/policycards/pc_preserveordinance)
- S10 Scottsdale. (2001). *General Plan.*  
<http://www.scottsdaleaz.gov/generalplan/generalplan2001>
- S11 Scottsdale. (2002). *Sherwood Heights Neighborhood Plan.*  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_sherwoodheights](http://www.scottsdaleaz.gov/planning/policycards/pc_sherwoodheights)
- S12 Scottsdale. (2003). *Streets Master Plan.* Included in 2008 Transportation Master Plan as Chapter 4 – Streets Element, Appendix B.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Trans>

[portation+Master+Plan/TMP+Appendices.pdf](#)

- S19 Scottsdale. (2003). *WestWorld Master Plan*.
- S20 Scottsdale. (2003). *Scottsdale Scenic Corridor Design Guidelines*.  
<http://www.scottsdaleaz.gov/planning/policycards/sceniccorridor>
- S21 Scottsdale. (2003). *Scottsdale ITS Strategic Plan*.
- S22 Scottsdale. (2004). *Scottsdale Trails Master Plan: On the Right Trail*.  
<http://www.scottsdaleaz.gov/trails/plan>
- S23 Scottsdale. (2004). *Downtown Urban Design and Architectural Guidelines Update*. <http://www.scottsdaleaz.gov/planning/UDAG>
- S24 Scottsdale. (2006). *Downtown Circulation Study*.  
[http://www.scottsdaleaz.gov/Assets/Public+Website/design/Study\\_Downtown-Circulation.pdf](http://www.scottsdaleaz.gov/Assets/Public+Website/design/Study_Downtown-Circulation.pdf)
- S25 Scottsdale. (2006). *Safe Routes to School Implementation Program*.  
Included in 2008 Transportation Master Plan as Chapter 7 – Pedestrian Element, Appendix 7-L.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Transportation+Master+Plan/TMP+Appendices.pdf>
- S26 Scottsdale. (January 2007). *Scottsdale/ MAG Downtown Pedestrian Mobility Study*.  
[http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Study\\_DTPedMobility\\_Jan07.pdf](http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Study_DTPedMobility_Jan07.pdf)
- S27 Scottsdale. (2008). *North Area Circulation Study*.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Transportation+Master+Plan/formatted+North+Area.pdf>
- S28 Scottsdale. (2008). *Airpark Circulation Study*.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Transportation+Master+Plan/TMP+Airpark+Area.pdf>
- S29 Scottsdale. (2008). *Central Downtown/Scottsdale Circulation Study*.

- <http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Transportation+Master+Plan/Formatted+Central-DT+Circulation.pdf>
- S30 Scottsdale. (2008). *Scottsdale Road Streetscape Design Guidelines*.  
<http://www.scottsdaleaz.gov/Construction/ScottsdaleRd/SRstreetscape>
- S31 Scottsdale. (January 2009). *Transportation Implementation and Funding Plan*.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Adopted+Transportation+Master+Plan/formatted+Implementation+Program.pdf>
- S32 Scottsdale. (2009). *Ad Hoc Citizen Trails Task Force Report*.
- S33 Scottsdale. (2009). *Downtown Character Area Plan*.  
<http://www.scottsdaleaz.gov/planning/areaplans/updates>
- S34 Scottsdale. (March 2010). *LAIPs: Whisper Rock, East Shea, Dynamite Foothills, Desert Highlands, Desert Foothills*.  
<http://www.scottsdaleaz.gov/traffic/LAIPS>
- S35 Scottsdale. (October 2010). *Neighborhood Traffic Management Program Policy & Procedures*.  
<http://www.scottsdaleaz.gov/Assets/Public+Website/traffic/Traffic+Engineering/NTMP/NTMP+Policy+Oct+2010.pdf>
- S36 Scottsdale. (2010). *Frank Lloyd Wright Streetscape Design Guidelines, Scenic Corridor Design Guidelines*.  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_flw](http://www.scottsdaleaz.gov/planning/policycards/pc_flw)
- S37 Scottsdale. (2010). *Greater Airpark Character Area Plan*.  
<http://www.scottsdaleaz.gov/planning/areaplans/greaterairparkcap>
- S38 Scottsdale. (2010). *Southern Scottsdale Character Area Plan*.  
<http://www.scottsdaleaz.gov/planning/areaplans/CAPsouthern>
- S39 Scottsdale. (2010). *Scottsdale Design Standards and Policies Manual*.  
<http://www.scottsdaleaz.gov/design/dspm>
- S40 Scottsdale. (2010). *Traffic Volumes/Counts, Intersection & Segment*

Maps. <http://www.scottsdaleaz.gov/traffic/trafficvolumes>

- S41 Scottsdale. McDowell Sonoran Preserve Commission. (2010). *McDowell Sonoran Preserve Access Areas Report*.  
<http://www.scottsdaleaz.gov/preserve/access>
- S42 Scottsdale. *McDowell Sonoran Preserve Ordinance*. (May 2000).  
<http://www.scottsdaleaz.gov/Assets/Public+Website/preserve/ord3321.pdf>
- S43 Scottsdale. *McDowell Sonoran Preserve History*  
<http://www.scottsdaleaz.gov/preserve/history>
- S44 Scottsdale. (2011). *General Plan*. (not ratified by voters March 2012).  
<http://www.scottsdaleaz.gov/generalplan/2011GeneralPlan/2011GP>
- S45 Scottsdale. (2012). *Annual Capital Improvement Plan*.  
[http://www.scottsdaleaz.gov/Assets/Public+Website/finance/Archive/FY+2011-12/FY\\_2011-12\\_Volume\\_2\\_Capital\\_Improvement\\_Plan.pdf](http://www.scottsdaleaz.gov/Assets/Public+Website/finance/Archive/FY+2011-12/FY_2011-12_Volume_2_Capital_Improvement_Plan.pdf)
- S46 Scottsdale. (2012). *Traffic Volume and Collision Rate Data*.
- S47 Scottsdale. (March 2012). *Quick Statistics*.  
[http://www.scottsdaleaz.gov/Assets/Public+Website/economics/2012\\_QuickStats.pdf](http://www.scottsdaleaz.gov/Assets/Public+Website/economics/2012_QuickStats.pdf)
- S48 Scottsdale. (2012). *Choose Scottsdale*. <http://choosescottsdale.com/>
- S49 Scottsdale. (2012). *About Scottsdale*. <http://www.scottsdaleaz.gov/about>
- S50 Scottsdale. (2012). *Scottsdale recognition and rankings*.  
<http://www.scottsdaleaz.gov/about/rankings>
- S51 Scottsdale. (2012). *Scottsdale Trails*. <http://www.scottsdaleaz.gov/trails>
- S52 Scottsdale. *Protection of Archaeological Resources Ordinance*.  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_arch-ord](http://www.scottsdaleaz.gov/planning/policycards/pc_arch-ord)
- S53 Scottsdale. *Historic Preservation Ordinance*.  
[http://www.scottsdaleaz.gov/planning/policycards/pc\\_hp-ord](http://www.scottsdaleaz.gov/planning/policycards/pc_hp-ord)
- S54 Scottsdale. *Historic Preservation Program*.

