

STRATEGIES GENERALLY APPROPRIATE FOR PRINCIPAL ARTERIALS

***Principal Arterial Street System** - The urban principal arterial street system should serve the projected major centers of activity of a metropolitan area, the highest projected traffic volume corridors, and the longest projected trips. It should also carry a high proportion of the total projected urban area travel on a minimum of mileage.*

The principal arterial system should carry the major portion of forecasted trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. In addition, forecasts of significant intra-area travel, such as between major inner-city communities, or between major suburban centers should be served by principal arterials. Finally, this system in urbanized areas should connect with all the major rural arterials which enter the urban area.

SYSTEM MANAGEMENT

Signal System Improvements / Coordination - Coordination is important for arterials because of the greater emphasis on mobility for longer trips. Signal coordination is generally appropriate where signals are spaced at intervals between 1/4 mile and 1 mile, depending on the speed of the facility. Other system improvements, such as removal or phasing, must be determined on a site specific basis and should be implemented by the sponsor in addition to ensuring coordination is in place and updated.

The sponsor needs to consult with appropriate staff at the UDOT Traffic Operations Center and potentially other agencies to determine where conduit is needed to improve existing and/ or future signal coordination. The sponsor should also consult with these entities to determine where timing changes and other signal system improvements would help improve traffic flow.

Capacity Additions - New lanes or roads are particularly critical in high growth areas. They are also perhaps more often needed for arterials designed to carry higher volumes. Without proper demand and system management, additional capacity will not prevent congestion in the long term. Hence the federal requirement for the sponsor to implement all other reasonable strategies when capacity is added.

Access Management - Access management is usually most appropriate for arterials, again because of the greater emphasis on mobility. On a few principal arterials, nearly complete control of access (i.e., no private driveway access) is desirable. Freeways, with their full access control (grade separation), are typically located at four to six mile intervals. Other principal arterials are generally placed at two to three mile intervals. Control standards for them must be determined on a case by case basis, with the guiding principle being that mobility is more important than access. Aggressive controls appropriate for these facilities may include acceleration and deceleration lane requirements, left turn restrictions, driveway spacing and consolidation, stricter signal warrants emphasizing progression, and related measures.

The sponsor needs to develop an access management plan that balances socioeconomic impacts of access control with the primary mobility function of the principal arterial. Access should be encouraged on the lower of two intersecting functional classes.

Intelligent Transportation Systems (ITS) - Since principal arterials carry the highest volumes of traffic, and since ITS can significantly increase that carrying capacity, most ITS technologies are appropriate for this functional class. For example, signal communication and incident detection capabilities are usually cost effective. The sponsor should use the ITS Planning Consistency Checklist to assist in identifying appropriate ITS improvements. The sponsor needs to interface as much as possible with both highway and transit elements of the regional ATMS. Much of the existing ITS infrastructure can be viewed at <http://www.wfrc.org/cms/index.php> (look under Programs/ITS).

Incident Management - Because they should carry the highest volumes of traffic, freeways and other principal arterials are most appropriate for incident management. In other words, incident management programs should be focused where they will be most cost effective. Limited access facilities are particularly critical because there are fewer "escape routes" for traffic affected by incidents. Adequate shoulder width should be included for stalled vehicles, etc.

Reversible Lanes - The purpose of reversible lanes is to enhance mobility. They are appropriate under the following conditions: a directional split of greater than or equal to 60/40, right of way limitations, at least two lanes in the direction considered, and low left turn demand. Where left turn demand is high, too much flow conflict would exist for reversible lanes to be feasible.

Improving Intersection / Interchange Geometrics - Intersections generally become the chokepoints of surface streets. The intersection improvements should focus on the through movements of principal arterials. However, widening cross street approaches might facilitate this focus the most.

If right-of-way is available or not excessively expensive, the sponsor needs to incorporate geometric improvements at the intersections or interchanges, as appropriate for the projected volumes along the project facility and intersecting streets. If signal system improvements are anticipated, geometric modifications need to be coordinated with those improvements.

DEMAND MANAGEMENT

Rideshare Programs - Rideshare programs are particularly valid on principal arterials connecting residential development to major employment centers, because they carry high volumes of traffic to the same or nearby destinations, and because they serve longer trips. Regional programs are in place.

Staggered and Flexible Work Hours - The validity of this strategy is similar to that of rideshare promotion. Regional programs are in place.

Telecommuting - The Regional Transportation Plan assumes that telecommuting will increase modestly in the future. Regional programs are in place.

Growth Management / Land Use Planning - The Regional Transportation Plan assumes that growth management will increase modestly in the future. Regional programs are in place.

Transit Improvements - Transit improvements are sometimes regional in nature, and sometimes facility specific. Strategies that may be appropriate for principal arterials include express buses, park-and-ride lots, and new routes or frequency improvements.

Sponsors need to coordinate with UTA for construction of planned transit infrastructure in the project section. Since the purpose of principal arterials is mobility and not access, buses stopping to pick up passengers should not cause delay to automobiles. Therefore, bus pullouts or wider shoulders may be necessary.

High Occupancy Vehicle (HOV) Lanes - The purpose of HOV lanes is to encourage carpooling, which is most likely to occur on longer trips. Hence, they are not appropriate for other functional classes, where trip lengths should not be as great. The higher number of turning movements on lower functional classes also make HOV lanes impractical since they are intended for relatively high speed mobility. HOV lanes should be considered on a limited number of principal arterials with three or more existing or planned lanes in the direction considered, low left turn demand, and average trip length greater than ten miles.

Walk / Bicycle - Principal arterials are relatively high speed facilities with high volumes of traffic. Therefore, walk and bicycle modes may not be appropriate because of safety issues. If bike or pedestrian use is deemed appropriate, facilities must be designed carefully to sufficiently address safety concerns. Regional bike plans may be viewed at [WFRC 2040 RTP Bicycle Base/Priority Plan Routes - Interactive Map](http://WFRC.org/Programs/Bike%20and%20Pedestrian) (look under *WFRC.org/Programs/Bike and Pedestrian* and scroll down under **BIKE AND PEDESTRIAN PLANNING, Regional Priority Bicycle Network** to find the link). If the facility is identified on the priority bike routes, then the sponsor must include appropriate and safe accommodations for bicyclists.

Employer Commute / Trip Reduction Ordinances - Trip reduction ordinances would impact principal arterials. A regional plan is needed for this strategy, but has not yet been developed.

Parking Management / Increase Parking Costs - This strategy is most appropriate on facilities leading to major employment or activity centers. Techniques vary from instituting peripheral parking to removing on-street parking. Methods such as removing on-street parking are generally more appropriate for arterials with their emphasis on through movement.

Increase Gas or Auto-Related Taxes / Fees - This strategy is regional in nature. The Regional Transportation Plan assumes that taxes and fees will continue to increase at or above historical rates.