- [http://www.scottsdaleaz.gov/planning/policycards/pc\\_hp-program](http://www.scottsdaleaz.gov/planning/policycards/pc_hp-program)
- S55 Scottsdale. *Right-of Way Management Program*  
<http://www.scottsdaleaz.gov/traffic/rwmp>
- S56 Scottsdale. *Sensitive Design Principles*  
<http://www.scottsdaleaz.gov/planning/general/sensitivedesign/designprin>
- S57 Scottsdale. *Indian Bend Wash Greenbelt.*  
<http://www.scottsdaleaz.gov/parks/greenbelt>
- S58 Scottsdale. *City of Scottsdale Transportation Alternatives.*  
<http://www.scottsdaleaz.gov/Topics/transportation/alternatives>
- S59 Scottsdale. McDowell Sonoran Preserve Commission, *Trail Access.*  
<http://www.scottsdaleaz.gov/preserve/access>
- S60 Scottsdale. *McDowell Sonoran Preserve, Access Area Design and Site Standards.*  
<http://www.scottsdaleaz.gov/Assets/Public+Website/preserve/Intro.pdf>
- S61 Scottsdale. *Scottsdale Revised Code: Volume II, Appendix B – Basic Zoning Ordinance; Article IX – Parking and Loading Requirements.*  
<http://www.scottsdaleaz.gov/codes>
- S62 Scottsdale. *Scottsdale Revised Code: Volume II – Chapter 47; Streets, Sidewalks and Public Works Generally; Article II. Street Construction, Dedication or Improvement; Division 2. Dedication and Improvement; 47-36.*  
[http://library.municode.com/HTML/10075/level4/VOLII\\_CH47STSIPUWOWOGE\\_ARTIISTCODEIM\\_DIV2DEIM.html](http://library.municode.com/HTML/10075/level4/VOLII_CH47STSIPUWOWOGE_ARTIISTCODEIM_DIV2DEIM.html)
- S63 Scottsdale. *Scottsdale Revised Code: Chapter 20 – Parks, Recreations and Cultural Affairs. Article VII – Public Art, Sec. 20-123. Art in public places program; funding* <http://www.scottsdaleaz.gov/codes>

- S64 Scottsdale. Scottsdale Revised Code: Chapter 47 – Streets, Sidewalks, and Public Works Generally. Article III – Encroachments, Division 3. – Barricade Management <http://www.scottsdaleaz.gov/codes>
- S65 Smith, R., Reed, S., & Baker, S. (2010, July/August). Street Design: Part 1 – Complete Streets. *Public Roads*, Vol. 74 No. 1. FHWA-HRT-10-004. <http://www.fhwa.dot.gov/publications/publicroads/10julaug/03.cfm>
- S66 Schoon, C.C., and J. van Minnen. (1993). *Accidents on Roundabouts: II. Second study into the road hazard presented by roundabouts, particularly with regard to cyclists and moped riders*. R-93-16. The Netherlands: SWOV Institute for Road Safety Research.
- S67 Solar Roadways. <http://www.solarroadways.com/main.html>
- S68 Schneider, Jerry. (2012). Innovative Transportation Technologies. <http://faculty.washington.edu/jbs/itrans/?gclid=CPvP3NKu1rICFckDQgod7m8AkQ>
- S69 Scottsdale. (October 2011). *Greater Airpark Character Area Plan. Chapter 4: Community Mobility* <http://www.scottsdaleaz.gov/planning/areaplans/GreaterAirparkCAP/Adopted>
- S70 Scottsdale. (April 2011). *Roadway Noise Mitigation Policy*.
- S71 Scottsdale. (January 2008). *Transportation Master Plan*. <http://www.scottsdaleaz.gov/traffic/transmasterplan>
- S72 Shoup, D. (2005), *Parking Cash Out*, Report 532, Planning Advisory Service ([www.planning.org/pas](http://www.planning.org/pas)), American Planning Association.
- S73 Scottsdale. (2007). *Environmentally Sensitive Lands Ordinance* <http://www.scottsdaleaz.gov/Assets/Public+Website/codes/ESLOCodeText.pdf>
- S74 Seskin, S. (August 2012), *Complete Streets: Local Policy Workbook*. Smart Growth America and National Complete Streets Coalition.

<http://www.smartgrowthamerica.org/documents/cs-local-policy-workbook.pdf>

- S75 Schoon, C. and van Minnen, J. 1994. The safety of roundabouts in the Netherlands. *Traffic Engineering and Control* 35:142-48.
- T1 Tempe. (March 2008). *Comprehensive Transportation Master Plan*.  
<http://www.tempe.gov/index.aspx?page=496>
- T2 Transportation Research Board. (2003). *Access Management Manual*. Washington, D.C. <http://www.trb.org/Main/Blurbs/152653.aspx>
- T3 Texas Transportation Institute. (2010). *Annual Urban Mobility Report*.  
<http://mobility.tamu.edu/ums/congestion-data/west-map/>
- T4 Transportation Research Board. (2004) *Conference Proceedings #36, Performance Measures to Improve Transportation Systems*.  
<http://onlinepubs.trb.org/onlinepubs/conf/CP36.pdf>
- U1 U. S. Department of Agriculture, Forest Service. In cooperation with U. S. Department of Transportation, Federal Highway Administration. (December 2007). *Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds*. 0723-2816-MTDC.  
[http://www.fhwa.dot.gov/environment/recreational\\_trails/publications/fs\\_publications/07232816/index.cfm](http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232816/index.cfm)
- U2 U. S. Department of Agriculture, Forest Service. (in process). *Tonto National Forest Travel Management Program*.  
[http://www.fs.usda.gov/detail/tonto/home/?cid=fsbdev3\\_018761](http://www.fs.usda.gov/detail/tonto/home/?cid=fsbdev3_018761)
- U3 U. S. Department of Justice. (2010). *ADA Standards for Accessible Design*.  
<http://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm#designconstruction>
- U4 U. S. Department of Transportation, Federal Highway Administration. (1995). *Pedestrian and Bicycle Crash Types of the Early 1990s*.  
<http://www.fhwa.dot.gov/publications/research/safety/pedbike/95163.cfm>

- U5 U.S. Department of Transportation, Federal Highway Administration: Research, Development, & Technology. (July 1999). *Guidebook on Method to Estimate Non-Motorized Travel: Supporting Documentation*. Publication NO. FHWA-RD-98-166.  
[http://safety.fhwa.dot.gov/ped\\_bike/docs/guidebook2.pdf](http://safety.fhwa.dot.gov/ped_bike/docs/guidebook2.pdf)
- U6 U. S. Department of Transportation. (March 2010). *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*. <http://www.dot.gov/affairs/2010/bicycle-ped.html>
- U7 U. S. Department of Transportation, Federal Highway Administration. (October 1994). *FHWA Study Tour for Pedestrian and Bicyclist Safety in England, Germany, and The Netherlands*. FHWA-PL-95-006.  
<http://ntl.bts.gov/DOCS/bikeped.html>
- U8 U. S. Department of Transportation, Federal Highway Administration. (July 1999). *Designing Sidewalks and Trails for Access, Part I of II: Review of Existing Guidelines and Practices*.  
[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/sidewalks/index.cfm](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalks/index.cfm)
- U9 U. S. Department of Transportation, Federal Highway Administration. (2000). *Roundabouts: An Informational Guide*. FHWA-RD-00-067.  
<http://www.fhwa.dot.gov/publications/research/safety/00067/00067.pdf>.
- U10 U. S. Department of Transportation, Federal Highway Administration. (September 2001). *Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide*.  
[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/sidewalk2/index.cfm](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/index.cfm)
- U11 U. S. Department of Transportation, Federal Highway Administration. (March 2002). *Pedestrian Facilities Users Guide: Providing Safety and Mobility*. Publication No. FHWA-RD-01-102.



[http://katana.hsrrc.unc.edu/cms/downloads/PedFacility\\_UserGuide2002.pdf](http://katana.hsrrc.unc.edu/cms/downloads/PedFacility_UserGuide2002.pdf)

- U12 U. S. Department of Transportation, Federal Highway Administration. (March 2004). *Summary Report: Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries*. FHWA-HRT-04-082
- U13 U. S. Department of Transportation, Federal Highway Administration. (March 2009). *How to Develop a Pedestrian Safety Action Plan*. Publication No. FHWA-SA-05-12. [http://safety.fhwa.dot.gov/ped\\_bike/ped\\_focus/docs/fhwasa0512.pdf](http://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa0512.pdf)
- U14 U. S. Department of Transportation, Federal Highway Administration. (March 2009). *Pedestrian Road Safety Audit Guidelines and Prompt Lists*. Publication No. FHWA-SA-07-007. <http://drusilla.hsrrc.unc.edu/cms/downloads/PedRSA.reduced.pdf>.
- U15 U. S. Department of Transportation, Federal Highway Administration. (February 2010). *Access Management in the Vicinity of Intersections*. Publication No. FHWA-SA-10-002. <http://safety.fhwa.dot.gov/intersection/resources/fhwasa10002/>
- U16 U. S. Department of Transportation, Federal Highway Administration. (February 2011). *2009 National Household Travel Survey*. <http://nhts.ornl.gov>
- U17 U. S. Department of Transportation, Federal Highway Administration. (January 2012). *Guidance Memorandum on Promoting the Implementation of Proven Safety Countermeasures*. <http://safety.fhwa.dot.gov/provencountermeasures>
- U18 U. S. Department of Transportation, Federal Highway Administration. (May 2012). *2009 Manual of Uniform Traffic Control Devices*. [http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf\\_index.htm](http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm)
- U19 U. S. Department of Transportation, National Highway Traffic Safety

- Administration. (September 2002). *Safe Routes to School*. DOT HS 809 497. <http://www.nhtsa.gov/people/injury/pedbimot/bike/Safe-Routes-2002/toc.html>
- U20 U. S. Department of Transportation, National Highway Traffic Safety Administration. (August 2012). *Traffic Safety Fact Sheet 2010 Data: Pedestrians*. DOT-HS-811-625. <http://www-nrd.nhtsa.dot.gov/Pubs/811625.pdf>
- U21 U.S. Environmental Protection Agency, Development, Community, and Environment Division. (January 2006). *Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions*. EPA 231-K-06-001. <http://www.epa.gov/dced/parking.htm>
- U22 U. S. Department of Transportation, Federal Highway Administration. (September 2012). *Flexibility in Highway Design*. Chapter 3: Functional Classification. <http://www.fhwa.dot.gov/environment/publications/flexibility/ch03.cfm>
- U23 U. S. Department of Transportation, Federal Highway Administration, Office of Safety. (February 2010). *Access Management in the Vicinity of Intersections*. FHWA-SA-10-002. <http://safety.fhwa.dot.gov/intersection/resources/fhwasa10002/>
- U24 U. S. Department of Transportation, Federal Highway Administration, Office of Safety. (September 2009). *A Primer on Safety Performance Measures for the Transportation Planning Process*. FHWA-HEP-09-043. <http://safety.fhwa.dot.gov/hsip/tsp/fhwahep09043/>
- U25 Federal Highway Administration/Federal Transit Administration (FHWA/FTA). 2007. “*The Transportation Planning Process: Key Issues, A Briefing Book for Transportation Decision-makers, Officials, and Staff,*” Publication Number: FHWA-HEP-07-039, U.S. Department of Transportation, on-line document accessible at: <http://www.planning.dot.gov/documents/BriefingBook/BBook.htm>

- U26 U.S. Environmental Protection Agency. (August 2011). Guide to Sustainable Transportation Performance Measures. EPA 231-K-10-004. [http://www.epa.gov/dced/pdf/Sustainable\\_Transpo\\_Performance.pdf](http://www.epa.gov/dced/pdf/Sustainable_Transpo_Performance.pdf)
- U27 U. S. Department of Transportation, Federal Highway Administration, Office of Operations. (August 2006). *Safe Access is Good for Business*. FHWA-HOP-06-107. <http://www.accessmanagement.info/AM2006/PrimerWeb.pdf>
- U28 U.S. Department of Transportation, Research and Innovative Technology Administration (RITA). Intelligent Transportation Systems Joint Program Office. *Connected Vehicle Applications*. Washington, DC. [http://www.its.dot.gov/data\\_capture/data\\_capture.htm](http://www.its.dot.gov/data_capture/data_capture.htm)
- U29 U. S. Department of Agriculture, Forest Service. (2008). Urban and Community Forestry. *Trees for People: Urban Forestry 101*. Department of Agriculture. <http://www.fs.fed.us/ucf/treesforpeople.html> .
- U30 U.S. Department of Transportation, Federal Highway Administration. *Toward Zero Deaths: A National Strategy on Highway Safety*. <http://safety.fhwa.dot.gov/tzd/>
- U31 U. S. Department of Transportation, Federal Highway Administration, Office of Safety. (July 2008. Rev. 7/01/09). *Guidance Memorandum on Consideration and Implementation of Proven Safety Countermeasures*. <http://safety.fhwa.dot.gov/policy/memo071008/>
- U32 U. S. Department of Transportation, Federal Highway Administration. 2010. Mini-roundabouts: technical summary. Report no. FHWA-SA-10-007. Washington, DC: U.S. Department of Transportation.
- U33 U.S. Environmental Protection Agency. U.S. Department of Energy. <http://www.fueleconomy.gov/feg/fuelcell.shtml>
- V1 Valley Metro / Regional Public Transportation Authority. (March 2007). *Efficiency and Effectiveness Study*. Phoenix. [http://www.valleymetro.org/images/uploads/projects/2007\\_Service\\_Effecti](http://www.valleymetro.org/images/uploads/projects/2007_Service_Effecti)

[veness and Efficiency Study.pdf](#)

- V2 Valley Metro / Regional Public Transportation Authority. (June 2008). Regional Paratransit Study. Phoenix.  
[www.valleymetro.org/images/uploads/projects/Final\\_Report\\_6-27-08.pdf](http://www.valleymetro.org/images/uploads/projects/Final_Report_6-27-08.pdf)
- V3 Valley Metro (December 2011). *2010-11 Valley Metro Transit On-Board Survey*. Phoenix.  
[http://www.valleymetro.org/images/uploads/projects/2010-2011 Transit On-Board Survey Final Report.pdf](http://www.valleymetro.org/images/uploads/projects/2010-2011_Transit_On-Board_Survey_Final_Report.pdf)
- V4 Valley Metro. *Valley Metro Trip Reduction Program*. Phoenix.  
[http://www.valleymetro.org/business\\_services\\_new/trip\\_reduction\\_program/](http://www.valleymetro.org/business_services_new/trip_reduction_program/)
- V5 Victoria, Australia. (2011). *You are here: A guide to developing pedestrian wayfinding*.  
[http://www.transport.vic.gov.au/\\_data/assets/pdf\\_file/0004/46570/PedestrianWayfindingGuide.pdf](http://www.transport.vic.gov.au/_data/assets/pdf_file/0004/46570/PedestrianWayfindingGuide.pdf)
- V6 Victoria Transport Policy Institute. Victoria, BC, Canada. (June 2011). *Online TDM Encyclopedia*. <http://www.vtpi.org/tdm/index.php#reference>
- V7 Valley Metro. *Valley Metro Notes: Be Safe*. Phoenix.  
<http://www.valleymetro.org/notes/topic/safewls>
- V8 Valley Metro. *Valley Metro Transit Watch*. Phoenix.  
[http://www.valleymetro.org/safety/transit\\_watch](http://www.valleymetro.org/safety/transit_watch)
- V9 Várhelyi, A. 2002. The effects of small roundabouts on emissions and fuel consumption: a case study. *Transportation Research Part D: Transport and Environment* 7:65-71.
- W1 Washington State Department of Transportation. (September 1997). *Pedestrian Facilities Guidebook*. available at  
[www.wsdot.wa.gov/walk/designinfo.htm](http://www.wsdot.wa.gov/walk/designinfo.htm)

- W3 Wolf-Branigin, M. and Karen Wolf-Branigin (2008), "The Emerging Field of Travel Training Services: A Systems Perspective," *Journal of Public Transportation*, Vol. 11, No. 3, pp. 109-123; at [www.nctr.usf.edu/jpt/pdf/JPT11-3Wolf-Branigin.pdf](http://www.nctr.usf.edu/jpt/pdf/JPT11-3Wolf-Branigin.pdf).
- W4 Washington, Simon, Michael Meyer, Ida Vah Schalkwyk, Eric Dumbaugh, Sudeshna Mitra, and Matthew Zoll. 2006. *Incorporating Safety into Long-Range Transportation-Planning*, NCHRP Report 546, Washington D.C.: National Academy Press. <http://www.trb.org/Main/Blurbs/156716.aspx>
- Y1 Yang et al.: Variability and seasonality of active transportation in USA: evidence from the 2001 NHTS. *International Journal of Behavioral Nutrition and Physical Activity* 2011 8:96. <http://www.ijbnpa.org/content/8/1/96/abstract>

# Transportation Master Plan Update

Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

## 1 Introduction

2 (Text yet to be written)

3 !

4 , !! Equestrians !

5 [ !! Pedestrians !

6 \ !! Universal Access / ADA !

7 ( !! In-line skaters !

8 H !! Bicycles !

9 X !! Bus

10 3 ! Light Rail / Modern Street Car !

11 Q !! Motor Vehicles !

12 { !! Large Trucks !

13 m !! Airport !

14  Fire !

15  Police !

16 d School

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

### 17 **Goal 1**

#### 18 **Provide a Safe Transportation Network**

19 Provide a safe and secure transportation network that will reduce injuries and move  
20 towards the elimination of deaths from transportation-related causes, protect  
21 neighborhood livability, promote public health, and support the function of commercial  
22 areas.

#### 23 **Policy 1.1**

24 Implement a Safety Management System for transportation related collisions that is  
25 timely, accurate, complete, uniform, integrated, accessible, and multimodal.



#### 27 **Performance Measures**

28 **PM 1.1.1** Number of traffic crashes by mode and location

29 **PM 1.1.2** Number of traffic fatalities by mode, facility type, and location

30 **PM 1.1.3** Calculate collision rates for arterial streets, collector streets, and  
31 major intersections.

32 **PM 1.1.4** Identify high collision intersections and street segments

#### 33 **Support**

34 Priority should be focused on high accident locations to maximize limited  
35 resources available for improving safety and reducing the number and  
36 severity of collisions.

37 All modes should be included in the identification of trends and potential  
38 mitigation measures as data is made available.

39 **Insert Maps showing collisions by mode.**

#### 40 **Related Documents**

41 C3, C4, C5, T4, U20, U24, U30, W4

#### 42 **Policy 1.2**

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

43 Prioritize school areas to improve safety and efficiency.

44 , ! [ !H !X !Q !d   ! !

### 45 Performance Measures

46 PM 1.2.1 Number of school audits performed

47 PM 1.2.2 Number of school related projects.

### 48 Support

49 Use information from the Strategic Data Collection Program to identify high  
50 incident collision locations for evaluation and evaluate all crashes in school  
51 zones.

52 Promoting safe access to and from the schools in Scottsdale is of primary  
53 importance. The City developed a school transportation safety audit program  
54 intended to proactively identify potential transportation issues and  
55 improvements. The program provides schools with a City of Scottsdale  
56 contact point to exchange information and ideas to help resolve school  
57 related transportation issues. City staff conduct on-site observations of school  
58 drop off and dismissal during a typical school day. Recommendations are  
59 provided to the school principal, school district Transportation Department  
60 representative, City of Scottsdale staff (technicians, planners, and engineers),  
61 and the school resource officers for their review. Implementation of the  
62 recommendations is performed by the City or the school district.

63 **Insert Map showing school zones.**

### 64 Related Documents

65 M36, S43, S50, U4,

### 66 Policy 1.3

67 Evaluate collisions to identify trends that could be addressed by engineering,  
68 enforcement, or education. Develop mitigation projects to improve safety, reduce  
69 collisions, and move towards having zero fatalities.



# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

70 , ! [ !H !X !Q ! { ! 🚒 🚓 ! !

### 71 Performance Measures

- 72 **PM 1.3.1** Number of collision locations evaluated for mitigation
- 73 **PM 1.3.2** Number of regional collision trends identified
- 74 **PM 1.3.3** Number of projects or programs implemented to address
- 75 specific collision trends

### 76 Support

77 Identifying overall trends will lead to the implementation of systematic  
78 improvements to reduce the likelihood of collisions. A systematic approach to  
79 applying countermeasures derived from regional trends will have the greatest  
80 impact on behavior and greatest reduction in collisions. A broad application of  
81 these campaigns, with greater saturation within the high crash areas is  
82 appropriate. Enforcement countermeasures that help enforce the traffic laws  
83 as they relate to all modes of transportation should be addressed in an  
84 overall, coordinated, citywide, or countywide enforcement campaign.

85 A national strategy on highway safety, Toward Zero Deaths, is designed to  
86 eliminate highway fatalities as a threat to public and personal health. The  
87 effort is a follow up to the strategic planning activities undertaken by the  
88 American Association of State Highway Transportation Officials, and is  
89 supported by safety agencies at the U.S. Department of Transportation and  
90 other national organizations.

### 91 Policy 1.4

92 Provide grade-separated crossings for trails and paths whenever feasible to do so.  
93 Include as a component of major roadway or stormwater projects when possible.

94 , ! [ ! \ ! ( !H ! !

### 95 Performance Measures

- 96 **PM 1.4.1** Number of grade-separated crossings by type

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

97 **PM 1.4.2** Number of grade-separated crossings constructed that remain  
98 closed pending future path or trail construction

99 **PM 1.4.3** Number of grade-separated crossings with unpaved approaches

### 100 **Support**

101 A grade-separated crossing, the safest facility for moving people across major  
102 roadways, should be considered when a path or trail meets a barrier, such as  
103 a freeway, street, canal, or wash, and continuity of the route is desired.

104 It is more cost effective to construct grade-separated crossings during  
105 roadway and stormwater projects than retrofitting the facilities later.

106 A grade-separated crossing should be considered whenever a path or trail  
107 crosses an arterial street and whenever a bridge or an appropriately-sized  
108 drainage culvert is installed.

109 **Insert map showing existing grade-separated crossings**

110 **Insert map showing future grade-separated crossings**

### 111 **Related Documents**

112 A2, A3, M5, M9, S22, S39, U1

### 113 **Policy 1.5**

114 Enhance at-grade crossings in locations at unsignalized intersections where grade-  
115 separation is not a viable option.

116 

### 117 **Performance Measures**

118 **PM 1.5.1** Number of at-grade enhancements by type

### 119 **Support**

120 Typical considerations for enhancing a pedestrian crossing include:

- 121
- Sight distance
  - Crossing distance
- 122

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

- 123 • Vehicle speed and volume
- 124 • Number of lanes
- 125 • Proximity to controlled crossings
- 126 • Crossing user delay
- 127 • Crossing user characteristics
- 128 • Crossing user volumes

129 Typical crossing enhancements include:

- 130 • Raised median
- 131 • High visibility crosswalk markings
- 132 • Staggered crosswalks or Danish offsets
- 133 • Crossing warning signs and pedestrian warning signs
- 134 • Advance yield lines
- 135 • Appropriate pedestrian lighting
- 136 • Warning beacon
- 137 • Pedestrian hybrid beacon (HAWK)
- 138 • Pedestrian signal

### 139 Related Documents

140 A3, M9, U1, U18

141 Insert map showing at-grade crossings by type

### 142 Policy 1.6

143 Separate sidewalks, paths, and trails from the roadway where expected travel  
144 speeds are greater than 35 mph.



- 147 **PM 1.6.1** Number of miles of separated sidewalks
- 148 **PM 1.6.2** Number of miles of separated paths
- 149 **PM 1.6.3** Number of miles of separated trails

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

### 150 Support

- 151 Sidewalks, trails, and paths should be separated from adjacent roadways  
152 with either vertical or horizontal separation. Vertical separation can be  
153 curbs, barriers, or parking. Horizontal separation can be an on-street bike  
154 lane, a landscaped area, or landscaping in tree grates or planters.
- 155 On roadways with transit routes, the sidewalk should be brought closer to  
156 the roadway at transit stop locations to allow easy boarding and  
157 deboarding.
- 158 Providing shade is encouraged when sidewalks, paths, or trails are  
159 separated from the roadway.

### 160 Related Documents

161 A2, A3, S39, U1

### 162 Policy 1.7

163 Improve intersection safety by installing modern roundabouts where appropriate  
164 based on traffic conditions.



### 166 Performance Measures

167 **PM 1.7.1** Number of single lane roundabouts

168 **PM 1.7.2** Number of multilane roundabouts

### 169 Support

170 The Federal Highway Administration’s Office of Safety lists roundabouts as  
171 one of nine proven crash countermeasures. Roundabouts have  
172 demonstrated substantial safety and operational benefits compared to other  
173 forms of intersection control, with reductions in fatal and injury crashes of  
174 from 60–87 percent. The benefits apply to roundabouts in urban and rural  
175 areas and freeway interchange ramp terminals under a wide range of traffic  
176 conditions. Although the safety of all-way stop control is comparable to

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

177 roundabouts, roundabouts provide much greater capacity and operational  
178 benefits. Roundabouts can be an effective tool for managing speed and  
179 transitioning traffic from a high speed to a low speed environment. Proper site  
180 selection and channelization for motorists, bicyclists, and pedestrians are  
181 essential to making roundabouts accessible to all users. In particular, it is  
182 important to ensure safe accommodation of bicyclists at higher speed  
183 roundabouts and for pedestrians with visual or cognitive impairments (U31).

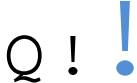
### 184 Related Documents

185 A2, A3, A11, B2, B3, B11, B12, B13, E3, F5, G1, I1, I6, K2, M1, M26, M37,  
186 M38, M39, N7, P12, R4, R8, R9, R10, R11, R12, S39, S70, S79, U9, U31,  
187 U32, V9

188 Insert map showing roundabout locations.

### 189 Policy 1.8

190 Continue to use lagging left-turn arrows.



### 192 Performance Measures

193 **PM 1.8.1** Number of intersections with lagging left arrows unless  
194 alternative signal operation is recommended where appropriate  
195 based on traffic conditions.

### 196 Support

197 The City of Tucson has had lagging left turn arrows since 1984. Scottsdale  
198 tested lagging arrows in 1988, and discovered that this signal operation  
199 resulted in less delay and fewer accidents in our community. Lagging left turn  
200 arrows, implemented citywide in 1989, do not work well at all intersections or  
201 in all communities. Most communities have major streets every half-mile in all  
202 directions. Scottsdale has only three major north/south streets with large left  
203 turn volumes at every arterial street intersection. Even though lagging left-turn  
204 phasing is preferred in Scottsdale for these reasons, traffic signal phasing

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

205 should be evaluated for each signalized intersection to determine the most  
206 appropriate operation.

### 207 **Related Documents**

208 S39

### 209 **Policy 1.9**

210 Maximize safety of trails and paths by improving visibility and utilizing best design  
211 practice.

212 

### 213 **Performance Measures**

214 **PM 1.9.1** Number of path and trail connections to streets

215 **PM 1.9.2** Number of well-lit and signed access points

### 216 **Support**

- 217 • Well-lit and signed access points improve safety for all roadway users
- 218 • Well-designed and accessible paths and trailheads can increase the  
219 attractiveness and utility for all trail and path users

### 220 **Related Documents**

221 A6, M9, S39, U1

### 222 **Policy 1.10**

223 Utilize ITS in the transportation infrastructure to decrease emergency response  
224 times and to direct vehicles away from congested locations and incidents to prevent  
225 secondary collisions.

226 

### 227 **Performance Measures**

228 **PM 1.10.1** Number of remotely adjustable signals

229 **PM 1.10.2** Number of traffic cameras

230 **PM 1.10.3** Number of manual signal timing adjustments

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

- 231 **PM 1.10.4** Number of traffic event medical alerts
- 232 **PM 1.10.5** Number and percentage of transit vehicles with signal
- 233 priority technology

### 234 **Support**

235 Intelligent transportation systems can be defined as the integration of  
236 advanced communications technologies into the transportation infrastructure  
237 and vehicles. ITS encompass a broad range of wireless and wire line  
238 communications-based information and electronics traffic management  
239 technologies, including traffic signals, computers, integrated software  
240 systems, graphics, video walls, fiberoptic cable, closed circuit TV cameras,  
241 and vehicle detectors. ITS is used to communicate with vehicles, coordinate  
242 signals, integrate freeway and arterial operations, improve traffic progression,  
243 reduce incident clearance times, improve bus progression, and enhance  
244 special event traffic management.

### 245 **Related Documents**

246 S21, U28

### 247 **Policy 1.11**

248 Develop and implement comprehensive and proactive safety, education, and  
249 enforcement programs for bicyclists, pedestrians, equestrians, motorists, and transit  
250 users.



### 252 **Performance Measures**

- 253 **PM 1.11.1** Number of broadcasted programs
- 254 **PM 1.11.2** Number of outreach activities
- 255 **PM 1.11.3** Number of participants

### 256 **Support**

257 Education programs begin with the selection of a key message and the target

# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

258 audience. Target audiences could include children, adults, new drivers,  
259 children walking to school, transit riders, or elderly persons. Identifying the  
260 target audience will also help identify the appropriate means of  
261 communication, which could be media buys, printed materials, radio buys, or  
262 other means.

263 Pedestrians could be educated on how to use crosswalks, how to use a  
264 pedestrian actuated signal, the meaning of pedestrian signal indications, how  
265 to use a shared use path, and other safe walking behaviors. Bicyclists could  
266 be shown how to safely ride in traffic and use bike lanes, shared use paths,  
267 and how to share trails with equestrians. Motorists could learn how to share  
268 the road with pedestrians, bicyclists, and equestrians.

269 Other education efforts should target City staff and elected officials, along  
270 with members of City boards and commissions, to keep them informed about  
271 recent advances and best practices in pedestrian planning and facility design.

272 Additional educational efforts could be targeted toward encouraging people to  
273 walk or bike in particular areas, or to walk or bike instead of using another  
274 travel mode. Educating people about the health, economic, and  
275 environmental benefits of walking can help encourage more people to walk.

276 Promotional efforts can encourage people to walk as an alternative to driving  
277 for short neighborhood trips, such as trips from home to school, shopping  
278 centers, nearby parks, libraries and other civic spaces.

### 279 **Related Documents**

280 A6, A8, A10, M9, U1, U13, U14, U19

### 281 **Policy 1.12**

282 Use access management to improve safety, maximize roadway capacity, reduce  
283 congestion and delay, and make travel safer for all users.



# Transportation Master Plan Update

## Goal 1 – Draft 1

Yellow highlighted text identifies items that still need addressed

284 [ !H !X !Q ! { !   ! !

### 285 Performance Measures

286 **PM 1.12.1** Number of driveways eliminated due to the creation of new  
287 shared access driveways.

288 **PM 1.12.2** Number of properties with cross-access

### 289 Support

290 Access management seeks to limit and consolidate access along major  
291 roadways at the same time providing a street system and access to support  
292 businesses and residential development along the roadway. The result is a  
293 corridor that functions safely and is more attractive.

- 294 • Define acceptable levels of access for each roadway classification to  
295 preserve its function, including criteria for the spacing of signalized and  
296 unsignalized access points.
- 297 • Apply appropriate geometric design criteria and traffic engineering  
298 analysis to each allowable access point.
- 299 • Enforce existing access management policies and regulations that  
300 address access spacing and design.
- 301 • Locate bus stops in appropriate locations
- 302 • Improve pedestrian access to transit stops
- 303 • Improve bicycle access to transit stops
- 304 • Improve safety for drivers accessing properties or traveling in a  
305 through-travel lane
- 306 • Maximize roadway capacity
- 307 • Reduce congestion and delay

### 308 Related Documents

309 A6, M9, R7, S12, S39, S52, S53, S54, T2, U15, U23, U27

# *Transit Program Overview*

Scottsdale Transportation Commission  
November 15, 2012



# *Transit Programs*

- 11 Valley Metro Bus Routes, 9 Local/ 2 Express
- 3 Trolley Circulator Routes, Fare-Free
- 2 Seasonal Trolley Routes Link Visitors to Events
- Cab Connection Personalized Taxi Vouchers
- East Valley Dial A Ride Door to Door Service
- Trip Reduction Program for City Employees
- 7 Capital Improvement Projects

# *Transit Team Members*

- Transit Supervisor, Madeline Clemann,
- Sr. Transportation Planner, John Kelley
- Maintenance Worker II, Bobby Mansfield
- Sr. Transp. Representative, Ed Jones III
- Contract Transp. Representative, Mercedes McPherson

# *Transit Group Philosophy*

- Collaborate Internally and Externally
  - State and regional agencies, and other valley cities
  - City departments within the organization
  - Local non-profit agencies and senior housing complexes
  - Public involvement/outreach activities
- Provide “Trademark” Customer Service
  - Reduced Fare ID Card application intake at both senior centers
  - Individualized trip planning
  - Help with connections to systems and services
- Continuously Improve Services and Facilities
  - Service enhancements and capital projects

# Scottsdale Fixed Routes, Valley Metro Service FY 13

Route	Street/Road	Route	Street/Road
17	McDowell	72	Scottsdale
29	Thomas	81	Hayden
41	Indian School	106	Shea Blvd.
50	Camelback	170	Bell
		154	Greenway
511	Scottsdale- Tempe Express	514	Fountain Hills – Scottsdale-Phoenix Express

# Scottsdale Fixed Routes

## FY 09 -13 Estimated Productivity

SCOTTSDALE SERVICE <sup>1</sup>	FY 09	FY 10	FY 11	FY 12 <sup>2</sup>	FY 13 <sup>2-3</sup>
Phoenix Contract	\$2,084,870	\$1,901,570	\$1,920,648	\$2,143,512	\$2,009,857
RPTA/Tempe contract	\$5,002,705	\$3,661,644	\$1,739,608	\$1,094,412	\$924,747
PTF (Prop 400) Service	\$3,959,431	\$3,214,686	\$4,078,300	\$4,034,150	\$3,514,940
<b>TOTAL FIXED ROUTE COST</b>	\$11,047,006	\$8,777,900	\$7,738,556	\$7,272,074	\$6,449,544
Revenue Miles	2,185,397	1,683,281	1,571,899	1,325,428	1,320,131
Boardings	2,156,876	1,699,402	1,424,148	1,643,774	1,700,220
Boardings per Mile	0.99	1.01	0.91	1.24	1.29
Fare Revenue	\$1,692,745	\$1,567,466	\$1,571,610	\$1,521,467	\$1,474,336
Cost per Mile	\$5.05	\$5.21	\$4.92	\$5.49	\$4.89
Cost per Boarding	\$5.12	\$5.17	\$5.43	\$4.42	\$3.79
Fare Recovery Ratio <sup>4</sup>	15.3%	17.9%	20.3%	20.9%	22.9%

# Valley Metro NextRide

- Provides Bus/Rail Arrival Time Information at Stops
- Users Phone or Text the Posted Stop # to Receive the Arrival Time for Next Two Bus/Rail Vehicles
- Currently Not Available for Trolley





# *Trolley System Routes, FY 13*

Route	Coverage
Downtown	Districts, Hotels, Retail, Art
Miller Rd.	Multi Family Housing, Vista Del Camino Community Centers, Coronado and Saguaro High Schools, Scottsdale Community College, Boys and Girls Club, Civic Mall, Retail and connects to Tempe Orbit Earth
Neighborhood	Southern Scottsdale Housing, Vista Del Camino, Piute and Granite Reef Senior Center, Scottsdale HealthCare Campus, Saguaro High School, Boys and Girls Club
Downtown Event Shuttle	March Giants Games and April Arts Festival
Hospitality Route	Links resort residents to events (late December through March)

# *Trolley System*

## *FY 09 to Estimated FY 13 Productivity*

	FY 09	FY 10	FY 11	FY 12	Estimated FY 13
Contract Cost	\$3,278,602	\$2,754,917	\$2,509,816	\$2,502,659	\$2,560,000
Fuel <sup>1</sup>	\$260,904	\$253,304	\$372,269	\$570,759	\$559,117
Total Service Cost	\$3,539,506	\$3,008,221	\$2,882,085	\$3,073,418	\$3,119,117
Vehicle Service Hours	51,334	41,269	54,669	54,857	57,810
Boardings	559,521	611,306	902,033	961,659	990,509
Boardings per Hour	10.9	14.8	16.5	17.5	17.1
Cost per Vehicle Service Hr.	\$63.87	\$66.76	\$45.91	\$45.62	\$44.28
Cost per Boarding	\$5.86	\$4.51	\$2.78	\$2.60	\$2.58

# *Paratransit Programs*

- Cab Connection
- East Valley Dial a Ride
- Reduced Fare ID Card Application Intake
- TC Presentations 11/18/12

# ***Title VI - Civil Rights Act 1964***

- Prohibits Discrimination Based on Race, Color, National Origin, or Limited English Proficiency (LEP)
- Applies to All Programs or Activities That Receive Federal Financial Assistance
- Scottsdale Reporting Required as an FTA Grant Recipient
- Reporting Led to Improvements:
  - Brochures now printed in 5 languages (English, Chinese, Russian, French and Spanish)
  - Vehicle non discrimination information sticker
  - Website posted information

# Brochure Translation

## Russian Example

### D DOWNTOWN ROUTE SCOTTSDALE TROLLEY

- Каждые 15 минут
- 11-18 ежедневно
- 11-21 по четвергам в связи с уличной выставкой художников
- Останавливается на автобусных остановках или по требованию



- Места пересадки:
- T Пересадка на маршрут делового центра
  - T Пересадка на районный маршрут
  - T Пересадка на маршрут улицы миллер

### N NEIGHBORHOOD ROUTE SCOTTSDALE TROLLEY

- Каждые 20 минут
- 7 до 21 ежедневно
- Останавливается на автобусных остановках или по требованию

Примечание: на улице Рузвельт маршрутное такси останавливается только на автобусных остановках



- Кварталы:
- Scottsdale Fashion Square
  - Waterfront
  - SouthBridge

### M MILLER ROAD ROUTE SCOTTSDALE TROLLEY

- Каждые 30 минут по будним дням Каждые 60 минут в субботу/воскресенье/праздники
- 5:30 - 23:00 понедельник - пятница
- 5:00 - 19:00 суббота- воскресенье
- Останавливается на автобусных остановках



- 5-е авеню
- Развлечения
- Старый город
- искусство/ уличная выставка художников

# ***Vehicle Notification Stickers***

## ***Discrimination Complaints***

The City of Scottsdale operates its programs, including the provision of transit services, without regard to race, color, national origin, age, language, religion, sex, income or disability. For inquiries about the City's non discrimination policies or to file a discrimination (Title VI) complaint contact the city call center: 480-312-3111; visit the city website [www.scottsdaleaz.gov](http://www.scottsdaleaz.gov); or contact the federal transit administration (FTA) website [www.fta.dot.gov](http://www.fta.dot.gov)

# *Trip Reduction Program, FY 13*

- Federally Mandated Regional Program, Managed by Maricopa County
  - 81 Employee Bus Passes
    - 16 days per month, then personal use allowed
  - 2 Online Carpool Match Programs – City/Maricopa Co.
  - 28 Employee Carpool/Vanpool Spaces
  - 89 Employee Carpool Passes
  - Van Pool Subsidy Program (1 vanpool)
    - \$45 per vanpool participant
  - Flexible Work Schedules
    - Estimated 35% of workforce
- Estimated Cost \$28,000



# *Capital Projects*

- Shelter/Solar Light Installation (TC 8/19/10)
- Vehicle Replacement (TC 12/15/11 & 2/16/12)
- Mustang Park and Ride (TC 6/21/12)
- Mustang Transit Center (TC 6/21/12)
- No. Scottsdale Park and Ride (TC 9/16/10)
- Thomas Rd. Streetscape (TC 2/17 & 8/23/11)
- ASU/Skysong Transit Center
- Scottsdale Rd. BRT/Enhanced Corridor Service (TC 1/20/11)





# *Bus Shelter Project*

- Estimated 600 Bus Stops with 250 Shelters
- New Shelter Design
  - Modular Seating to Maximize Shade 365 Days/Yr.
  - Recycled Metal Components and Solar Lighting as Needed
  - Air circulation to Cool
  - Accessible and Visible
  - Anti Graffiti Powder Coating
- 15 Constructed (Indian School, Rd., Thomas Rd., Frank Lloyd Wright Blvd.)
- Annual Program Cost \$200,000



# *Vehicle Replacement Project*

- Replace Fleet with 21 – 30&35 ft. Vehicles
  - Low Floor Design With Wheel Chair Ramp
  - Trolley Painted Exterior – All Vehicles
  - Downtown Vehicles W/Trolley Interior
  - Rest Of Fleet With Bus Interior
  - Fuel Efficient Biodiesel Electric Hybrid Powertrain
  - Global Positioning System (GPS)
  - Vehicle Management System (VMS)
  - Automatic Vehicle Annunciator (AVA)
  - Automatic Passenger Counters (APC)
- Estimated Cost \$14 Million



# *Mustang Park and Ride, and Transit Center*

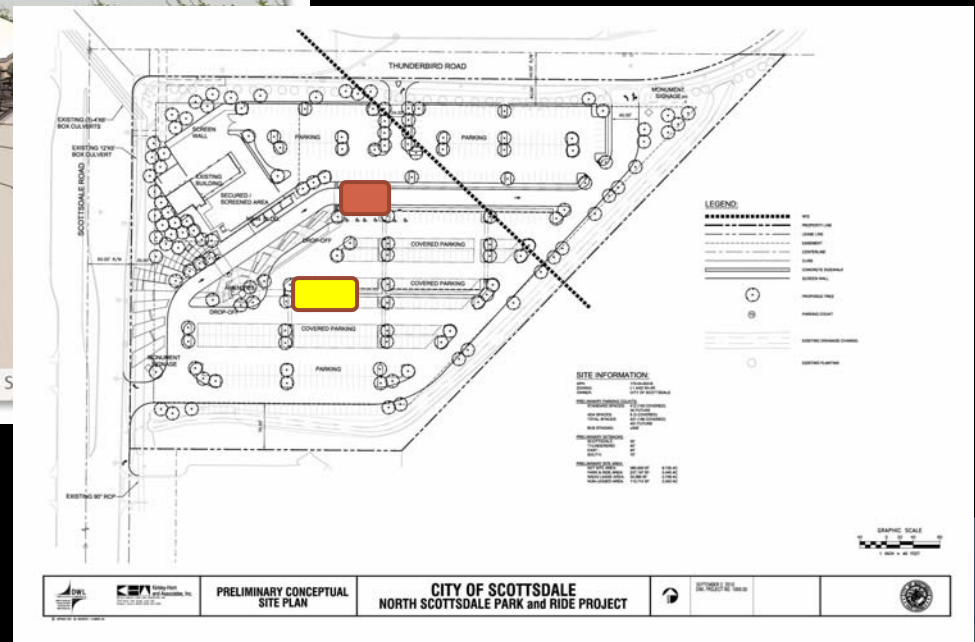
- On Street Transit Centers (Bus Lane)
- Easily Accessible ADA Parking Spaces
- Low Water Landscaping
- Serves 4 Transit Routes - 81, 106, 511, 514
- Up to 250 Shopping Center Spaces
- Estimated Cost \$3.5 – \$4 Million



# *North Scottsdale Park and Ride*

- 275 Parking Spaces, 170 Covered
- Solar Panels - Electricity for Facility Use
- Cool Pavement – Pervious Concrete
- Low Water Landscaping, Storm Water Harvesting
- Easily Accessible ADA Parking and Circulation
- Recycled Materials
- Accommodates 3 Transit Routes (72, 154, 511)
- Estimated Cost \$7 Million (\$5 Million ARRA)

# North Scottsdale Park and Ride

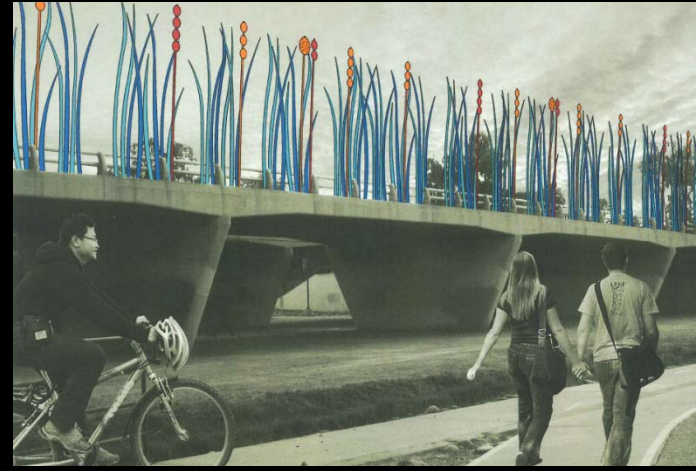


-  Covered ADA Spaces
-  Uncovered ADA spaces

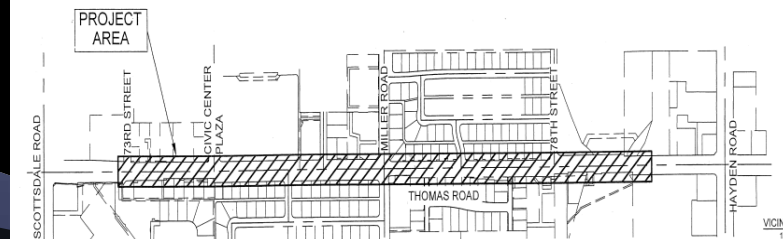
# *Thomas Rd. Streetscape*

- FTA Equity Transferred from Loloma Station to Thomas Rd.
  - New Transit Shelters
  - Bicycle Lanes
  - Improved Pedestrian Access
- Coincides with Hayden Rd./Thomas Rd. Intersection Improvements
- Estimated Transit Cost, \$1.7 Million

# Thomas Rd. Streetscape



THOMAS ROAD BICYCLE LANES & ENHANCED SIDEWALKS  
73RD STREET TO INDIAN BEND WASH BRIDGE  
PROJECT NO. T0606



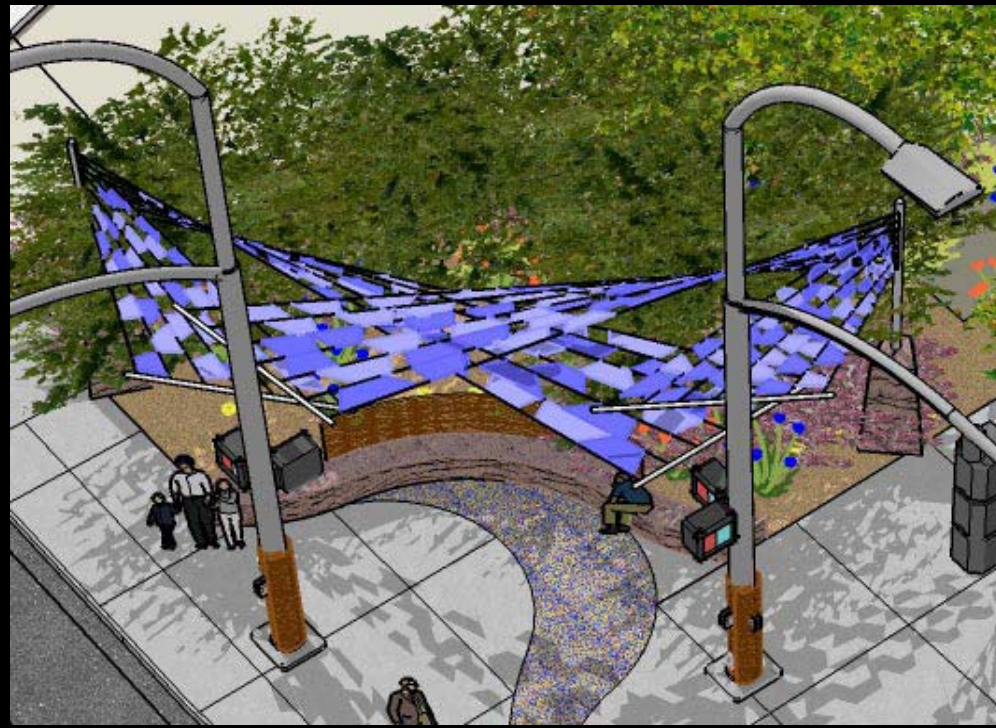
SHEET INDEX		
SHEET NO.	DRAWING NO.	DESCRIPTION
1	CV01	COVER SHEET



# *Skysong Transit Center*

- Scottsdale Rd. On-Street Transit Bays Adjacent to the ASU Technology Center
- Adheres to Scottsdale Rd. Streetscape Design Elements, Including Shelter
- Includes Bicycle and Pedestrian Improvements in the General Vicinity
- Estimated Cost, \$ 1.7 – \$2 Million (

# Skysong Design Elements



# Skysong End Product



# *Scottsdale Rd. Enhancements*

- Tempe to Scottsdale Corridor
  - Scheduled for FY 16 Implementation
  - Increase Level/Frequency of Corridor Service
  - Provide Faster Rail connection
  - Phased Approach, Initial Peak Hour Service
  - Use New “Link” BRT Type Vehicles
  - Utilizes Scottsdale Rd. Streetscape Guidelines



# *Estimated FY 13 City Costs*

## *All Revenue Sources, All Transit Programs*

- \$ 2,935,000 Fixed and Express System
- \$ 3,120,000 Trolley System
- \$ 435,000 Cab Connection
- \$ 28,000 Trip Reduction
- \$ 278,000 EVDAR
- \$ 330,000 Staffing
- \$ 7,126,000 Total Operating
- + \$ 27.8 Million Capital (FY 13-15, Enhancement project not included)
-

# *Upcoming Transit Events*

- Jan. 2013 Express Route 514 Schedule Change
- Jan. 2013 Procure Trolley Operations Contract
- March 2013 Regional Fare Increase
- June 2013 Complete Construction of 15 Shelters with Solar Lighting

## *Upcoming Events (Con't.)*

- July 2013 Trolley Routes Added to Google Maps, and to NextRide with Scheduled Arrival Time
- July 2014 Possible Cab Connection Smart Card Technology
- July 2015 Trolley Routes Added to with NextRide Actual Arrival Time
- FY 13 Transportation Master Plan Update

# *Transportation Master Plan*

## *Transit Element Update*

- Incorporated Information
  - Transit Shelter Design
  - Scottsdale Rd. Enhancements
  - Quieter More Accessible Transit Vehicles
  - Smart Card Applications
  - Regional Express Route Philosophy Change
  - Park and Ride Facility Philosophy



# *Transit Update (Con't.)*

- Neighborhood and Business Transit Coverage
- Park Once Philosophy
- Bike–Ped–Complete Streets-Transit Emphasis
- Transit IT Relationship
  - New vehicles include equipment
- Introduces HCT Transition



# Goals

## Goal 1

### Provide a Safe Transportation Network

Provide a safe and secure transportation network that will reduce injuries and move towards the elimination of deaths from transportation-related causes, protect neighborhood livability, promote public health, and support the function of commercial areas.

Policy 3.1 Evaluate collisions to identify trends that could be addressed by engineering, enforcement, or education. Develop mitigation projects to improve safety, reduce collisions, and move towards having zero fatalities. [Rhode Island video](#)

# Goals

## Goal 2

### Build Complete Streets

Design, operate, and maintain Scottsdale's streets to promote safe and convenient access and travel for everyone.

# Goals

## Goal 3

### Protect Neighborhoods

Protect neighborhoods from negative impacts of regional and citywide transportation networks.

# Goals

## Goal 4

### Increase System Efficiency

Use Transportation Demand Management (TDM) techniques to reduce traffic congestion, improve air quality, shorten the length, and frequency of automobile trips, enhance the environment, and enrich our quality of life.

# Goals

## Goal 5

### Plan for the Future

Expand and enhance a transportation network that provides safe and inviting access to all Scottsdale destinations. Ensure that all projects are environmentally sensitive to our desert, mountains, scenic corridors, and neighborhoods while meeting the high expectations of residents, visitors, and businesses.

# Goals

## Goal 6

### Keep High Values

Maintain Scottsdale's high aesthetic values and environmental standards in the city's transportation system.

# Goals

## Goal 7

### Cooperate with Neighboring Communities

Actively work with adjacent jurisdictions and quasi-governmental agencies to coordinate all planned and existing regional links for streets, transit, paths, trails, and ITS networks.



# Goals

## Goal 8

### Enhance Neighborhood Mobility

Work with schools and neighborhoods and promote opportunities to satisfy their different mobility needs.

# Goals

## Goal 9

### Provide Universal Access

Create a transportation system that complies with the Americans with Disabilities Act and provides accessibility to all users.

# Goals

## Goal 10

### Invest Wisely

Focus investments on improvements which add long-term value and minimize life cycle costs.

# Goals

## Goal 11

### Manage the Right of Way

Effectively and efficiently manage and coordinate activities that occur within the public ROW in a way that enhances safety, coordinates multiple activities, protects existing infrastructure, and preserves mobility.

# Discussion

Are all the goals still appropriate?

Goal 9 is covered in other goals

Are the goals properly ordered?

Other comments?